PETER HAMBRO MINING PLC

11 GROSVENOR PLACE, BELGRAVIA, LONDON, SW1X 7HH
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05 January 2008

Securities and Exchange Commission
Division of Corporate Finance
Office of International Corporate Finance, Stop 3-2
450 Fifth Street, N.W.
Washington, D.C. 20549
USA

09045001

RE: Peter Hambro Mining Plc
Exemption No. 082-34734

Dear Sir and Madam:

Enclosed is the following information required to be furnished by Peter Hambro Mining Plc to the Securities and Exchange Commission pursuant to Rule 12g3-2(b) the Securities Exchange Act of 1934:

SUPPL

Announcement of:

- 19th September 2008;
- 22nd September2008 (2);
- 23rd September 2008;
- 25th September 2008 (2);
- 30th September 2008;
- 21st October 2008 (2);
- 22nd October 2008;
- 05th November 2008;
- 13th November 2008;
- 14th November 2008;
- 18th November 2008;
- 24th November 2008;
- 25th November 2008 (2);
- 26th November 2008 (3);
- 28th November 2008;
- 05th December 2008;
- 16th December 2008;
- 19th December 2008.

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Yours faithfully

PETER HAMBRO MINING PLC

By: P. Simpson.

Heather Williams
Company Secretary

PETER HAMBRO MINING PLC

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PETER HAMBRO MINING PLC

19 September 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Standard Life Investments Limited that its holding in the Company has increased to 4,240,629 Ordinary shares of £0.01 each, representing 5.225% of the total issued share capital of the Company.

Enquiries:

Alya Samokhvalova	Director of External Communications	+44 (0) 20 7201 8900
Tom Randell	Merlin	+44 (0) 20 7653 6620
Patrick Magee	JPMorgan Cazenove	+44 (0) 20 7155 4525

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PETER HAMBRO MINING PLC

22 September 2008

Holdings in Company

Peter Hambro Mining Plc (the 'Company') has received notification by Black Rock Inc that its holding in the Company has decreased to 10,350,552 Ordinary shares, representing 12.75% of the total issued share capital of the Company.

Enquiries:

Alya Samokhvalova	Director of External Communications	+44 (0) 20 7201 8900
Tom Randell	Merlin	+44 (0) 20 7653 6620
Patrick Magee	JPMorgan Cazenove	+44 (0) 20 7155 4525

PETER HAMBRO MINING PLC

INTERIM REPORT FOR THE PERIOD ENDED 30 JUNE 2008

HIGHLIGHTS

Peter Hambro Mining Plc ("PHM", the "Company" or the "Group") is pleased to present the results for the six months ended 30 June 2008 (the "Period").

Financial Highlights US$000's	Six months to 30 June 2008 (Unaudited)	Six months to 30 June 2007 (Unaudited)	% Variance	Year ended 31 December 2007 (Audited)
Group Revenue	146,390	93,128	57%	226,397
Revenue from gold mining operations, including silver sales	107, 804	70,366	53%	168,538
Underlying EBITDA*	59,541	43,977	35%	96,462
Underlying operating profit from gold mining operations**	58,127	41,195	41%	90,719
Dividend per Ordinary Share (pence)	7.5	N/A	N/A	N/A
Operating Highlights				
Total attributable gold production ('000 oz)***	147.0	134.3	9%	297.3
Pokrovskiy Mine gold production ('000 oz)	127.8	116.8	9%	237.1
Group average gold price received (US$/oz)	901	652	38%	668
Pokrovskiy Mine Total Cash Cost (GIS US$/oz)	214.7	167.9	28%	193
Pokrovskiy Mine Total Production Cost (GIS US$/oz)	306.6	249.9	23%	258.2

* Underlying EBITDA is earnings before fair value changes, financial income, financial expenses, taxation, depreciation and amortisation and adjusted for significant, non-recurring items included in the results for the Period.

** Underlying operating profit from gold mining operations is operating profit from gold mining operations including the share of results of joint ventures and before fair value changes in derivatives, adjusted for significant, non-recurring items included in the results from gold mining operations for the Period.

*** Total attributable gold production, in this table and elsewhere in this report, is comprised of 100% of production from the Group's subsidiaries, and the relevant share of production in joint ventures and other investments. PHM's direct and indirect interest in Pokrovskiy Rudnik and any interest held by Pokrovskiy Rudnik, is 98.61%.

UNAUDITED RESULTS

- Unaudited results for the Period for PHM compared to the equivalent period of 2007:

Highlights:

Financials

- The Group's total revenue of US$146.4 million for the Period was a 57% increase on US$93.1 million for the same period of the previous year. The Group's average realised gold sales price of US$901/oz during the Period was 38% higher than the US$652/oz achieved for the first six months of 2007. This, together with a c.10% increase in the quantity of gold sold, yielded revenue from gold mining operations of US$107.4 million, up 53% in comparison with revenues of US$70.4 million in the first six months of 2007;

- Underlying EBITDA was up by 35% to US$59.5 million. The Group's underlying profit from gold mining operations increased by 41% to US$58.1 million, compared to US$41.2 million for the first six months of 2007. This was achieved against a background of inflationary pressures with the Group experiencing increases in labour costs, energy costs and the cost of materials;

- In June 2008, a PHM-led syndicate made a US$80 million strategic investment by way of an exchangeable loan to Rusoro Mining Limited ("Rusoro"), a TSX Venture Exchange listed gold producer and exploration company in Venezuela. PHM contributed US$20 million as part of the syndicate; and

- The Group paid a maiden final dividend in August 2008 in respect of the year ended 31 December 2007 equivalent to c.£6 million, and approved an interim dividend of 7.5 pence per share (net) on 17 September 2008.

Operations

- Total attributable gold production of c.147,000 oz for the Period, was up by c.9% compared to c.134,300 oz in the first six months of 2007. Total attributable gold production, as stated in this report, is comprised of 100% of production from the Group's subsidiaries, and the relevant share of production in joint ventures and other investments. The Company's direct and indirect interest in Pokrovskiy Rudnik and any interest held by Pokrovskiy Rudnik is 98.61%;

- Gold production from the Pokrovskiy Mine for the Period was c.127,800 oz, up by c.9% compared to c.116,800 oz in the first six months of 2007;

- Pokrovskiy Mine GIS total cash costs for the Period increased by c.28% compared to the six months ended 30 June 2007, due principally to higher wage, energy and materials costs. Pokrovskiy Mine's GIS total cash costs of US$215/oz are less than half the industry average of US$454/oz;

- Start-up works at Pioneer were finalised during the first half of 2008 yielding 3,600 oz of gold. Production at the Pioneer processing facility is currently expected to yield 72,000 oz of gold from the commencement of production in late April 2008 to 31 December 2008;

- Attributable production at Omchak Joint Venture of c.8,400 oz of gold for the Period was 26% down from c.11,400 oz in the first half of 2007 due to the depletion of reserves at Nelkobazoloto underground mining operations;

- Attributable production from the Group's alluvial operations for the Period was c.4,800 oz, a 23% increase on the same period in 2007; and

- The Directors believe that the Group is currently on track to meet its 350,000–400,000 oz production target for 2008.

Estimates of attributable reserves and resources in accordance with the JORC Code (2004) prepared by Wardell Armstrong International Ltd ("WAI"):

WAI has reviewed the mineral resources and ore reserves estimated in accordance with the guidelines of the JORC Code (2004) for the Pokrovskiy and Pioneer deposits and has produced a new set of estimates for the Malomir deposit as of 1 August 2008.

- Total measured plus indicated resources at Pokrovskiy, Pioneer and Malomir of c.107 million tonnes of ore containing c.4.4 million oz of measured and indicated gold resources;
- Includes total of c.3.6 million oz of proven and probable reserves;
- Additional total c.4.5 million oz of inferred resources.

Pokrovskiy

- Proven and probable reserves in the existing Pokrovskiy pit and the Pokrovka-3 pit of 370koz gold (5.6Mt of ore) included within 472koz gold of measured plus indicated resources (8.4Mt of ore);
- These figures do not include the significant additional potential resources in the adjacent Pokrovka-2 area and Pokrovskiy's stockpiles;
- There is good correlation between Pokrovskiy reserves and resources as estimated using Micromine, with JORC classification, and for the same area using Russian methods and the Russian classification system (inclusive of JORC inferred resources and Russian P1 resources, respectively), with similar total estimated gold contents of 1.02 million oz and 1.05 million oz respectively.

Pioneer

- Proven and probable reserves defined at Pioneer, including the Andreevskaya zone, are 1,154koz gold (27.5Mt of ore) of measured plus indicated resources of 1,404koz gold (34.1Mt of ore). There is substantial expansion potential, with 41.7Mt of ore containing a further 1,320koz gold in inferred category resources, and active exploration continuing on Andreevskaya and other ore zones.

Malomir

- The Malomir data in particular shows a substantial increases on previously published mineral resources and ore reserves, with proven plus probable reserves of 50.8Mt of ore containing 2,057koz gold, within a total measured plus indicated resource of 64.4Mt of ore containing 2,495koz gold; and
- There is significant scope for enlargement of these figures as signified by a further 2,645koz (87.5Mt of ore) in inferred category resources. Not included in these figures are further potential resources in the adjacent Ozhidaemoye and Quartzite deposits which are still being delineated.

Malomir Project Update

- Malomir reserve estimates completed for submission by the end of 2008 to Russian state authorities, and detailed mine planning/scheduling work started;

- Six months delay, with production now expected to commence in the first half of 2010 due principally to the late arrival of the SAG mill from the Group's supplier and the necessity to undertake further exploration of the prospective Quartzite zone; and
- Enriched areas were identified at Quarzite and Ozidaemoye satellite deposits with maximum recorded gold grades up to 300 – 500 g/t for 1m thickness.

Board Membership changes

- Anna-Karolina Subczynska-Samberger (Karolina Subczynska) joins as an Executive Director with responsibility for the Group's legal services.
- Philip William Leatham (Philip Leatham), a founding director and latterly a Non-Executive Director, has decided that, for health reasons, he will resign from this role; his resignation will take place with effect from 30 September 2008.

CHAIRMAN'S STATEMENT

Dear Shareholder,

In the first half of 2008, usually the colder and thus the less productive of our two half-years, the Group has increased its gold production, achieved higher prices for its gold and continued to develop its portfolio. It is gratifying that the underlying operating profit of the Group's gold mining operations has shown a 41% increase to US$58.1 million for the Period. This increase is a testament to the strength inherent in its core business.

It is also reassuring that this increase in underlying operating profit from gold mining operations was achieved in spite of substantial rises in input costs. The Group remains an industry low cost producer with the Pokrovskiy Mine's GIS total cash costs of US$214.7/oz comparing favorably to the US$453.5/oz which is the global industry average.

These relatively low GIS total cash costs at the Pokrovskiy Mine were achieved in spite of labour costs increasing by 32%, diesel by 41%, electricity by 14% and chemical reagents and consumables by 20% during the first six months of 2008 compared to the first six months of 2007. Royalties payable on the Group's revenues from gold mining operations also increased by 35% because of the increased selling price for gold. These producer price increases are Russian Rouble denominated and are substantially higher than general Russian inflation but typical for the gold mining industry this year. The strengthening of the Russian Rouble against the US Dollar by 4% during the first six months of 2008 also added additional pressure on the Group's costs which are reported in US Dollars. Unfortunately, at the moment, there are no signs of these cost increases abating. The Group's cost cutting programme which was successfully implemented in 2005 is being modified to take account of the changing circumstances.

During the half year we expensed c.US$7 million on a number of non-recurring items which, together with the net non-cash fair value changes in the Group's gold exchangeable bonds and exchangeable loan to Rusoro has lowered its reported earnings by US$10 million. It is gratifying that the Group remains strongly profitable despite the impact of these items on earnings.

Progress at the newly inaugurated Pioneer operation started more slowly than we had hoped but we still expect Pioneer to achieve its forecast production for the year of 72,000 ounces.

A further anticipated delay to the start of production at Malomir is disappointing. This is caused in part by a delay in receiving milling equipment from our supplier and in part by the assessment of possible changes to the production schedules dependent on exploration of newly discovered enriched areas at the Quartzite zone. It is now expected that production will start in the first half of 2010.

The Group expects that mining operations at the Novogodnee Monto and Petropavlovskoye deposits will commence towards the end of 2009. At present we anticipate selling the first aggregates in late 2009.

The Group is monitoring the progress and implementation of new legislation on strategic assets in order to determine what steps will be required to be taken and what effect it may have on the current and/or future operations of the Group.

The Group's investment as part of the syndicate of lenders to Rusoro gives it a foot-hold to participate in the development of Venezuela's gold industry.

I am pleased that Karolina Subczynska has agreed to join our Board as an Executive Director responsible for legal services but I will be saddened to lose the wise counsel of Philip Leatham, who was a founding director of the Group in 1994 and has decided, for health reasons to resign.

In the turmoil that today surrounds the world's financial system there is serenity at the heart of the Group, secure in the knowledge that its reserves and resources of gold – in my view the ultimate reserve asset – have, in the case of the Pokrovskiy, Pioneer and Malomir deposits, been confirmed to JORC classification standard by WAI as well as by our own geologists.

Based on this knowledge and on the proven success of our team in producing profitable gold I remain confident that we can continue to develop the assets of the Group whilst weathering the financial storms we may encounter.

Peter Hambro

Executive Chairman

GROUP OPERATIONS REPORT

Pokrovskiy Mine

The main contributor to the Group's success in the first half of 2008 was the 9% increase in gold extraction from the Pokrovskiy Mine compared to the same reporting period in 2007. The mine produced c.127,800 oz of gold in the first six months of 2008 up from to c.116,800 oz in the same period of 2007.

This increase was made possible by the efficient mining plan and the stable work of the plant. It was also achieved despite mining works being undertaken at deeper horizons than in the same period in 2007, an increase in material moved due to large volumes of advanced stripping works, a more technologically challenging type of material being processed through the mill and a temporary drop in recovery rates at the plant, which was due to the introduction of new centrifugal concentrators to the grinding circuits.

Mining Operations

Planned advance stripping works were carried out according to the mining plan using geological computer models of the deposit (Micromine). The capacity of the intermediate blending ore stockpile was increased further to 200,000 tonnes which allowed for an optimal ore mixture to be sent to the resin in pulp plant. The commissioning of a new drilling rig (model Atlas Copco DML) with a higher productivity and drilling diameter than the Group's previous rigs allowed for a reduction of total costs of mining works, in spite of increased explosive works.

Six open pit dumper trucks with a capacity of 45 tonnes were brought into service in January 2008. These allowed mining works to be carried out in accordance with the mining plan to increase the stripping rate.

		Six months to 30 June		
	Units	2008	2007	Var. %
Mining				
Total Material Moved	'000 m^3	2,899	2,458	18%
Ore mined	'000 t	1,059	1,197	(12)%
Average grade	g/t	3.2	3.6	(11)%
Gold content	'000 oz	107.5	136.8	(21)%

Processing Operations

Resin in Pulp Plant

During the first half of 2008 work at the mill was stable. 837,000 tonnes of ore were treated through the mill in the first half of the year, which is broadly in line with the 863,000 tonnes milled during the same period in 2007.

Recovery rates for the Period temporarily fell to 86.7% (from 91.0% during the first six months of 2007). It is expected that after the introduction, in the Period, of the centrifugal concentrators to the grinding circuits (which enables refractory material to be extracted for subsequent processing by intensive cyanidation), the recovery rates should improve. The introduction of these concentrators delayed concentrate processing by 6 to 8 weeks.

Heap Leach

As a result of the increased daily productivity of the heap-leach complex, 16% more ore was stacked on the heap leach pads compared to the same period in 2007 (410,000 tonnes of ore in comparison with 354,000 tonnes of ore). This, together with a long winter, led to irrigation of the heap leach pads starting later than usual, meaning that extraction during the Period was lower than during the first six months of 2007. It is anticipated that more gold will be recovered in the second half of 2008 than during the second half of the previous year.

Pokrovskiy Mine Processing Operations

		Six months to 30 June		
	Units	2008	2007	Variance %
Resin in pulp plant				
Ore from pit	'000 t	632	352	80%
Average grade	g/t	4.3	4.4	(2%)
Ore from stockpile	'000 t	125	511	(76%)
Average grade	g/t	3.6	4.4	(18%)
Pioneer Ore (technological sample)	'000 t	81	-	n/a
Grade	g/t	15.8	-	n/a
Total milled	'000 t	837	863	(3%)
Average grade	g/t	5.3	4.4	20%
Gold content	'000 oz	142.4	122.7	16%
Recovery rate	%	86.7	91.0	(5%)
Gold recovered	oz `000	123.5	111.7	11%
Heap Leach				
Ore stacked	'000 t	410	354	16%
Average grade	g/t	0.8	0.8	-
Gold content	'000 oz	11	10	10%
Recovery rate	%	38.6	53.6	(28%)
Gold recovered	'000 oz	4.3	5.1	(16%)
Total gold recovered	**'000 oz**	**127.8**	**116.8**	**9%**

Gold Institute Standard Operating Cost Analysis

The Group reports and breaks down the Pokrovskiy Mine's operating costs according to the internationally recognised Gold Institute Standard ("GIS"). This is in line with industry best practice.

The Pokrovskiy Mine GIS cost analysis is as follows:

	Six months to 30 June 2008 US$/oz	Six months to 30 June 2007 US$/oz	Variance %	Year ended 31 December 2007 US$/oz
Direct mining expenses	101.0	71.3	42%	107.4
Refinery and transportation cost	7.6	6.3	21%	6.8
By-product credits	(3.2)	-	N/A	(2.3)
Other	43.2	38.2	13%	30.9
Cash operating costs	**148.6**	**115.8**	**28%**	**142.8**
Royalties	57.8	42.8	35%	39.9
Production taxes	8.3	9.3	(11%)	10.3
Total cash costs	**214.7**	**167.9**	**28%**	**193.0**
Non-cash movement in stock	36.7	30.0	22%	23.2
Depreciation/Amortisation	55.2	52.0	6%	42.0
Total production costs	**306.6**	**249.9**	**23%**	**258.2**

For the six months ended 30 June 2008, GIS total production costs for the Pokrovskiy Mine increased by US$56.7 per ounce or by 23% from US$249.9 per ounce for the six months ended 30 June 2007, to US$306.6 per ounce for the six months ended 30 June 2008. This increase was relatively modest, considering the Group experienced a 32% increase in wages and salaries, a 20% increase in chemical reagents and consumables, a 41% increase in diesel fuel and a 14% rise in electricity prices.

Royalties increased by 35%, in line with the increase in the average realised gold price, meaning that total cash costs for the Period increased. Non-cash movement in stock has increased due to material treated in the current Period but mined in the previous years.

Pioneer Mine

Work at Pioneer during the first half of the year continued with the ramping up of the recently commissioned plant and its further expansion.

The Group believes that Pioneer is on-track to meet its production target of 72,000 oz for the year, despite initial start up problems delaying the commencement of heap leach operations by 4 weeks. In July and August, Pioneer was ramping up in line with the mining and processing schedule in accordance with the mine plan for 2008.

The second phase of mine development continued, including work on the construction of the production facilities (including the crushing/grinding plant and sorption circuits). These works also included the enlargement of the leach pad areas, expansion of the tailings storage and completion of infrastructure development. Contracts have been entered into for delivery of all the main mineral processing and mining equipment for the whole Pioneer development. A delivery of four CAT 777F 90-tonne capacity pit trucks is expected by the end of the year.

Mining Operations

Mining works during the Period concentrated on providing access to the ore planned to be treated through the Pioneer mill during the first phase of the plant's development and further preparation of the deposit for the second and third phases of the development of the processing complex. These works were in line with the Group's mining plan.

The table below sets out a summary of mining operations:

		Six months to 30 June		
	Units	2008	2007	Variance %
Mining				
Total Material Moved	'000 m^3	1,258	666	89%
Ore mined	'000 t	174	38	>100%
Average grade	g/t	9.5	1.8	>100%
Gold content	'000 oz	52.8	2.2	>100%

Processing Operations

During the first half of 2008 efforts at Pioneer were concentrated on the ramping up of the new plant and securing its satisfactory operation. A total of 88,000 tonnes of material were processed through the mill during the Period, yielding 3,600 oz of gold.

A 50% recovery rate from the heap leach operations was achieved during the first half of the year. However, further irrigation of the heap leach pads means that the budgeted 73% recovery rate is expected to be achieved by the end of the year.

Pioneer Mine Processing Operations

	Units	Six months to 30 June 2008
Ore from pit	'000 t	88
Average grade	g/t	2.5
Ore from stockpile	'000 t	3
Average grade	g/t	2.8
Total milled	'000 t	91
Average grade	g/t	2.5
Gold content	'000 oz	7.4
Recovery rate	%	48.9%
Gold recovered	**'000 oz**	**3.6**

Pioneer Mine's Production Costs

As the Pioneer Mine is currently in the ramp-up phase, with limited production of 3,600 oz and sold product of 640 oz for the six months ended 30 June 2008, cash costs incurred from the commencement of production in late April 2008 to 30 June 2008 are not a meaningful indicator of the expected future performance of the Pioneer Mine for the balance of the year ended 31 December 2008 or thereafter.

Malomir Deposit

During the first half of 2008, work at the Malomir deposit concentrated on preparing the main part of the deposit for exploitation, with a whole scope of works required for preparation of a feasibility study being carried out. A pre-feasibility study, including a preliminary open pit design, has been completed by the Group and it is expected to be submitted to Russian State Mineral Resources/Ore Reserves Authority ("GKZ") by the end of 2008.

Construction of the main part of the general infrastructure is scheduled for the second half of 2008. The construction of an electric line to Malomir has been commenced and it is expected that the electric line and substation at Malomir will be commissioned in the first quarter of 2009. A six month delay of commissioning of the mine is expected principally due to the late delivery of the SAG mill from the Group's supplier and the necessity to explore newly discovered enriched areas at the Quartzite satellite deposit. It is hoped that the presence of such enriched areas can significantly improve the economics of the deposit.

Explorations work to date has identified ore bodies of up to 500 m at average gold grades of 1.87-2.18g/t. Enriched areas characterised by both increased thickness and higher grades. Six such areas have already been explored with grades varying between 6 g/t and 50 g/t and thickness between 11.2 m and 68.8 m. Maximum recorded gold grades are up to 300-500 g/t for 1 m thickness. Visible gold can be found in these areas.

Alluvial Production Operations

About 4,800 oz of gold were produced at the Group's alluvial mining operations (OAO ZDP Koboldo, ZAO Amur Dore and OOO Elga) during the first half of 2008, representing a 23% increase on the figure for the first six months of 2007. In addition, extensive exploration works were carried out at seven new sites.

Joint Ventures

Omchak Joint Venture

Gold production for the first six months of 2008 from the Omchak Joint Venture amounted to c.16,900 oz. Of this amount c.8,450 oz (50%) are attributable to the Group, in accordance with its 50% share in Omchak. This figure was in line with the Group's internal budget for the Period. Preparation works for the 2008 production season were carried out at Omchak's subsidiaries, OOO Zeyazoloto and OOO Noviye Tekhnologii during the first six months of 2008. These works included stripping works, the assembly of washing equipment, the delivery of fuels and lubricants, plus technical repairs. In accordance with approved plans and licence conditions, Omchak also carried out geological exploration works at three projects in the Chita Region.

Rudnoye Joint Venture

In the first half of 2008, the Rudnoye Joint Venture produced c.900 oz of which 50% is attributable to the Group.

Summary of Mineral Resources and Ore Reserves estimated in accordance with the guidelines of the JORC Code (2004) prepared by WAI

WAI has reviewed the mineral resources and ore reserves estimated in accordance with the guidelines of the JORC Code (2004) for the Pokrovskiy and Pioneer deposits and has produced a new set of estimates for the Malomir deposit.

Cut-off-grades used for mineral resource estimation were 0.4g/t Au (oxide and sulphide) at Pokrovskiy; 0.4g/t Au (oxide) and 0.6g/t Au (sulphide) at Pioneer; 0.4g/t Au (oxide and sulphide) at Andreevskaya and 0.6g/t Au (sulphides only) at Malomir (based on a gold price of US$650/oz).

- At Pokrovskiy, continued exploration has yielded current proven and probable reserves in the existing Pokrovskiy pit and the Pokrovka-3 pit of 370koz gold (5.6Mt of ore) included within 472koz gold of measured plus indicated resources (8.4Mt of ore). These figures do not include the very significant additional potential resources in the adjacent Pokrovka-2 area - the fanglomerates and underlying hard-rock mineralisation - for which mineral resource estimates are yet to be produced.
- Proven and probable reserves defined at Pioneer, including the Andreevskaya zone, are 1,154koz gold (27.5Mt of ore) of measured plus indicated resources of 1,404koz gold (34.1Mt of ore). As at Malomir, there is substantial expansion potential, with 41.7Mt of ore containing a further 1,320koz gold in inferred category resources, and active exploration continuing on Andreevskaya and other ore zones.
- The Malomir data in particular show substantial increases on previously published mineral resources and ore reserves, with proven plus probable reserves of 50.8Mt of ore containing 2,057koz gold, within a total measured plus indicated resource of 64.4Mt of ore containing 2,495koz gold. There is significant potential scope for enlargement of these figures as signified by a further 2,645koz (87.5Mt of ore) in inferred category resources. This increase reflects the large amount of detailed exploration work completed during the past year on the Malomir deposit itself. Not included in these figures are further potential resources in the adjacent Ozhidaemoye and Quartzite deposits which are still being delineated.

A summary of these mineral resources and ore reserves is given in Table 1 below.

Table 1: Summary of Mineral Resources and Ore Reserves estimates for Pokrovskiy, Pioneer, and Malomir Estimated in accordance with the guidelines of the JORC Code (2004)[1]					
	Category	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Resources	*Measured*	28,239	1.42	40,005	1,285
	Indicated	78,618	1.22	95,999	3,087
	Measured+Indicated	106,856	1.27	136,004	4,372
	Inferred	142,179	0.98	139,686	4,492
Reserves*	Proven+Probable	83,900	1.33	111,400	3,582
** Reserves included within the Measured and Indicated resources only*					

[1] All statements of reserves and resources set out in this Summary are calculated on the basis of 100% ownership. Pokrovskiy, Pioneer and Malomir are 98.61% attributable to PHM.

Pokrovskiy resources as estimated using Micromine, with JORC classification, and for the same area using Russian methods and the Russian classification system (inclusive of JORC inferred resources and Russian P1 resources, respectively), with similar total estimated gold contents of 1.018 million oz and 1.05 million oz respectively. Both figures exclude stockpiles and also exclude any resources in Pokrovka-2 and other satellite deposits. The Russian resource figures of 2.295 million oz as published in the annual report for 2007 include 1.138 million ounces of gold in high-grade stockpiles (182koz), low-grade stockpiles (92koz), low-grade material in RIP tailings (96koz), inner flanks deposits, principally the Pokrovka-2 fanglomerates and associated hard-rock ore bodies (553koz), and additional resources in the mine area but not within the area of the Micromine model (215koz). There was also 107 koz of depletion in reserves due to production between January and June 2008, not allowed for in the annual report figures referred to above.

Exploration

During the first half of 2008, the Group's exploration team concentrated their efforts on preparing the Group's most advanced projects for exploitation. Work on the Group's other projects was advanced in accordance with the Group's exploration plans. A total of 348,600m³ of trenching and 105,642m of drilling was carried out by the Group during the first six months of 2008.

NPGF Regis, the Group's in-house exploration consultancy, finalised the construction of a metallurgical test plant during the first half of 2008. It is expected that this plant will be commissioned in December 2008.

Significant developments during the report Period include:

Pioneer

- The Bakhmut zone extension is confirmed and a new ore column has been discovered in two drill hole intersections (10.7m averaging 10.56g/t and 7.7m averaging 4.91g/t) with other ore zones adjacent. At least four zones intersected over a 140m width.

- The Andreevskaya zone has been followed to the north-east for over 4km towards the expected intersection with Yuzhnaya zone where another ore column is anticipated. Positive results have been obtained;
- Within the Andreevskaya pilot open-pit, detailed evaluation is being carried out by assaying blast-hole cuttings. These samples have yielded surprisingly high gold grades in some instances over 1000 g/t. The zone of high grades is narrow but continuous. In places, the ore zone as identified by blast-hole and channel sampling is unbounded;
- At the junction of Andreevskaya and Prikontaktovaya ore zones, mineralised crush zones have also been identified., Gold grades up to 16.84g/t have been found within individual intervals.
- The Andreevskaya zone has also been followed to the south-west where its extension has been explored to a total length of 620m, through drill holes and trenches. Separate ore bodies, sometimes with high gold grades (up to 36.9g/t), have been discovered and exploration of this area is scheduled to continue into the second half of the year;
- Nikolaevskaya – a new prospective zone to the south of Andreevskaya has been identified with a number of thin zones of crushing and silicification, with up to 1-2 g/t gold, and has been followed in trenches and drill holes.

Pokrovskiy satellite deposits

Pokrovskiy inner satellite deposits

During the first half of 2008 exploration works were carried out at 6 sites within the Pokrovskiy inner satellite deposits. The most prospective area was Pokrovka-2.

- Exploration at Pokrovka-2 has identified a number of resource blocks which have been evaluated, and has delineated the deposit on east, south, and west sides. It remains unbounded to the north;
- In the Pokrovka-2 block, exploration of low-grade reserves is in its final stage, and work is concentrated on delineation of previously identified ore bodies and infill drilling to a 40m x 40m grid;
- In several of the trenches and holes, the presence of gold-enriched areas in the fanglomerates was established; this could improve the processing economics, by eliminating the need for pre-washing of some of the ore;
- A feasibility study with calculation of reserves and resources for this area is scheduled to be submitted to GKZ in the first quarter of 2009.

Pokrovskiy outer satellite deposits

Of the four sites within the Pokrovskiy outer satellite deposits, currently the most prospective appears to be Zheltunak, where there is the potential for a near-surface ore body of significant size, with sub-horizontal orientation.

- Exploration during the Period at Zheltunak was carried out by six trenches to confirm the results from mapping drill holes;
- A significant ore zone was discovered in February 2008. It is exposed near the crossing point of two trenches, with a 7m intersection at 2.8g/t gold, and lies immediately below a horizontal thrust plane.

Malomir

During the first half of 2008, exploration works at Malomir were concentrated mainly on infill drilling to 20m x 20m in delineation blocks to satisfy the requirements of the Russian state authorities. Metallurgical studies for the purposes of the Russian feasibility study were accomplished with 11 small mineralogical-metallurgical samples taken.

- 24 confirmation holes were drilled in order to evaluate the reliability of the core sampling from the Malomir deposit and it was established that there are no systematic differences in the mineralisation parameters between the exploration and the control drill holes;
- In the Quartzite area, gold ore zones have been evaluated through trenching and drilling on an 80m x 40m grid. The most continuous ore bodies have been evaluated to category C2 using the Russian Classification System. The length of these ore bodies reaches 500m with average gold grades at 1.87 - 2.18 g/t;
- Gold enrichment areas were discovered at the Quartzite deposit. Six ore intersections have been identified with gold grades from 6.36g/t over a visible thickness of 68.8m up to 50.76g/t over 11.2m thickness. The maximum gold grades in separate samples reach 300-500g/t over 1m. In such places visible free gold at 0.5-0.8 mm size has been noticed;
- A pre-feasibility report is to be submitted to GKZ by the end of the year 2008 and work by PHM Engineering on pit design commenced in September;
- The metallurgical sampling programme has been completed.

Albyn

- The zone of mineralisation has been traced in trenches for 4.5 km at spacings of 80 - 320m. Down dip, the zone has been explored in 187 drill holes to 500m depth. The ore zone remains open in all directions;
- Gold is distributed irregularly. The gold grade in channel samples is up to 12.4 g/t and in trench sections it is up to 4.2 g/t with thickness of ore intersections is up to 12m. In core samples, the maximum gold grade reported is 18.4g/t. In drill hole intervals, grades are up to 7.4g/t over a maximum thickness of 15m;
- A sample processing and assaying method has been developed to provide reliable figures for resource estimation;
- Further detailed exploration is needed to clarify the geological structure and ore controls.

Tokur

- The report on the completed reserves estimation for the mineralised zone of the Glavniy Fault, Tokur deposit, was prepared and submitted for approval during the Period. It is currently undergoing technical audit in the Khabarovsk branch of GKZ. The following operational estimates were submitted for approval: balance reserves in category C2 using the Russian Classification System for open pit mining: 1,750,500 t ore containing 3,118 kg (100 koz) gold.

Saguro-Semertakskiy

This is a new licence area near Tokur in the north east of Amur region and lying in two areas west and east of the Selemdja river, previously the location of the underground Sagur mine working high-grade gold in quartz veins. It is now considered highly prospective for metasomatite-hosted gold, of a type and scale similar to Malomir or Albyn.

- The quartz veins, dipping NE at 45 degrees, are 0.3 to 3.2m thick and reported to contain gold up to 40 - 60g/t grades up to a maximum of 2,700g/t, associated with arsenopyrite, pyrrhotite, and scheelite;
- A preliminary estimate of resources is 17.5 tonnes of gold contained in the smaller eastern (Sagur) part of the licence alone;
- A number of further prospects have also been identified in the larger western area of the licence. A granite intrusion in this area is crossed by a N-S mineralised crush zone. There are also two convergent crush zones trending east-west across the area, and trenching is planned to explore these;
- The licence area includes also placer deposits which are to be exploited by the Company.

Rudnoye Joint Venture

Exploration works were undertaken during the Period at Solovievskiy (including the Kirovskoye deposit) hard-rock gold area. The Solovievskiy licence includes the separate Kirovskiy, Glebovskiy, and Nagiminskiy blocks.

- Intensive exploration around the Kirovskoye deposit indicates high grade gold within silicified and sulphidised rocks in three separate zones around the known quartz vein systems. The Kirovskoye gold ore deposit remains a very positive target because of the combination of high grades with stockworks and multiple vein structures;
- From data received so far, significant intersections have already been identified, including 25m averaging 4.6g/t (including 4m at 41g/t). In the next trench, a corresponding interval has been identified with 15m at 11.9g/t average grade;
- Altogether a total of six ore intervals have been found so far. The structure has been followed for 2.5 km in geophysical data;
- Glebovskiy block geochemical survey results have now been received from this area over a rectangular block 2km wide and 3km N-S, and indicate some strong anomalies.

Other Amur Assets

During the Period works have been carried out on the other Amur region projects, highlights of which are presented below:

- Adamikha - a single trench intersection of 3m at 19.6g/t gold in the Galenitoviy area has been found. The scale of this mineralisation is currently being estimated. Gold grades are up to 5.8g/t;
- Gar-II trench had intersected zones of silicified rock with gold grade up to 1.19g/t on an outcrop thickness of 8m. On the watershed of rivers Gar-II trenching had exposed a series of ore cross-sections with gold grades from 0.35g/t to 3.21g/t possibly forming a north-south trending ore zone. The rich gold placers in the Gar-II valley are currently being exploited by the Group.
- At Shaman-2, 11 lines of mapping drill holes have been completed, to intersect secondary gold dispersion aureoles. In cores from these holes, gold grades up to 1.08g/t have been noted; trenching has intersected thin quartz-sulphide bodies with gold grades of up to 2-3g/t;
- Burinda (within the Taldan licence): the mineralisation itself is concentrated in quartz veins and silicified andesite which forms zones up to 40m thick, dipping south-eastwards at 60-70 degrees. The maximum depth of gold mineralisation established from drilling is 220 m. The mineralised zone remains unbounded. Ore bodies within the zone are up to 20m thick and up to 100m long. Gold distribution is irregular, and gold grades in samples vary from 0.6g/t to 35.4g/t. There are two trench intersections of 11.5m at 0.85g/t Au, and 4.8m at 2.08g/t Au. One new hole C-205, near the south end of the deposit, confirms predecessor drill hole data with intersections of 14m at 1.86g/t and 7.8m at 1.54g/t, but the grades are not considered to be of economic interest;

- Topazovskoye (within the Taldan licence): new lines of shallow mapping holes have been drilled across these aureoles and have identified quartz veinlet zones with two intersections in particular: 6m at 2.7g/t and 1m at 1.55g/t, 23m apart along an old trench line;
- Oldoiskiy site: weak silver and copper anomalies have been identified, confined to the outcrop of a granite massif in the western part of the Ulyagir block.

Yamal

- A Petropavlovskoye report is currently being in prepared for submission to GKZ/TKZ in first quarter 2009. There will also be included in this report a section on the aggregates reserves (similar to those of Novogodnee Monto), as well as sections on hydrogeological and geotechnical investigations;
- Additional blocks within the Toupugol-Khanmeishorskaya area have potential to add to the Novogodnee Monto and Petropavlovskoye ore resources;
- The Group expects that mining operations at the Novogodnee Monto and Petropavlovskoye deposits will commence towards the end of 2009. The Group anticipates selling the first aggregates in late 2009.

Buryatia

On 19 April 2006, the Group acquired a licence for the prospective Talikitskaya area in Buryat Republic as a result of an auction dated 11 April 2006.

Preliminary geophysical and geochemical surveys have identified two areas of interest in the Talikitskaya area:

- Talikit zone. Initial trenching has indicated the presence of mineralisation. The presence of beresitised zones has been confirmed, though their gold content is low. In 6 holes, over a width of 60m, a mineralised interval has been identified, mostly with low grades, but with one hole finding 22.6g/t gold.

- Zoltny zone. This is an area to the south-east of Talikit. Based on the size and quality of mineralisation, it is believed to be a better prospect than Talikit. It contains quartz veins with pyrite and chalcopyrite, and associated silicification.

In both the Talikit and Zoltny areas, exploration is limited by access to the area, which is difficult. According to figures prepared in accordance with GKZ, resources in the two areas together are forecast to be approximately 60 tonnes of contained gold.

Chemical laboratories

The Group's chemical laboratories were working at full capacity throughout the first six months of 2008.

Rusoro

In June 2008, a PHM-led syndicate made a US$80 million strategic investment in Rusoro by way of an exchangeable loan. PHM contributed US$20 million of the loan, which is exchangeable into Rusoro shares, to the syndicate.

Based on the issued shares of Rusoro at the time of investment, the exchange of PHM`s US$20 million loan into shares would give the Group approximately 4% of the partially diluted shares in Rusoro (being the aggregate of the common shares in issue at the time of investment plus the shares to be issued on exercise of the exchange right by PHM in respect of its loan participation, but excluding any shares that PHM could receive pursuant to the option agreement entered into with other syndicate members), and full exercise of the option agreement would give the Group 14% of the partially diluted shares in Rusoro (being calculated on the same basis as above, but allowing for full exercise of the option agreement and full exchange of the loan). Rusoro has subsequently announced its acquisition of Hecla Mining Company`s Venezuelan assets and the fact that it has been chosen as the Venezuelan government`s partner of choice for the development of Venezuela`s gold assets.

Gold Price/Treasury

The Group`s average realised gold price for the Period was US$901/oz, up 38% against US$652/oz during the first six months of 2007 (US$668/oz during the year ended 31 December 2007). The Russian Rouble strengthened against the US Dollar by 4% during the period and was RuR23.46/US$ at 30 June 2008 (31 December 2007 - RuR24.55/US$, 30 June 2007 - RuR25.82/US$).

The Group has a policy of no long-term gold forward sales or hedging.

Conference Call

There will be a conference call today (22 September 2008) to discuss the announcement at 14:00 (GMT).

Details to access the conference call are as follows:

The Dial-in number is +44 (0) 1452 555 566 and the conference ID is 65096156#.

Replay will be available after the call has finished for seven days on:

Encore Replay Access Number: **65096156#**
UK Free Call Dial In: **0800 953 1533**
International Dial in: **+44 (0) 1452 55 00 00**

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This release has been reviewed by Dr. Stephen Henley, who is an independent geological advisor to the Board of Directors of Peter Hambro Mining Plc. Dr. Henley is qualified to act in the capacity of a Competent Person for the purposes of this statement. Dr. Stephen Henley holds a PhD in Geology (University of Nottingham, 1970). He is a Fellow of the Geological Society, a Fellow of the Institution of Materials, Minerals and Mining, and a Chartered Engineer. He is also a Charter Member of the International Association for Mathematical Geology. He is Vice-chairman of the Pan-European Reserves & Resources Reporting Committee (PERC) and Secretary of the CRIRSCO-GKZ working group on harmonisation of Russian and international mineral reserves reporting systems. He has been employed in exploration, mining, academic and geological consultancy posts since 1970 and has participated in Competent Person studies on a wide variety of different minerals and types of deposit.

In this interim report we present financial items such as "cash operating costs", "total cash costs" and "total production costs" that have been determined using industry standards as per the Gold Institute and are not measures under International Financial Reporting Standards. An investor should not consider these items in isolation or as alternatives to any measure of financial performance presented in accordance with IFRS either in this document or in any document incorporated by reference herein.

While the Gold Institute has provided definitions for the calculation of "cash operating cost", "total cash cost" and "total production cost", the application and precise definitions included herein may vary significantly from those of other gold mining companies, and as such may not necessarily provide a basis for comparison with other gold mining companies. However, the Group believes that total cash cost and total production cost in total by mine and per ounce by mine are useful indicators to investors and management of a mine's performance because they provide a useful indication of a mine's profitability, efficiency and cash flows. They also show the trend in costs as the mine matures over time and on a consistent basis. These costs can also be used as a benchmark of performance to allow for comparison against other mines of other gold mining companies.

Forward-looking statements

This release may include statements that are, or may be deemed to be, "forward-looking statements". These forward-looking statements can be identified by the use of forward-looking terminology, including the terms "believes", "estimates", "plans", "projects", "anticipates", "expects", "intends", "may", "will" or "should" or, in each case, their negative or other variations or comparable terminology, or by discussions of strategy, plans, objectives, goals, future events or intentions. These forward-looking statements include all matters that are not historical facts. They appear in a number of places throughout this release and include, but are not limited to, statements regarding the Group's intentions, beliefs or current expectations concerning, among other things, the Group's results of operations, financial position, liquidity, prospects, growth, strategies and expectations of the industry.

By their nature, forward-looking statements involve risk and uncertainty because they relate to future events and circumstances. Forward-looking statements are not guarantees of future performance and the development of the markets and the industry in which the Group operates may differ materially from those described in, or suggested by, any forward-looking statements contained in this release. In addition, even if the development of the markets and the industry in which the Group operates are consistent with the forward-looking statements contained in this release, those developments may not be indicative of developments in subsequent periods. A number of factors could cause developments to differ materially from those expressed or implied by the forward-looking statements including, without limitation, general economic and business conditions, industry trends, competition, commodity prices, changes in law or regulation, currency fluctuations (including the US dollar and Rouble), the Group's ability to recover its reserves or develop new reserves, changes in its business strategy, political and economic uncertainty. Save as required by the AIM Rules, the Company is under no obligation to update the information contained in this release.

Independent Review Report
Peter Hambro Mining Plc

Introduction

We have been engaged by the Company to review the condensed consolidated financial statements in the half-yearly financial report for the six months ended 30 June 2008 which comprises the condensed consolidated income statement, condensed consolidated statement of changes in equity, condensed consolidated balance sheet, condensed consolidated cash flow statement, and related notes. We have read the other information contained in the half-yearly financial report which and considered whether it contains any apparent misstatements or material inconsistencies with the information in the condensed consolidated financial statements.

This report is made solely to the Company in accordance with the terms of our engagement. Our work has been undertaken so that we might state to the Company those matters we are required to state to them in an independent review report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Company, for our review work, or for this report, or for the conclusions we have formed.

Directors' responsibilities

The half-yearly financial report is the responsibility of, and has been approved by, the Directors. The Directors are responsible for preparing the half-yearly financial report in accordance with the requirements of the AIM Rules.

As disclosed in note 2, the annual financial statements of the Group are prepared in accordance with IFRSs as adopted by the European Union. The condensed financial statements included in this half-yearly financial report has been prepared in accordance with International Accounting Standard 34, "Interim Financial Reporting," as adopted by the European Union.

Our responsibility

Our responsibility is to express to the Company a conclusion on the condensed consolidated financial statements in the half-yearly financial report based on our review.

Scope of Review

We conducted our review in accordance with International Standard on Review Engagements (UK and Ireland) 2410, "Review of Interim Financial Information Performed by the Independent Auditor of the Entity" issued by the Auditing Practices Board for use in the United Kingdom.

A review of interim financial information consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with International Standards on Auditing (UK and Ireland) and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Conclusion

Based on our review, nothing has come to our attention that causes us to believe that the condensed consolidated financial statements in the half-yearly financial report for the six months ended 30 June 2008 is not prepared, in all material respects, in accordance with International Accounting Standard 34 as adopted by the European Union and the AIM Rules.

MOORE STEPHENS LLP
Registered Auditors
Chartered Accountants
St. Paul's House,
Warwick Lane
London, EC4M 7BP
21 September 2008

PETER HAMBRO MINING PLC
Condensed Consolidated Income Statement

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	Note	Six months to 30 June 2008 US$'000	Six months to 30 June 2007 US$'000	Year ended 31 December 2007 US$'000
Group revenue	4	**146,390**	**93,128**	**226,397**
Net operating expenses		(102,169)	(56,073)	(144,962)
		44,221	**37,055**	**81,435**
Fair value change on derivatives	15	(10,036)	-	(12,100)
Share of results of joint ventures	5	(2,182)	(767)	(1,821)
Operating profit		**32,003**	**36,288**	**67,514**
Financial income		4,788	1,641	3,776
Financial expenses	7	(15,680)	(6,104)	(16,105)
Profit before taxation		**21,111**	**31,825**	**55,185**
Taxation	6	**(6,331)**	**(9,953)**	**(15,560)**
Profit for the period		**14,780**	**21,872**	**39,625**
Attributable to:				
- equity holders of the Company		14,367	21,444	38,667
- minority interests		413	428	958
Earnings per share (basic and diluted)	19	**US$0.177**	**US$0.264**	**US$0.476**

The accompanying notes are an integral part of this Condensed Consolidated Income Statement.

PETER HAMBRO MINING PLC
Condensed Consolidated Balance Sheet

	Note	At 30 June 2008 U$'000	At 30 June 2007 US$'000	At 31 December 2007 US$'000
Assets				
Non-current assets		**589,618**	**408,080**	**474,348**
Goodwill		21,739	16,291	15,818
Intangible assets	8	200,243	145,604	170,782
Property, plant and equipment	9	302,060	217,936	257,801
Interests in joint ventures		6,529	9,659	8,635
Other investments		960	965	960
Inventories	10	20,012	13,435	11,620
Trade and other receivables	11	18,433	4,190	5,344
Derivative financial instruments	15	9,970	-	-
Deferred tax assets		9,672	-	3,388
Current Assets		**253,266**	**127,402**	**278,927**
Inventories	10	65,231	38,317	40,468
Trade and other receivables	11	105,208	52,806	60,017
Securities held for trading		-	10,207	-
Cash and cash equivalents	12	82,827	26,072	178,442
Total assets		**842,884**	**535,482**	**753,275**
Liabilities				
Current liabilities		(122,261)	**(50,317)**	**(66,405)**
Trade and other payables	13	(68,616)	(32,713)	(33,382)
Current income tax liabilities		(3,093)	(2,054)	(1,888)
Borrowings	14	(50,552)	(15,550)	(31,135)
Net Current Assets		**131,005**	**77,085**	**212,522**
Total Assets less Current Liabilities		**720,623**	**485,165**	**686,870**
Non-current liabilities		**(375,061)**	**(159,519)**	**(344,014)**
Borrowings	14	(310,601)	(135,245)	(292,100)
Derivative financial instruments	15	(42,300)	-	(30,634)
Deferred tax liabilities		(20,520)	(22,707)	(19,677)
Other provisions		(1,640)	(1,567)	(1,603)
Net Assets		**345,562**	**325,646**	**342,856**
Equity				
Share capital		1,311	1,311	1,311
Share premium		35,082	35,082	35,082
Other reserves		176,722	176,722	176,722
Equity reserve on bonds		1,583	1,583	1,583
Retained earnings		124,501	104,985	122,208
Equity attributable to the Company's shareholders		**339,199**	**319,683**	**336,906**
Minority interests		6,363	5,963	5,950
Total equity		**345,562**	**325,646**	**342,856**

The accompanying notes are an integral part of this Condensed Consolidated Balance Sheet.

These condensed consolidated financial statements were approved by the Directors on 21 September 2008.

Peter C P Hambro
Director

PETER HAMBRO MINING PLC
Condensed Consolidated Cash Flow Statement

	Note	Six months to 30 June 2008 US$000	Six months to 30 June 2007 US$000	Year to 31 December 2007 US$000
Cash flows (used in)/from operating activities				
Cash generated from operations	16(a)	(1,633)	19,932	62,933
Interest received		4,810	1,643	3,963
Interest paid		(10,255)	(5,045)	(11,113)
Income tax paid		(7,181)	(5,965)	(15,675)
Net cash (used in)/from operating activities		**(14,259)**	**10,565**	**40,108**
Cash flows from investing activities				
Acquisitions of subsidiaries net of cash acquired	21	(5,634)	-	-
Acquisition of minority interests		-	(9,176)	(9,257)
Acquisition of assets		-	20	34
Purchase of property, plant and equipment and intangible assets		(53,093)	(28,439)	(76,314)
Proceeds from disposal of property, plant and equipment		398	211	1,558
Exploration and evaluation expenditure		(32,123)	(20,241)	(48,426)
Proceeds from disposal of securities held for trading		-	3,792	14,353
Amounts loaned to other parties		(31,577)	(2,761)	(5,194)
Repayment of amounts loaned to other parties		2,922	571	447
Acquisition of other investments		-	(21)	-
Net cash used in investing activities		**(119,107)**	**(56,044)**	**(122,799)**
Cash flows from financing activities				
Repayments of borrowings		109,647	(28,756)	(66,601)
Proceeds from borrowings		(74,600)	37,263	262,411
Capital element of finance leases		(35)	(56)	(281)
Dividends paid to minority interests		-	-	(26)
Net cash from financing activities		**35,012**	**8,451**	**195,503**
Net (decrease)/increase in cash and cash equivalents in the period		**(98,354)**	**(37,028)**	**112,812**
Effect of exchange rates on cash and cash equivalents		2,739	634	3,164
Cash and cash equivalents at beginning of period	12	178,442	62,466	62,466
Cash and cash equivalents at end of period	12	**82,827**	**26,072**	**178,442**

The accompanying notes are an integral part of this Condensed Consolidated Cash Flow Statement.

PETER HAMBRO MINING PLC
Condensed Consolidated Statement of Changes in Equity

	Capital US$'000	Share premium US$'000	Other reserves US$'000	Equity reserve on bonds US$'000	Retained earnings US$'000	Total US$'000	Minority interests US$'000	Total equity US$'000
Balance at 1 January 2007	1,311	35,082	176,722	1,583	83,541	**298,239**	**11,815**	**310,054**
Recognised income and expenses	-	-	-	-	21,444	**21,444**	428	**21,872**
Additional acquisition of subsidiary undertakings	-	-	-	-	-	-	(6,280)	**(6,280)**
Balance at 30 June 2007	**1,311**	**35,082**	**176,722**	**1,583**	**104,985**	**319,683**	**5,963**	**325,646**
Recognised income and expenses	-	-	-	-	17,223	**17,223**	530	**17,753**
Additional acquisition of subsidiary undertakings	-	-	-	-	-	-	(543)	**(543)**
Balance at 31 December 2007	**1,311**	**35,082**	**176,722**	**1,583**	**122,208**	**336,906**	**5,950**	**342,856**
Recognised income and expenses	-	-	-	-	14,367	**14,367**	413	**14,780**
Dividends payable (note 18)					(12,074)	**(12,074)**	-	**(12,074)**
Balance at 30 June 2008	**1,311**	**35,082**	**176,722**	**1,583**	**124,501**	**339,199**	**6,363**	**345,562**

The accompanying notes are an integral part of this Condensed Consolidated Statement of Changes in Equity.

1. General information

The condensed consolidated financial statements are for the six month period ended 30 June 2008. The condensed consolidated financial statements are unaudited.

The information for the year ended 31 December 2007 does not constitute statutory accounts as defined in section 240 of the Companies Act 1985. This information was derived from the statutory accounts for the year ended 31 December 2007, a copy of which has been delivered to the Registrar of Companies. The auditors' report on those accounts was unqualified and did not contain a statement under section 237(2) or (3) of the Companies Act 1985.

2. Basis of preparation

The condensed consolidated financial statements have been prepared in accordance with IAS 34 *Interim Financial Reporting*. The condensed consolidated financial statements have been prepared under the historical cost convention, as modified by the revaluation of available-for-sale financial assets, and financial assets and liabilities (including derivative instruments) at fair value through profit or loss.

Accounting policies

The accounting policies applied are consistent with those applied in the financial statements for the year ended 31 December 2007.

Comparatives

Certain comparatives for the six month period ended 30 June 2007 and 31 December 2007 have been re-classified, to ensure comparability with the classifications adopted in the interim financial statements for the six month period ended 30 June 2008. On the balance sheet, trade and other receivables amounting to US$4,190,000 at 30 June 2007 and US$5,344,000 at 31 December 2007, have been re-classified from current assets to non-current assets. Short-term borrowings amounting to US$15,550,000 have been re-classified from payables to short-term borrowings at 30 June 2007. For the income statement, other income previously classified as financial income has been re-classified and included within net operating expenses, whilst charges previously included within net operating expenses have been re-classified to financial expenses.

3. Foreign currency rates

The rates of exchange used to translate balances from other currencies into US Dollars were as follows (currency per US Dollar):

	30 June 2008	30 June 2007	31 December 2007
GB Pounds Sterling	0.50	0.50	0.50
Russian Rouble	23.46	25.82	24.55

4. Segmental information

Business segments

For management purposes, the Group is organised into four operating divisions – gold mining, construction and other services, exploration and evaluation and corporate. These divisions are the basis on which the Group reports its primary segment information. Segment information about these businesses is presented below.

Six months ended 30 June 2008 and 30 June 2007

	Gold mining		Construction and other services		Exploration and evaluation		Corporate		Consolidated	
	Six months ended		Six months ended		Six months ended		Six months ended		Six months ended	
	30 June 2008	30 June 2007	30 June 2008	30 June 2007	30 June 2008	30 June 2007	30 June 2008	30 June 2007	30 June 2008	30 June 2007
	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000
Revenue										
Gold sales	107,428	70,366	-	-	-	-	-	-	107,428	70,366
Silver sales	376	-	-	-	-	-	-	-	376	-
Other external sales	-	-	35,482	21,440	2,374	751	730	571	38,586	22,762
Inter-segment sales	-	-	22,888	7,736	16,236	8,047	6,012	3,935	45,136	19,718
Subtotal	107,804	70,366	58,370	29,176	18,610	8,798	6,742	4,506	191,526	112,846
(Less: inter-segment sales)	-	-	(22,888)	(7,736)	(16,236)	(8,047)	(6,012)	(3,935)	(45,136)	(19,718)
Total Group revenue	**107,804**	**70,366**	**35,482**	**21,440**	**2,374**	**751**	**730**	**571**	**146,390**	**93,128**
Expenses										
Net operating expenses excluding expenses below	40,184	17,561	30,644	17,044	3,472	1,653	16,568	8,860	90,868	45,118
Inter-segment expenses	1,149	-	20,424	6,001	16,376	7,748	-	-	37,949	13,749
Royalties	6,848	4,699	-	-	-	-	-	-	6,848	4,699
Depreciation and amortisation	7,642	6,163	1,305	921	1,238	459	138	127	10,323	7,670
Subtotal	55,823	28,423	52,373	23,966	21,086	9,860	16,706	8,987	145,988	71,236
(Less: inter-segment expenses)	(1,149)		(20,424)	(6,001)	(16,376)	(7,748)	-		(37,949)	(13,749)
Total Group expenses	**54,674**	**28,423**	**31,949**	**17,965**	**4,710**	**2,112**	**16,706**	**8,987**	**108,039**	**57,487**
Segment result	**53,130**	**41,943**	**3,533**	**3,475**	**(2,336)**	**(1,361)**	**(15,976)**	**(8,416)**	**38,351**	**35,641**
Exchange gain									7,232	1,887
Unallocated income/(expenses)									(1,362)	(473)
Fair value change in derivatives									(10,036)	-
Share of results in joint ventures									(2,182)	(767)
Operating profit after share of results of joint ventures									32,003	36,288
Financial income									4,788	1,641
Financial expenses									(15,680)	(6,104)
Taxation									(6,331)	(9,953)
Profit for the period									**14,780**	**21,872**

Notes to the Condensed Consolidated Financial Statements for the period ended 30 June 2008

Six months ended 30 June 2008 and year ended 31 December 2007

	Gold mining		Construction and other services		Exploration and evaluation		Corporate		Consolidated	
	Six months ended 30 June 2008	Year ended 31 December 2007	Six months ended 30 June 2008	Year ended 31 December 2007	Six months ended 30 June 2008	Year ended 31 December 2007	Six months ended 30 June 2008	Year ended 31 December 2007	Six months ended 30 June 2008	Year ended 31 December 2007
	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000
Revenue										
Gold sales	107,428	167,921	-	-	-	-	-	-	107,428	167,921
Silver sales	376	617	-	-	-	-	-	-	376	617
Other external sales	-	-	35,482	52,540	2,374	4,020	730	1,299	38,586	57,859
Inter-segment sales	-	-	22,888	25,748	16,236	21,929	6,012	8,868	45,136	56,545
Subtotal	107,804	168,538	58,370	78,288	18,610	25,949	6,742	10,167	191,526	282,942
(Less: inter-segment sales)	-	-	(22,888)	(25,748)	(16,236)	(21,929)	(6,012)	(8,868)	(45,136)	(56,545)
Total Group revenue	**107,804**	**168,538**	**35,482**	**52,540**	**2,374**	**4,020**	**730**	**1,299**	**146,390**	**226,397**
Expenses										
Net operating expenses excluding expenses below	40,184	57,112	30,644	46,440	3,472	3,506	16,568	19,518	90,868	126,576
Inter-segment expenses	1,149	-	20,424	19,995	16,376	19,803	-	-	37,949	39,798
Royalties	6,848	9,637	-	-	-	-	-	-	6,848	9,637
Depreciation	7,642	11,153	1,305	2,206	1,238	1,323	138	262	10,323	14,944
Subtotal	55,823	77,902	52,373	68,641	21,086	24,632	16,706	19,780	145,988	190,955
(Less: inter-segment expenses)	(1,149)	-	(20,424)	(19,995)	(16,376)	(19,803)	-	-	(37,949)	(39,798)
Total Group expenses	**54,674**	**77,902**	**31,949**	**48,646**	**4,710**	**4,829**	**16,706**	**19,780**	**108,039**	**151,157**
Segment result	**53,130**	**90,636**	**3,533**	**3,894**	**(2,336)**	**(809)**	**(15,976)**	**(18,481)**	**38,351**	**75,240**
Exchange gain									7,232	6,961
Unallocated expenses									(1,361)	(766)
Fair value change in derivatives									(10,037)	(12,100)
Share of results in joint ventures									(2,182)	(1,821)
Operating profit after share of results of joint ventures									32,003	67,514
Financial income									4,788	3,776
Financial expenses									(15,680)	(16,105)
Taxation									(6,331)	(15,560)
Profit for the period									**14,780**	**39,625**

5. Share of results of joint ventures

	Joint venture Omchak 30 June 2008 US$'000	Joint venture Rudnoye 30 June 2008 US$'000	Total 30 June 2008 US$'000	Total 30 June 2007 US$'000	Total 31 December 2007 US$'000
PHM share					
Sales revenue	5,597	81	5,678	6,116	25,906
Net operating expenses	(7,178)	(926)	(8,104)	(7,058)	(26,961)
Operating loss	(1,581)	(845)	(2,426)	(942)	(1,055)
Financial income	114	94	208	66	273
Financial expenses	(551)	(13)	(564)	(277)	(616)
Loss on ordinary activities before taxation	(2,018)	(764)	(2,782)	(1,153)	(1,398)
Taxation	658	11	669	487	(435)
Loss for the period	(1,360)	(753)	(2,113)	(666)	(1,833)
Attributable to:					
- equity holders of the Company	**(1,429)**	**(753)**	**(2,182)**	**(767)**	**(1,821)**
- minority interests	69	-	**69**	101	(12)

6. Taxation on profit on ordinary activities

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Current tax			
UK corporation tax (29%)*	801	509	1,354
Russia tax (24%)	11,464	8,481	19,661
	12,265	8,990	21,015
Deferred tax			
Reversal and origination of timing differences	(5,934)	963	(5,455)
Total tax charge	**6,331**	**9,953**	**15,560**

* The corporation tax rate in the United Kingdom changed from 30%, to 28% effective 1 April 2008.

7. Financial expenses

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Commission and interest in respect of sale and lease back transaction	5	35	53
Bank loan interest	1,253	321	1,134
Convertible bonds interest charge	5,496	5,493	10,993
Exchangeable bonds interest charge	8,293	-	3,286
Other loan interest and charges	596	219	567
Unwinding of discount on environmental obligation	37	36	72
	15,680	**6,104**	**16,105**

8. Intangible assets

	Malomir	Albyn	Tokur	Yamal deposits	Others*	30 June 2008	30 June 2007	31 December 2007
	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000
Balance at the beginning of the period	25,483	3,385	58,437	48,641	34,836	**170,782**	155,266	155,266
Additions as a result of acquisition of a subsidiary	-	-	-	-	-	-	805	805
Additions	9,191	2,453	351	7,497	13,194	**32,686**	20,105	47,231
Impairment for the period	-	-	-	-	(3,197)	**(3,197)**	-	(1,759)
Transfer to mine development costs	-	-	-	-	(28)	**(28)**	(30,572)	(30,756)
Reallocation	-	-	2,677	-	(2,677)	-	-	-
Disposals	-	-	-	-	-	-	-	(5)
Balance at the end of the period	**34,674**	**5,838**	**61,465**	**56,138**	**42,128**	**200,243**	145,604	170,782

*Amounts included in the "Others" category of intangible assets represent amounts capitalised in respect of a number of projects in the Amur and Buryatia regions.

9. Property, plant and equipment

	Mine development costs	Mining assets	Non-mining assets	Capital construction in progress	30 June 2008	30 June 2007	31 December 2007
	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000
Cost							
Balance at the beginning of the period	66,281	152,039	80,221	13,046	**311,587**	204,722	204,722
Additions	20,460	12,420	9,176	11,389	**53,445**	29,790	78,422
Transfers from intangible assets	28	-	-	-	**28**	30,572	30,756
Transfers from capital construction in progress	-	930	2,826	(3,756)	-	-	-
Reallocation	377	(16,314)	16,314	(377)	-	-	-
Transfer from mine development costs	(73,205)	73,205	-	-	-	-	-
Assets acquired through business acquisitions (note 21)	-	2,281	1,536	153	**3,970**	-	-
Disposals	-	(2,155)	(850)	-	**(3,005)**	(685)	(2,313)
Balance at the end of the period	**13,941**	**222,406**	**109,223**	**20,455**	**366,025**	264,399	311,587
Depreciation and impairment							
Balance at the beginning of the period	-	42,401	11,385	-	**53,786**	38,792	38,792
Charge for the period	-	5,975	4,790	-	**10,765**	8,017	15,665
Impairment of assets	-	-	-	171	**171**	-	-
Reallocation		(98)	98	-	-	-	-
Disposals	-	(526)	(231)	-	**(757)**	(346)	(671)
Balance at the end of the period	-	**47,752**	**16,042**	**171**	**63,965**	46,463	53,786
Net book value at the end of the period	**13,941**	**174,654**	**93,181**	**20,284**	**302,060**	217,936	257,801

Property, plant and equipment with a carrying value of US$26 million (30 June 2007: US$7.9 million and 31 December 2007: US$11.4 million) have been pledged to secure borrowings of the Group.

10. Inventories

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Current			
Stores and spares	35,113	20,410	20,768
Work in progress	23,767	14,201	19,594
Bullion in process	6,351	3,706	106
Total current inventories	65,231	38,317	40,468
Non-current			
Work in progress	20,012	13,435	11,620
Total non-current inventories	20,012	13,435	11,620
Total inventories	**85,243**	**51,752**	**52,088**

11. Trade and other receivables

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Current			
Trade receivables	5,322	2,125	1,032
Advances to contractors	50,693	16,852	14,278
VAT recoverable	23,303	16,713	20,290
Advances paid on commission contracts	1,153	7,957	10,446
Other debtors	16,248	7,722	11,619
Interest accrued	300	700	160
Loan to Omchak joint venture	2,770	-	407
Loans issued	5,419	737	1,785
	105,208	**52,806**	**60,017**
Non-current			
Loan to Rudnoye joint venture	6,231	4,190	5,344
Exchangeable Loan (a)	12,202	-	-
	18,433	**4,190**	**5,344**

(a) On 10 June 2008, the Company participated in a US$80 million senior secured exchangeable loan (the "Exchangeable Loan") to Venezuela Holdings (BVI) Limited, a wholly owned subsidiary of Rusoro Mining Limited ("Rusoro"). The Company subscribed for US$20 million of the Exchangeable Loan and the remainder of the funds were provided by other parties (the "Lenders"). The Exchangable Loan carries an interest rate of 10% per-annum payable semi-annually in arrears and is exchangeable into Rusoro shares at C$1.25 (the "Rusoro Embedded Derivative"). The loan component is measured at amortised cost, whilst the Rusoro Embedded Derivative is separately fair valued (see note 15).

12. Cash and cash equivalents

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Cash at bank and in hand	22,573	12,861	85,707
Short-term bank deposits	19,940	11,475	41,243
Promissory notes and other liquid investments	40,314	1,736	51,492
	82,827	**26,072**	**178,442**

13. Trade and other payables

	30 June	30 June	31 December

	2008 US$'000	2007 US$'000	2007 US$'000
Trade payables	10,895	7,084	6,477
Deferred income	15,450	6,387	7,912
Advances received on commission contracts	1,194	7,297	4,692
Other payables	29,003	11,945	14,301
Dividends payable (note 18)	12,074	-	-
	68,616	**32,713**	**33,382**

14. Borrowings

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Borrowings at amortised cost			
Convertible bonds	140,145	139,124	139,637
Exchangeable bonds	160,855	-	158,863
Bank loans	60,153	11,411	24,700
Finance lease liability	-	260	35
	361,153	**150,795**	**323,235**
Amount due for settlement within 12 months	50,552	15,550	31,135
Amount due for settlement after 12 months	310,601	135,245	292,100
	361,153	**150,795**	**323,235**

15. Derivative financial instruments

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Derivative financial assets – Rusoro Embedded Derivative (a)			
Fair value of the Rusoro Embedded Derivative at the beginning of the period	6,560	-	-
Fair value change	1,000	-	-
	7,560	**-**	**-**
Derivative financial assets – Rusoro Call Option (a)			
Fair value of the Call Option at the beginning of the period	1,780	-	-
Fair value change	630	-	-
	2,410	**-**	**-**
Total derivative financial assets	**9,970**	**-**	**-**
Derivative financial liabilities – Exchangeable Bonds Embedded Derivatives			
Fair value of Gold Exchangeable Bonds Embedded Derivatives at inception (October 2007) and the beginning of period	(30,634)	-	(18,534)
Fair value change	(11,666)	-	(12,100)
Total derivative financial liabilities	**(42,300)**	**-**	**(30,634)**

(a) The derivative financial assets recognised at 30 June 2008 relate to the Rusoro Embedded Derivative within the Exchangeable Loan and the Call Option. Details of both are as follows:

Rusoro Embedded Derivative: The Exchangeable Loan issued to Rusoro on 10 June 2008 is exchangeable into Rusoro common shares at C$1.25, at any time from the 30th day after the Drawdown Date of the loan up to six days prior to the Repayment Date or up to the prepayment date in accordance with the loan agreement.

Call Option: On 10 June 2008, the Company entered into an option agreement with the other Lenders, the "Call Option", separate from the Exchangeable Loan, giving the Company the right to acquire from the other Lenders, at a price of C$2.20 per share, the Rusoro common shares which such other Lenders may receive upon exchange of their portion of the Exchangeable Loan. The Call Option may be exercised from the Drawdown Date to 3 June 2010 however may be shortened in the event that the Lenders exchange their portion of the Exchangeable Loan or if prepayment takes place.

The fair value of the Rusoro Embedded Derivative, the Call Option and the Gold Exchangeable Bonds Embedded Derivatives are determined using appropriate valuation techniques based on market data.

16. Notes to the cash flow statement

(a) Reconciliation of profit before tax to operating cash flow

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Profit before tax	21,111	31,825	55,185
Adjusted for:			
Financial income	(4,788)	(1,641)	(3,776)
Financial expenses	15,680	6,104	16,105
Share of results in joint ventures	2,182	767	1,821
Depreciation	10,323	7,670	14,944
Loss/(gain) on disposals of property, plant and equipment	1,850	(34)	84
Loss on disposal of business	-	53	61
Exchange differences in respect of investment activity	(32)	(75)	(91)
Exchange differences in respect of cash and cash equivalents	(2,739)	(634)	(3,164)
Net fair value change on gold equivalent exchangeable bonds	11,666	-	12,100
Net fair value change on Rusoro Embedded Derivative and Call Option	(1,630)		
Impairment of intangible asset	3,197	-	1,759
Impairment of property, plant and equipment	171	-	-
Write-down of inventories to net realisable value	1,961	-	-
Amortisation charge included in the cost of inventories	9	(128)	(769)
Other non-cash items	394	34	80
Operating profit before working capital changes	**59,355**	**43,941**	**94,339**
Increase in trade and other receivables	(40,946)	(10,237)	(19,049)
Increase in inventories	(33,593)	(15,397)	(15,036)
Increase in trade and other payables	13,551	1,625	2,679
Net cash (outflow)/ inflow from operating activities	**(1,633)**	**19,932**	**62,933**

(b) Major non cash transactions

During the six month periods ended 30 June 2008 and 30 June 2007, amounts of US$3,879,000 and US$1,937,000 respectively were offset against Corporation Tax. During the year ended 31 December 2007, US$4,418,000 was offset against Corporation Tax.

17. Analysis of net debt

	At 1 January 2008 US$'000	Cash Flow US$'000	Exchange movement US$'000	Other non-cash changes US$'000	**At 30 June 2008 US$'000**
Cash and cash equivalents	178,442	(98,354)	2,739	-	**82,827**
Debt due within one year	(31,135)	(12,612)	(406)	(6,399)	**(50,552)**
Debt due after one year	(320,000)	(16,000)	-	-	**(336,000)**
Less equity component of convertible bond	1,583	-	-	-	**1,583**
Less embedded derivative component of exchangeable bond at inception and deferred costs	23,658	-	-	(1,993)	**21,665**
Embedded derivative liability	(30,634)	-	-	(11,666)	**(42,300)**
Convertible bond issue costs capitalised	2,659	-	-	(508)	**2,151**
Net debt	**(175,427)**	**(126,966)**	**2,333**	**(20,566)**	**(320,626)**

18. Dividends

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Amounts recognised as distributions to equity holders in the period:		-	
Final dividend for the year ended 31 December 2007 of 7.5 pence per share (2006: nil)	12,074	-	-

19. Earnings per ordinary share

	30 June 2008 US$'000	30 June 2007 US$'000	31 December 2007 US$'000
Profit for the period US$'000	14,367	21,444	38,667
Weighted average number of ordinary shares	81,155,052	81,155,052	81,155,052
Earnings per ordinary share	**US$0.177**	**US$0.264**	**US$0.476**

The Group has issued convertible bonds which could potentially dilute basic earnings per Ordinary Share in the future but were not included in the calculation of diluted earnings per share because they are anti-dilutive as at 30 June 2008, 30 June 2007 and 31 December 2007.

20. Related parties

The Group had the following related party transactions during the year, (VAT is included where applicable):

		Six months ended 30 June 2008		Six months ended 30 June 2007		Year ended 31 December 2007	
Related party	Description	Movement for the year	Amount due from/(to)	Movement for the year	Amount due from/(to)	Movement for the year	Amount due from/(to)
Peter Hambro Ltd	Management and rent and rates charges	**(89)**	**(96)**	**378**	**38**	**(337)**	**83**
Aricom Plc and subsidiaries	Rent of assets	-	-	-	-	19	-
Aricom Plc and subsidiaries	Purchases by Kapstroi	1,113	(1,025)	860	(537)	1,687	(114)
Aricom Plc and subsidiaries	Other Purchases	148	(920)	-	-	3	-
Aricom Plc and subsidiaries	Purchase of property, plant and equipment	-	-	-	-	81	(99)
Aricom Plc and subsidiaries	London expenses recharged	173	126	446	114	506	9
Aricom Plc and subsidiaries	Geological work	601	61	728	293	309	-
Aricom Plc and subsidiaries	Project and engineering services	2,307	253	449	(1,066)	2,627	(120)
Aricom Plc and subsidiaries	Sale of assets	-	-	-	-	1	-
Aricom Plc and subsidiaries	Other services	402	434	148	201	1,633	1,492
Aricom Plc and subsidiaries	Construction services by Kapstroi	14,490	(239)	11,167	(3,248)	24,763	(2,532)
Aricom Plc and subsidiaries	Commissions contracts by Irgiredmet	81	310	2	(86)	42	(41)
Total Aricom Plc		**19,315**	**(1,000)**	**13,800**	**(4,329)**	**31,671**	**(1,405)**
Expobank	Sales of gold and silver	19,056	-	43,488	-	62,596	-
Expobank	Sales of gold through metallic account	15,322	-	31,495	-	485	-
Expobank	Purchase of gold to sell through metallic account	(15,267)	-	(31,134)	-	(59)	-
Expobank	Operating expenses	128	-	-	-	(74)	-
Expobank	Sales/(Purchase) of bonds	-	-	(3,798)	-	3,991	-
Expobank	Current accounts	-	9,270	-	4,471	-	4,536
Expobank	Deposit accounts	-	-	-	3,765	-	23,267
Expobank	Promissory notes	18,937	18,937	(12)	-	18,773	18,785
Total Expobank		**38,176**	**28,207**	**40,039**	**8,236**	**85,712**	**46,588**
Asian-Pacific Bank	Current accounts	-	1,571	-	790	-	314
Asian-Pacific Bank	Promissory notes	10,705	17,080	2,505	6,375	7,400	16,280
Total Asian-Pacific Bank		**10,705**	**18,651**	**2,505**	**7,165**	**7,400**	**16,594**
Russian Forestry Services Ltd	London expenses recharged	**20**	**20**	**-**	**-**	**-**	**-**
Quenington Services Ltd	Accounting services	**(2)**	**-**	**(3)**	**-**	**(6)**	**-**

For the six month period ended 30 June 2008, OOO Expobank ("Expobank") was considered a related party due to Peter Hambro and Pavel Maslovskiy's interests in Expobank. Expobank ceased to be related parties in July 2008 once the deal for the sale of the interests in Expobank was finalised.

21. Acquisitions

(a) Acquisition of OAO PRP Stancii

On 28 May 2008 a subsidiary of the Group, OAO Pokrovskiy Rudnik, acquired 100% of OAO PRP Stancii, a company which provides construction services and capital repairs. Consideration for the acquisition was cash consideration of US$7,150,000.

At the date of acquisition, the book values of the assets and liabilities acquired approximated their fair values. Goodwill of US$5,429,000 has been recognised in connection with this acquisition. Set out in the table below is a summary of the assets and liabilities acquired:

	US$'000
Property, plant and equipment	1,549
Cash and cash equivalents	3,373
Inventories	1,474
Trade and other receivables	1,528
Trade and other payables	(6,184)
Deferred tax liability	(19)
Net assets	1,721
Consideration	
Cash	7,150
Goodwill	5,429
Net cash outflow arising on the acquisition	
Cash consideration	7,150
Cash and cash equivalents acquired	(3,373)
	3,777

(b) Acquisition of Elga

On 31 January 2008 a subsidiary of the Group, Peter Hambro Mining (Cyprus) Limited, acquired 100% of Elga, a gold exploration and production company will alluvial operations. Consideration for the acquisition was cash consideration of US$1,903,000. At the date of acquisition, a fair value adjustment of US$2.1 million was made, to recognise the fair value of the licence acquired, and an associated deferred tax liability of US$492,000 was recognised.

Set out in the table below is a summary of the assets and liabilities acquired:

	Book values US$'000	Fair value adjustments US$'000	Fair value at date of acquisition US$'000
Property, plant and equipment	373	2,048	2,421
Cash and cash equivalents	46	-	46
Inventories	58	-	58
Trade and other receivables	446	-	446
Trade and other payables	(1,086)	-	(1,086)
Deferred tax asset/(liability)	18	(492)	(474)
Net assets acquired	(145)	1,556	1,411
Consideration			
Cash			1,903
Goodwill			492
Net cash outflow arising on the acquisition			
Cash consideration			1,903
Cash and cash equivalents acquired			(46)
			1,857

22. Subsequent events

On 17 September 2008 the Board approved an interim dividend of 7.5 pence per Ordinary Share, payable in October 2008.

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PETER HAMBRO MINING PLC

23 September 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Baring Asset Management Limited that its holding in the Company has increased to 4,133,402 Ordinary shares of £0.01 each, representing 5.09% of the total issued share capital of the Company.

Enquiries:

Alya Samokhvalova	Director of External Communications	+44 (0) 20 7201 8900
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PETER HAMBRO MINING PLC

25 September 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Baring Asset Management Limited that its holding in the Company has increased to 4,502,858 Ordinary shares of £0.01 each, representing 5.548 % of the total issued share capital of the Company.

Enquiries:

Alya Samokhvalova	Director of External Communications	+44 (0) 20 7201 8900
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25 September 2008

ADJUSTMENT TO CONVERSION PRICE OF THE US$140 MILLION 7.125 PER CENT GUARANTEED CONVERTIBLE BONDS DUE 2010 (ISIN: XS0224133099)

Unless otherwise defined, capitalised terms used in this announcement shall have the same meaning as defined in the terms and conditions (**Terms and Conditions**) of the US$140 million 7.125 per cent Guaranteed Convertible Bonds (**Bonds**) due 2010, which were issued by the Peter Hambro Mining plc's subsidiary, Peter Hambro Mining Group Finance Limited, on 11 August 2005.

On 22 September 2008, Peter Hambro Mining plc (**PHM**) announced its interim results and on 23 September 2008, PHM announced that an interim dividend of 7.5 pence sterling is to be paid on 31 October 2008.

The Terms and Conditions provide for adjustments to be made to the conversion price of the Bonds (**Conversion Price**) if a capital distribution is paid or made to holders of PHM's Ordinary Shares.

A summary of the adjustment to the Conversion Price based on the formula in Condition 6 (b) of the Terms and Conditions is as follows:

$$\text{Adjusted Conversion Price} = \text{Conversion Price} \times \frac{A-B}{A}$$

Where:

Conversion Price	=	£7.513 per Bond[1]
A	=	£6.536 being the Current Market Price[2] of one Ordinary Share on the dealing day immediately preceding the date on which the Company's interim dividend was publicly announced
B	=	£0.075 being the portion of the Fair Market Value[3] of the Interim Dividend attributable to one Ordinary Share

[1] The original Conversion Price of £7.56 is, for the purposes of calculating the present adjustment, deemed to have been adjusted to £7.513 following the payment by the Company of its maiden final dividend of £0.075 on 1 August 2008. No adjustment of the Conversion Price was required following the maiden dividend as the change would have amounted to less than 1 per cent of the then Conversion Price.

[2] Current Market Price means, in respect of an Ordinary Share at a particular date, the average volume weighted average price of an Ordinary Share for the five consecutive dealing days ending on the dealing day immediately preceding such date.

[3] Fair Market Value means, with respect to a cash dividend paid or to be paid, the amount of such dividend.

Registered Office: 11 Grosvenor Place, Belgravia, London, SW1X 4HH
Registered in England Number 4343841
Member of the PETER HAMBRO MINING group of companies

Interim Dividend	=	£0.075 (to be paid on 31 October 2008)

The Adjusted Conversion Price, rounded down to the nearest £0.01, is therefore £7.42.

The adjustment to the Conversion Price will take effect on 31 October 2008, being the payment date for the interim dividend.

Enquiries:

Alya Samokhvalova/Rachel Tuft	Peter Hambro Mining plc
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David Simonson/ Tom Randell	Merlin PR
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25 September 2008

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PETER HAMBRO MINING PLC

30 September 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has today received notification by Lansdowne Partners Limited/Lansdowne Partners International Limited that they now have an interest in 8,225,995 Ordinary shares of £0.01 each in the Company, representing 10.14% of the total issued share capital of the Company. Lansdowne Partners International Limited is the parent undertaking of Lansdowne Partners Limited.

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PETER HAMBRO MINING PLC

21 October 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Standard Life Investments Limited that its holding in the Company has decreased to 3,628,983 Ordinary shares of £0.01 each, representing 4.47% of the total issued share capital of the Company.

Enquiries:

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PETER HAMBRO MINING PLC

21 October 2008

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PETER HAMBRO MINING PLC

21 October 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Baring Asset Management Limited that its holding has increased to 5,028,908 Ordinary shares of £0.01 each, representing 6.197% of the total issued share capital of the Company. Massachusetts Mutual Life Insurance Company, the parent Company of Baring Asset Management Limited, holds on a consolidated basis 5,666,908 Ordinary shares of £0.01 each, representing 6.983% of the total issued share capital of the Company

Enquiries:

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PETER HAMBRO MINING PLC

22 October 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Baring Asset Management Limited that its holding has increased to 5,232,652 Ordinary shares of £0.01 each, representing 6.448% of the total issued share capital of the Company. Massachusetts Mutual Life Insurance Company, the parent Company of Baring Asset Management Limited, holds on a consolidated basis 5,870,652 Ordinary shares of £0.01 each, representing 7.234% of the total issued share capital of the Company.

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05 November 2008

Q3 2008 Production Report

Mineral Expert's Report

Postponement of Move to Main Market

Peter Hambro Mining Plc (the "Company" or "PHM" and together with its subsidiaries the "Group") is pleased to announce its production results for the quarter and for the nine months ended 30 September 2008.

	Attributable Production		
	3 months ended 30 September 2008 Au. oz	3 months ended 30 September 2007 Au. oz	Variance
Amur Region			
Pokrovskiy, including Pioneer bulk sampling	**72,950**	**60,821**	**20%**
Pioneer	**17,169**	**-**	**n/a**
Alluvials	**13,847**	**9,857**	**40%**
Joint Ventures			
Rudnoye	**1,720**	**1,152**	**49%**
Omchak	**17,948**	**21,852**	**(18%)**
TOTAL	**123,634**	**93,682**	**32%**

	Attributable Production		
	9 months ended 30 September 2008 Au. oz	9 months ended 30 September 2007 Au. oz	Variance
Amur Region			
Pokrovskiy, including Pioneer bulk sampling	**200,750**	**177,633**	**13%**
Pioneer	**20,769**	-	**n/a**
Alluvials	**18,638**	**13,760**	**35%**
Joint Ventures			
Rudnoye	**2,175**	**1,284**	**69%**
Omchak	**26,382**	**33,207**	**(21%)**
TOTAL	**268,714**	**225,884**	**19%**

Total attributable gold production, in the above tables and elsewhere in this document, is comprised of 100% of production from the Group's subsidiaries and the relevant share of production in joint ventures and other investments. PHM's direct and indirect interest in Pokrovskiy Rudnik, and any interest held by Pokrovskiy Rudnik, is 98.61%.

Highlights

- **Production**
  - In the three months ended 30 September 2008, attributable gold production increased by 32% as compared to the same period in 2007 mainly due to the consistent improvements in production at the Pokrovskiy mine, as well as the commissioning of the new plant at Pioneer which came online in June/July 2008;
  - The Group's total attributable gold production for the nine months ended 30 September 2008 increased by 19% compared to the same period of the previous year; and
  - Preliminary production statistics for October 2008 indicate an overall Pokrovskiy and Pioneer production of 36,400 oz with production from Pioneer almost doubling to 12,100 oz compared to September 2008 production of 6,600 oz.

- **Development**

    - The Group is carefully reviewing exploration, construction and maintenance expenditure for 2009 with a view to maximising capital availability for the Group's priority expansion and development projects – Pokrovskiy, Pioneer and Malomir. Malomir and Pioneer expansion plans remain on track with production at Malomir due to commence in the first half of 2010 and Pioneer's second crushing and grinding line due to come online in the first half of 2009.

- **Main Board Move**

    - The Company today also announces that it has decided that for the time being it will postpone its application for admission of its ordinary shares to the Official List of the UK Listing Authority and to trading on the Main Market of the London Stock Exchange (the "Main Market"). PHM announced in January 2007 that it was working towards a move from AIM to the Main Market, which it expected to occur during 2008. In light of the present extraordinary conditions in the financial markets, the Board of PHM sees little benefit for the Company or its shareholders in making the move to the Main Market this year. However, the Company and its advisers will continue to keep under review the option of pursuing such a move at a later date.

- **JORC Reserves and Resources**

    - In connection with the proposed move to the Main Market, a mineral expert's report has been prepared by Wardell Armstrong International Ltd ("WAI"). A summary of this report, which states the Group's reserves and resources at the Pokrovskiy, Pioneer and Malomir deposits to JORC classification standards together with reserves and resources to the Russian Standard Classification System on other deposits, is set out below and the full report will be placed later today on the Company's website at www.peterhambro.com.

    A summary of these mineral resources and ore reserves is given in Table 1 below.

Table 1: Summary of Mineral Resources and Ore Reserves Estimates

for Pokrovskiy, Pioneer, and Malomir

Estimated in accordance with the guidelines of the JORC Code (2004)[1,2,3]

	Category	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Resources	*Measured*	28,239	1.42	40,005	1,285
	Indicated	78,618	1.22	95,999	3,087
	Measured+Indicated	106,856	1.27	136,004	4,372
	Inferred	143,170	0.98	140,256	4,510
Reserves*	Proven+Probable	83,900	1.33	111,400	3,582

** Reserves included within the Measured and Indicated resources only*

[1] All statements of reserves and resources set out in this Summary are calculated on the basis of 100% ownership. Pokrovskiy, Pioneer and Malomir are 98.61% attributable to PHM.

[2] Numbers may not add up exactly due to rounding

[3] The Inferred category includes the figures from the Pokrovka-3 pit which were omitted from the equivalent table in the Interim Results for the period ended 30 June 2008

Peter Hambro, Executive Chairman of PHM said:

"We have taken the decision to postpone the move of our listing and I am sure that, in the present difficult market conditions, it is the right one. We have waited to see if things would improve in the short term but, although there are now some signs of optimism returning, we are a long way from the conditions that previously prevailed. We have decided, however, to publish the full Mineral Expert's Report that was commissioned as part of that process. I believe that this will enable shareholders to reach a clearer understanding of how the Company's JORC based reserves and resources compare to those of western mining companies. For our principal three assets, the aggregate of the resources compares favourably, with 8.2Moz projected from the Russian Standard Classification System compared to 8.9Moz projected from JORC. Within this we have an audited JORC reserve base of 3.6Moz. In addition we have published the details of the Group's attributable gold production for the first nine months of the year. It is our intention to report production on a quarterly basis from now on. I am pleased to say that we remain on track to meet our 2008 forecast production of between 350,000 to 400,000 ounces and would draw your attention to the preliminary production results for October and the doubling of production from the Pioneer deposit.

While we fully understand that we are in an industry that is suffering from significant escalation in operating costs, we remain confident that PHM will continue to operate in the lowest quartile of the global gold production cost curve.

In the meantime, development of Pokrovskiy, Pioneer and Malomir continues as planned."

EXECUTIVE SUMMARY OF THE MINERAL EXPERT'S REPORT

WAI has been commissioned by PHM to prepare a Mineral Expert's Report for PHM's portfolio of principal assets in the Amur, Yamal and Buryatia regions of Russia.

For this report, the resources and reserves of PHM have been estimated using both the guidelines of the JORC Code (2004) and the Russian Standard Classification System. The resources and reserves for the principal assets of Pokrovskiy, Pioneer and Malomir have been estimated in accordance with the guidelines of the JORC Code (2004), whilst the remainder are classified under the Russian Standard Classification System.

RESOURCE SUMMARY

Concurrently with resource estimates prepared under Russian requirements, PHM has also estimated Mineral Resources and Reserves in accordance with the guidelines of the JORC Code (2004) for the principal ore zones within the Pokrovskiy and Pioneer deposits. These have been reviewed by WAI, and in addition, WAI has prepared a resource estimate for the Malomir deposit using Datamine® geological modelling software in accordance with the guidelines of the JORC Code (2004).

WAI has taken the mineral resources prepared in accordance with the Russian Standard Classification System for those assets where no Micromine® models are available. WAI has reviewed Russian Standard Classification System estimates for Albyn, Quartzite and Ozhidaemoe (Malomir deposit), together with estimates for the Pokrovskiy flanks, in order to give an expert opinion on which part of these resources can be classified as mineral resources as defined by the JORC Code (2004).

Summaries of the mineral resources and reserves attributed to PHM in the Amur Region are presented in the tables below. These tables are not alternatives to each other, but comprise those resources that have been prepared in accordance with the JORC Code (2004) and those that have been prepared in accordance with the Russian Standard Classification System.

PHM Proven and Probable Mineral Reserves [1]

Classified in accordance with the guidelines of the JORC Code (2004) (WAI July 2008)

	Ore	Grade	Contained Gold		Stripping Ratio
	(Mt)	*(g/t)*	*(kg)*	(oz)	*(t Waste:t Ore)*
Pokrovskiy Total	5.6	2.05	11,500	369,733	4.2:1
Andreevskaya	*2.8*	*3.66*	*10,400*	*334,368*	*11.7:1*
Bakhmut, Yuzhnaya and Promezhutochnaya	*24.7*	*1.03*	*25,500*	*819,843*	*4.8:1*
Pioneer Total	27.5	1.30	35,900	1,154,211	5.5:1
Malomir Total	50.8	1.26	64,000	2,057,646	3.6:1
Total PHM Reserve	**83.9**	**1.33**	**111,400**	**3,581,590**	**4.3:1**

[1] *Above reserves are inclusive of resources and based on a US$650/oz gold price.*

PHM Mineral Resources

Classified in accordance with the guidelines of the JORC Code (2004) (WAI July 2008)

Type	Category	Pokrovska-1[2] (Pokrovskiy)				Pokrovska-3[2] (Pokrovskiy)				Andreevskaya [2] (Pioneer)			
		Tonnage	Grade	Metal		Tonnage	Grade	Metal		Tonnage	Grade	Metal	
		(kt)	(g/t Au)	(kg Au)	(koz Au)	(kt)	(g/t Au)	(kg Au)	(koz Au)	(kt)	(g/t Au)	(kg Au)	(koz Au)
Oxide (0.4g/t Au COG)	*Measured*	51	2.11	108	3					327	7.44	2,429	78
	Indicated	478	1.74	832	27					73	4.54	330	11
	Measured + Indicated	**529**	**1.78**	**940**	**30**					**399**	**6.91**	**2,759**	**89**
	Inferred	5,707	1.11	6,335	204					21	5.13	109	3.5
Sulphide (0.4g/t Au COG)	*Measured*	1,905	2.14	4,077	131	1,463	1.36	1,987	64	2,294	2.33	5,344	101
	Indicated	3,469	2.01	6,969	224	1,012	0.73	738	23	1,576	2.00	3,153	172
	Measured + Indicated	**5,374**	**2.06**	**11,046**	**355**	**2,474**	**1.10**	**2,725**	**87**	**3,869**	**2.20**	**8,498**	**273**
	Inferred	7,267	1.3	10,050	323	991	0.58	570	18	3,271	1.70	5,575	179
TOTAL [1]	*Measured*	1,956	2.13	4,185	134	1,463	1.36	1,987	64	2,621	2.97	7,773	250
	Indicated	3,947	1.98	7,801	251	1,012	0.73	738	23	1,649	2.11	3,483	112
	Measured + Indicated	**5,903**	**2.03**	**11,986**	**385**	**2,474**	**1.10**	**2,725**	**87**	**4,270**	**2.64**	**11,256**	**362**
	Inferred	12,974	1.26	16,385	527	991	0.58	570	18	3,292	1.73	5,684	183

Note:

[1] - TOTAL includes Oxide at 0.4g/t Au COG and Sulphide at 0.4g/t Au COG

[2] - WAI audit of PHM Micromine® resource models

PHM Mineral Resources Classified in accordance with the guidelines of the JORC Code (2004) (WAI July 2008)									
		Pioneer [2]				Malomir [3]			
Type	Category	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Oxide (0.4g/t Au COG)	*Measured*	5,210	0.94	4,921	158				
	Indicated	3,842	0.82	3,147	101				
	Measured + Indicated	**9,052**	**0.89**	**8,068**	**259**				
	Inferred	11,688	0.73	9,253	276				
Sulphide (0.6g/t Au COG)	*Measured*	9,750	1.19	11,638	374	7,239	1.31	9,501	305
	Indicated	11,012	1.15	12,715	408	57,156	1.19	68,115	2,190
	Measured + Indicated	**20,762**	**1.17**	**24,353**	**782**	**64,395**	**1.21**	**77,616**	**2,495**
	Inferred	26,676	1.00	26,767	859	87,549	0.94	82,262	2,645
TOTAL [1] Oxide (0.4g/t Au COG) + Sulphide (0.6g/t Au COG)	*Measured*	14,960	1.11	16,559	532	7,239	1.31	9,501	305
	Indicated	14,854	1.07	15,862	510	57,156	1.19	68,115	2,190
	Measured + Indicated	**29,814**	**1.09**	**32,421**	**1,042**	**64,395**	**1.21**	**77,616**	**2,495**
	Inferred	38,364	0.92	35,355	1,137	87,549	0.94	82,262	2,645

Note:

[1] - Includes Oxide at 0.4g/t Au COG and Sulphide at 0.6g/t Au COG

[2] - WAI audit of PHM Micromine® resource models

[3] - WAI Datamine® estimate based on PHM sample database

PHM also evaluates mineral resources in accordance with the Russian Standard Classification System, which classifies into A, B, C1 and C2 resource/reserve categories, as well as P1, P2 and P3 "prognostic" resource categories.

PHM Resources and Reserves Summary – Russian Standard Classification System (PHM Annual Report 2007 – As at 01/01/08)													
		B + C_1				C_2				P_1			
Deposit	Category	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Pokrovskiy Main	Balance	4,450	4.23	18,824	605	576	3.94	2,269	73	1,540	3.90	6,000	193
	Off Balance	8,162	1.0	8,162	262	23	0.91	21	0.7				
Stockpiles	Balance	4,259	1.33	5,665	182								
	Off Balance	3,924	0.73	2,865	92								
RIP Tailings	Balance	7,067	0.42	2,968	95								
Inner Flanks	Balance					92	3.91	360	12				
	Off Balance					11,430	1.20	13,716	441	2,730	1.70	4,641	149
Fanglomerates	*Off Balance*					3,100	1.00	3,100	100	2,560	0.80	2,048	66
Upper Luzhki	Balance									3,550	2.00	7,100	228
Anatolievsky	Balance									400	2.50	1,000	32
Pokrovskiy Totals	Balance	15,777	1.74	27,457	882	338	3.90	2,605	96	5,490	2.57	17,755	442
	Off Balance	12,086	0.97	11,027	354	14,553	1.16	16,837	541	5,290	1.27	6,689	215
Pioneer						72,658	1.61	116,979	3,761	21,760	1.63	35,469	1,140
Malomir						51,770	1.55	80,326	2,580	38,708	1.40	54,258	1,742
Tokur		3,932	3.24	12,740	410	8,851	2.36	20,888	672	15,010	3.40	51,034	1,641
Albyn										12,968	3.90	50,575	1,626
Novogodnee Monto	Balance	4,878	1.14	5,560	179	817	2.00	1,634	53	1,960	4.70	9,212	296
	Off Balance					185	1.04	192	6.6				
Toupugal		7,630	1.40	10,682	343	6,661	1.52	10,125	326	7,900	5.80	45,820	1,473
Ozernoye Au										2,300	1.00	2,300	74
PGM's										2,300	1.50	3,450	111
Amur Region						1,366	8.49	11,597	373	2,063	7.43	15,328	493
GROUP TOTAL (Excl. PGM's)		**44,303**	**1.54**	**67,466**	**2,168**	**157,529**	**1.66**	**261,101**	**8,409**	**115,749**	**2.49**	**287,823**	**9,253**

POKROVSKIY

The mineable reserves at Pokrovskiy are based on geological resources and have been economically optimised using cut-off grades based on gold prices of US$650 to US$750/oz. WAI has re-run the optimisation process using the same parameters as PHM and the results were found to be within acceptable limits. The table below summarises the reserves under JORC (2004) guidelines at Pokrovskiy at three different gold prices.

Results of the Economic Optimisation of the Pokrovskiy Open Pit Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
	Gold Price (US$/oz)		
	650	***700***	***750***
Total			
Total Rock Mass, kt	29,000	29,100	30,500
Ore, kt	5,600	5,600	5,700
Grade, g/t	2.05	2.05	2.02
Total Metal , kg	11,458	11,494	11,519
Total Metal, koz	368	370	370
Waste, kt	23,400	24,100	24,800
Stripping Ratio (tOre/tWaste)	4.2:1	4.3:1	4.4:1
RIP Processing			
Ore to RIP Plant, kt	3,900	4,200	4,400
Grade, Au g/t	2.70	2.57	2.49
Total Metal, kg	10,518	10,718	10,861
Total Metal, koz	338	345	349
Economic Cut-Off-Grade, g/t	0.44	0.42	0.41
Heap Leach Processing			
Ore to Heap Leach, kt	1,7	1,4	1,3
Grade, Au g/t	0.56	0.54	0.51
Total Metal, kg	94	776	658
Total Metal, koz	30	25	21
Economic Cut-Off-Grade, g/t	0.29	0.28	0.27

The Proven and Probable reserves derived by WAI under JORC (2004) guidelines at Pokrovskiy are based on a US$650/oz gold price are 5.6Mt of ore at an average grade of 2.05g/t of gold (economic COG of 0.4g/t) and require that 23.4Mt of waste be removed to access the orebody at a stripping ratio of 4.2:1. A significant further Inferred resource exists within the deposit.

PHM's current mining schedule is primarily based on reserves reported under the Russian Standard Classification System, which gives an inventory of mineable material of 15.9Mt at an average grade of 1.95g/t of gold and requires that 42.3Mt of waste be removed to access the orebody. This mining schedule also includes 274koz of gold of $B+C_1$ reserves from stockpile material. It is planned that the current rate of production will continue until 2012 when the existing open pit will be exhausted. After 2012, production will move to a series of smaller open pits termed the Pokrovskiy Flanks which are currently estimated at 553koz of gold of C_2 resources. The average grade of the flank deposits is lower than the current Pokrovskiy pit. It is planned that from 2013 to 2019 2.0Mt/pa at an average grade of 1.1g/t of gold will be processed in the resin-in-pulp plant and 0.6Mtpa, at the same average grade of 1.1g/t of gold, will be processed via the heap leach facility.

The mining schedule for Pokrovskiy is optimised to balance ore mining, waste mining and average grade each year. The mining rate and amount of blending required is not significantly different to the current operational practices and therefore WAI considers the schedule to be both practical and achievable. It should be noted however, that the Pokrovskiy Flanks deposits are not included in the block models reviewed by WAI. WAI believes that if these resources are modelled they are highly likely to be classed as *Inferred* at best under JORC Code (2004) guidelines.

Overall, the Pokrovskiy plant operations are run efficiently and in line with best international practice.

PIONEER

The reserves at Pioneer are based on the geological resources and have been economically optimised using a cut-off grade based on a gold price of US$650/oz. WAI has re-run the optimisation process using the same parameters as PHM and the results found to be within acceptable limits.

The Pioneer mine consists of four main open pits, Yuzhnaya, Promezhutochnaya, Bakhmut and Andreevskaya. The results of the economic optimisation are displayed in the tables below.

Results of the Economic Optimisation of Bakhmut, Yuzhnaya and Promezhutochnaya Open Pits[1]

Classified in accordance with the JORC Code (2004) – WAI (July 2008)

Parameters	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total Rock Mass, kt	142,845	155,664	162,013
Waste, kt	118,174	128,639	133,689
Oxidized Ores			
Ore, kt	9,765	9,783	9,804
Grade, g/t	0.84	0.85	0.85
Total Metal, kg	8,292	8,303	8,314
Total Metal, koz	267	267	267
Economic Cut-Off Grade, g/t	0.2	0.16	0.15
Primary Ores			
Ore, kt	14,902	17,242	18,520
Grade, g/t	1.15	1.09	1.06
Total Metal, kg	17,175	18,809	19,549
Total Metal, koz	551	605	629
Economic Cut-Off Grade, g/t	0.5	0.45	0.42
Total			
Ore, kt	24,671	27,025	28,324
Grade, g/t	1.03	1.00	0.8
Total Metal, kg	25,437	27,112	27,863
Total Metal, koz	818	872	896
Stripping Ratio (tOre/tWaste)	4.79:1	4.76:1	4.72:1

Results of the Economic Optimisation of the Andreevskaya Open Pit[1] Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
Factors	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total Rock Mass, kt	35,922	37,123	37,038
Waste, kt	33,089	33,985	33,570
Ore, kt	2,833	3,138	3,468
Grade, g/t	3.66	3.36	3,08
Economic Cut-Off Grade, g/t	0.42	0.39	0.36
Total metal, kg	10,360	10,532	10,676
Total metal, koz	333	339	343
Stripping Ratio (tOre/tWaste)	11.7:	10.8:1	9.7:1

[1] Numbers may not add up exactly due to rounding

The Pioneer reserves as derived by WAI are based on a US$650/oz gold price. This gives combined Proven and Probable reserves of 27.5Mt at an average grade of 1.30g/t Au and requires that 151.2Mt waste be removed to access the orebodies.

The Pioneer mining schedule derived by PHM using the Russian Standard Classification System expects production to reach a maximum rate of 6.1Mtpa of ore by 2010, but the production rate is expected to reduce slightly towards the end of the mine life in 2017. The average grade over the life of the mine is expected to be 1.6g/t of gold, but this varies between 2.6g/t at the beginning of the operation to 1.7g/t of gold in 2017, mainly due to the influence of the Andreevskaya open pit, which has a much higher average grade than Bakhmut, Yuzhnaya and Promezhutochnaya.

The mining schedule proposed for Pioneer is optimised to balance ore mining, waste mining and average grade each year. Mining will take place from four separate open pits and will thereafter be blended in the combined processing facilities. WAI considers the proposed schedule to be both practical and achievable given PHM's experience and management expertise gained through the Pokrovskiy operations. It should be noted, however, that the combined mining schedule includes Inferred resources and as such, less reliance can be placed on proposed tonnage and grades in the latter parts of the schedule. WAI believes it is appropriate for these future resources to be included in the long term schedule as a guide only, pending further exploration work.

WAI has examined the testwork results and PHM development plans and is in general agreement with the results. However, WAI considers that more testwork should be undertaken, particularly with regard to the pressure oxidation of the sulphide concentrates to establish operating criteria and costs and also to investigate alternative methods if applicable.

MALOMIR

The Malomir project is an advanced stage development project and as such, much technical work still needs to be completed in order to accurately estimate essential parameters used in the reserve calculation. WAI has calculated a preliminary reserve for Malomir based on the current geological resources, but this calculation relies upon preliminary assumptions, particularly metallurgical. The results of the preliminary economic optimisation and reserve calculation are shown in the table below.

Results of the Economic Optimisation of the Malomir Open Pit Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
Parameters	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total Rock Mass, kt	231,982	256,969	248,078
Waste, kt	181,220	200,243	223,892
Ore, kt	50,762	56,726	60,186
Grade, g/t	1.26	1.22	1.21
Total Gold, kg	63,994	69,333	72,616
Total Gold, koz	2,057	2,229	2,335
Stripping Ratio, t ore/t waste	3.57:1	3.53:1	3.72:1
Economic COG, g/t	0.59	0.54	0.50

The proposed mining schedule for Malomir derived from PHM's Russian Standard Classification System reserves is based on a US$650/oz gold price. This gives indicative preliminary reserves of 50.8Mt at an average grade of 1.26g/t Au and requires that some 181Mt of waste be removed to access the ore body at a stripping ratio of 3.57:1.

The reserves calculated at Malomir, and therefore the open pit design, must be considered as preliminary only, as there is still much work to be done in terms of metallurgical testing and cost estimation.

At this early stage, however, WAI is of the opinion that Malomir represents a significant open pit mineable resource which has a high potential of becoming a profitable operation in the near future, subject to the planned test work yielding the results expected.

PHM intends to start mining at Malomir in the first half of 2010. The preliminary schedule will be to mine 3.0Mt of ore in 2010, 4.0Mt in 2011 and ramping up to 6.0Mtpa from 2012 onwards. Given PHM's experience in developing and mining Pokrovskiy and in commissioning the Pioneer project, the development and mining schedule for Malomir is realistic and achievable. The size of the task is certainly within PHM's capabilities and there are no natural impediments such as terrain or location. The area has established lines of communication and is amenable to open pit mining.

The Malomir ore is known to be predominantly refractory and has been subjected to several detailed metallurgical test programmes. There are three different ore type categories within the deposits, namely Oxide, Transition and Primary. The testing of the orebody is continuing and pilot scale tests are on-going through 2008.

The Primary and Transition ore types are highly refractory due to the significant levels of gold associated with sulphide minerals (up to 40%). Various processing options were considered to treat the flotation concentrates and PHM selected Pressure Oxidation ("POX") as the most suitable method, following comminution and flotation.

The Company has been advised that the Malomir flotation concentrates could be effectively processed using autoclave oxidation and cyanidation. This view was based on the studies carried out by Irgiredmet on similar flotation concentrates from Pioneer which had a gold grade of 25-30g/t Au and sulphur content of 21%. It was predicted that autoclave treatment of the flotation concentrates at temperatures of 200-220°C at pressures of 2.5-3.0MPa for 1-2 hours, using 80% oxygen, would result in 97-98% oxidation of the sulphur and arsenic minerals present. Subsequent leaching of the oxidised concentrate would give a gold recovery of not less than 95%. Overall gold recovery is expected to be approximately 80%, with a flotation recovery of 82-84%.

WAI has inspected the testwork programmes and concurs that the chosen flowsheet is appropriate. However, further work is required to verify the various assumptions made, particularly as more details of the orebodies emerge.

YAMAL

A considerable amount of exploration has been undertaken by PHM on all of the licence areas; however, with the exception of Novogodnee-Monto (gold and iron), Zapadnoye (chromite) and the intensive exploration of Petropavloskoye in 2007 (a gold deposit which lies inside the Toupugol-Khanmeishorsky licence area), only those resources classified in the prognostic P category under the Russian Standard Classification System have been identified in the other licence areas.

Russian Standard Classification System resource and reserve estimates have been undertaken by PHM on the Novogodnee Monto, Petropavloskoye and Zapadnoye deposits. WAI has reviewed the exploration work undertaken by

PHM (density of drilling and trenching over each project as a whole) and considers that both these deposits show considerable merit and potentially may well support the development of mining projects. A summary of the Mineral Resources and Reserves held by PHM in the Yamal Region are presented in the tables below.

Resource and Reserve Summary – Russian Standard Classification System

Yamalzoloto

(PHM Annual Report as at 01/01/08)

		Gold			Magnetite			Gravel
Site	Category	Tonnage (kt)	Grade (g/t)	Metal (kg)	Tonnage (kt)	Grade (Fe_{Mgt}%)	Metal (kt)	Tonnage (000's m^3)
Novogodnee Monto								
Metasomatic Zones	C_1	64	3.80	244				11,279
	C_2	472	2.59	1223				13,828
Magnetite Ores	C_1	4814	1.11	5,324	4,814	41.16	1,981	
	C_2	345	1.22	419	529	41.61	220	
Skarn	P_1	1,960	4.67	9,144				
Toupugol-Khanmeishorsky Area								
Petropavlovskoye	C_1	7,630	1.40	10,665				
	C_2	6,661	1.52	10,156				
	P_1	5,000	6.00	30,015				
Karyerniy	P_1	1,000	10.0	10,000				
Karachentseva	P_1	667	4.50	3,000				
Anomalny	P_1	833	6.00	5,000				
Toupugolsky	P_1	437	8.00	3,500				
Khanmeishorsky	P_1	2,657	3.50	9,300				

Resource and Reserve Summary - Russian Standard Classification System

Yamal Mining Company

(PHM Annual Report as at 01/01/08)

Ozernoye-Pyatirechenskaya Area										
		Gold			Platinoids			Other		
Site	Category	Tonnage (kt)	Grade (g/t)	Metal (kg)	Tonnage (kt)	Grade (g/t)	Metal (kg)			
Ozernoye	P_1	2,300	1.0	2,300	2,333	1.50	3,500			
	P_2	-	-	-	6,667	1.50	10,000			
Rudnogorskaya Area										
Rudniy-Gorkiy-3	P_1	1,667	1.50	2,500	-	-	-	-	-	-
Elkashor								Copper		
								Tonnage (Mt)	Metal (%)	Metal (kg)
	P_2	-	-	-	-	-	-	8.0	0.10	800
								Molybdenum		
								Tonnage (Mt)	Metal (%)	Metal (kg)
	P_2							8.0	0.06	200
Yarshor-Laptayeganskaya Area										
Sandy Bay	P_1	1,000	10	10,000	-	-	-	-	-	-

PHM proposes to extract gold and magnetite from the Novogodnee Monto deposit using traditional metallurgical processing routes. 405ktpa of ore is expected to be treated at a grade of 1.06g/t Au and 42.3% Fe. Principally, gold will be processed by leaching flotation concentrates with cyanide. The gold content within the leached solutions will be further upgraded by electro-winning and smelted to produce a gold and silver alloy (doré), containing 70% Au and

30% Ag. It is intended that magnetite will be concentrated to produce a product containing 68.9% Fe using magnetic separation technology.

Based on results of metallurgical testing undertaken at the Petropavlovskoye deposit it was recommended that the Petropavlovskoye ore should be treated using flotation with subsequent cyanidation of the flotation concentrate.

FINANCIAL ANALYSIS

WAI has conducted a financial analysis of PHM's mining operations over the next 2.5 years. A financial analysis model was constructed based on the production schedule provided by PHM which utilises the Russian Standard Classified reserves.

The results are summarised in the table below.

Summary of the PHM Group Financial Analysis

		2008	*2009*	*2010*
	Unit	*Q3 and Q4*	*Q1 - Q4*	*Q1 - Q4*
Gold Produced	*kg*	5,828	15,910	25,014
Gold Produced	*Tr. oz*	187,395	511,576	804,309
Total Revenue	*US$m*	159.3	434.8	627.4
Total Capital Expenditure	*US$m*	72.1	142.5	100.2

2010 Revenue figures include an estimated US$24.2M from aggregate sales.

The assets included in the above table are the reserves at Pokrovskiy, Pioneer, Malomir, Yamal and Placers Deposit. All have also been classified in accordance with the guidelines of the JORC Code (2004).

The gold price assumptions used in the cash flow model are as follows:

- Short Term (2008/2009) – US$850/oz
- Medium Term (2010/2011) – US$750/oz
- Long Term (2012 and beyond) – US$650/oz.

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The contents of this announcement have been reviewed and approved for release by Dr. P. Newall, BSc,PhD, CEng, FIMMM, of Wardell Armstrong International. Dr. P. Newall has consented to the inclusion of the material in the form and context in which it appears.

This release has been reviewed by Dr. Stephen Henley, who is an independent geological advisor to the Board of Directors of Peter Hambro Mining Plc. Dr. Henley is qualified to act in the capacity of a Competent Person for the purposes of this statement. Dr. Stephen Henley holds a PhD in Geology (University of Nottingham, 1970). He is a Fellow of the Geological Society, a Fellow of the Institution of Materials, Minerals and Mining, and a Chartered Engineer. He is also a Charter Member of the International Association for Mathematical Geology. He has been employed in exploration, mining, academic and geological consultancy posts since 1970 and has participated in Competent Person studies on a variety of different minerals and types of deposit, including gold, polymetallic and chromite projects.

Forward-Looking Statements

This release contains forward looking statements relating to the Company's anticipated plans, resources, reserves and financial performance. The words "believe," "expect," "anticipate," "intend" and similar expressions identify forward-looking statements, but their absence does not mean the statement is not forward-looking. These statements are not guarantees of future performance and are subject to certain risks, uncertainties and assumptions that could cause actual results to differ materially from those anticipated in the forward-looking statements. You should not place undue reliance on these forward-looking statements. The forward-looking statements are made as of today's date and the Company assumes no obligation to update any such statements to reflect events or circumstances after the date hereof.

Glossary of Terms

"Ag"	chemical symbol for the element silver
"alluvial"	*Detrital* material which is transported by a river and deposited at points along the flood plain of a river
"arsenic"	metallic, steel-grey, brittle element. Chemical symbol, As
"Au"	chemical symbol for the element gold
"autoclave oxidation"	a high temperature and pressure process in which gold bearing sulphides are oxidised to render gold amenable to cyanide leaching
"Category A"	Soviet "ore reserves" where the reserves in place are known in detail. The boundaries of the deposit have been outlined by trenching, drilling, or underground workings. The quality and properties of the ore are known in sufficient detail to ensure the reliability of the projected exploitation.
"Category B"	Soviet "ore reserves" where blocks are delineated by mine workings on three or more sides
"Category C_1"	Soviet "ore reserves" whose blocks are delineated by mine workings above and below

"Category C_2"	Soviet "ore reserves extrapolated from Category C_1 but with more complex geology or limited mine workings
"Category $P_{1\text{-}3}$"	Soviet "Prognostic" ore reserves extrapolated beyond more definable reserves and resources. The category is subdivided into three sub-categories P_1 to P_3, with the level of confidence decreasing progressively from sub category 1 to 3
"Cu"	the chemical symbol for copper
"cut-off-grade" or "COG"	lowest grade of mineralised material considered economic, used in the calculation of ore resources
"cyanidation"	metallurgical technique for extracting gold by leaching from low-grade ore, converting the gold to water soluble aurocyanide metallic complex ions
"cyanide leach"	chemical extraction method using a dilute cyanide solution to leach gold from the mineralisation
"Datamine®"	complex mining software used primarily for orebody modelling, resource estimation and pit optimisation
"deposit"	coherent geological body such as a mineralised body
"doré"	unrefined gold. After being mined, the first stage in the purification process of the gold ore produces a cast bar (gold doré) that mostly comprises gold (up to >90%) with the remainder comprising silver, copper etc.

"Fe"	chemical symbol for iron
"FIMMM"	Fellow of the Institute of Material, Mining and Metallurgy
"flotation"	mineral processing technique used to separate mineral particles in a slurry, by causing them to selectively adhere to a froth and float to the surface
"g/t"	gram per metric tonne
"grade"	relative quantity or the percentage of ore mineral or metal content in an ore body
"heap leach"	process used for the recovery of metal ore from typically weathered low-grade ore. Crushed material is laid on a slightly sloping, impervious pad and uniformly leached by the percolation of the leach liquor trickling through the beds by gravity to ponds. The metals are recovered by conventional methods from the solution
"*Indicated* Resource"	as defined in the JORC Code, is that part of a Mineral Resource which has been sampled by drill holes, underground openings or other sampling procedures at locations that are too widely spaced to ensure continuity but close enough to give a reasonable indication of continuity and where geoscientific data are known with a reasonable degree of reliability. An *Indicated* Mineral resource will be based on more data and therefore will be more reliable than an Inferred resource estimate
"*Inferred*	as defined in the JORC Code, is that part of a Mineral

Resource"	Resource for which the tonnage and grade and mineral content can be estimated with a low level of confidence. It is inferred from the geological evidence and has assumed but not verified geological and/or grade continuity. It is based on information gathered through the appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability
"JORC"	Joint Ore Reserves Committee of the Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals council of Australia
"kt"	kilo tonnes (1,000 tonnes)
"leached"	a rock that is in the process of being broken down by the action of substances dissolved in water
"leaching"	see cyanidation
"magnetics"	a geophysical technique used to measure the magnetic susceptibility of rocks
"magnetite"	an iron ore mineral, Fe_3O_4
"*Measured* Resource"	defined in the JORC Code, as that part of a Mineral Resource for which the resource has been intersected and tested by drill holes, underground openings or other sampling procedures at locations which are spaced closely enough to confirm continuity and where geoscientific data are reliably known. A measured resource estimate will be based on a substantial amount of reliable data, interpretation and evaluation which allows a clear

	determination to be made of the shapes, sizes, densities and grades
"metallurgical"	describing the science concerned with the production, purification and properties of metals and their applications
"metasomatism or metasomatic"	metamorphic change which involves the introduction of material from an external source
"Micromine®"	company that has developed innovative geological resource modelling software for the mineral resource industry since 1986
"mineral resource"	concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such a form that there are reasonable prospects for the eventual economic extraction. The location, quantity, grade geological characteristics and continuity of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral resources are sub-divided into *Inferred*, *Indicated* and *Measured* categories
"Mo"	chemical symbol for molybdenum
"Mt"	million tonnes
"off balance"	Russian Standard Classification System term defining uneconomic reserves
"on balance"	Russian Standard Classification System term defining

	commercially exploitable reserves but without mining dilution and recovery
"open pit"	large scale hard rock surface mine
"optimisation process"	process to define an open pit outline based on geotechnical and economic parameters
"ore"	mineral deposit that can be extracted and marketed profitably
"ore body"	mining term to define a solid mass of mineralised rock that can be mined profitably under current or immediately foreseeable economic conditions
"ore reserve"	the economically mineable part of a *Measured* or *Indicated* mineral resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could be reasonably justified. Ore reserves are sub-divided in order of increasing confidence into *Probable* and *Proven*
"ounce" or "oz"	troy ounce (= 31.1035 grams)
"oxide"	a mineral formed by the direct union of an element with oxygen; e.g. corundum, hematite, magnetite and cassiterite

"oxide ore"	often known as secondary or supergene ore, which consists of alteration products of primary ore as a result of weathering or other surficial processes resulting from descending surface waters
"PGM"	Platinum Group Minerals. Characterised by high specific density, unusual resistance to oxidising and acid attack and high melting point. Includes platinum, ruthenium, rhodium, palladium, osmium and iridium
"placer"	mineral deposit formed by the winnowing action of either water, or air to concentrate minerals of different mass by gravity separation
"plunge"	fold is said to plunge if the axis is not horizontal
"pluton"	igneous intrusion
"plutonic"	pertaining to igneous rocks formed at great depths
"polymetallic"	refers to a mineral deposit or occurrence with several metal sulphides, common metals include Cu, Pb, Zn, Fe, Mo, Au and Ag
"primary ore"	often known as hypogene ore, where ore minerals are deposited during the original period or periods of mineralisation. Ore that has remained practically unchanged from the time of original formation

"pressure oxidation" or "POX"	a high temperature and pressure process in which gold bearing sulphides are oxidised to render gold amenable to cyanide leaching
"recovery"	proportion of valuable material obtained in the processing of an ore, stated as a percentage of the material recovered compared with the total material present
"refractory ore"	ore material that is difficult to treat for recovery of the valuable element
"reserves"	Proven: measured mineral resources, where technical economic studies show that extraction is justifiable at the time of the determination and under specific economic conditions. Probable: measured and/or indicated mineral resources which are not yet proven, but where technical economic studies show that extraction is justifiable at the time of the determination and under specific economic conditions
"RIP"	Resin in Pulp; processing technique by which a resin medium is used to adsorb the desired element out of solution or pulp
"Russian Standard Classification System"	Means by which Russian reserves are assigned to classes based on the degree of reliability of data and indicate their comparative importance for the national economy
"stockpile"	an accumulation of ore or mineral formed to create a reserve for loading or when demand slackens or when the process plant is unequal to handling mine output

"strip ratio"	the unit amount of spoil or waste that must be removed to gain access to a similar unit of ore or mineral material
"sulphide"	mineral containing sulphur in its non-oxidised form
"t"	metric tonne
"tailings"	material that remains after all metals/minerals considered economic have been removed from the ore
"tpa"	tonnes per annum
"transition ore"	zone of an orebody where both oxide and sulphide/primary ore material exists
"trench sampling"	sampling of a trench cut through the rock, generally in the form of a series of continuous channels (channel samples)

PETER HAMBRO MINING PLC

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PETER HAMBRO MINING PLC

13 November 2008

Director's Dealing

Peter Hambro Mining plc (the 'Company') announces that it has been informed today that Peter Hambro, Executive Chairman has purchased 40,000 ordinary shares of £0.01 each ("Shares") in the Company at a price of £2.13 per share. Following this transaction, Peter Hambro and his associates will hold 5,283,179 Shares, representing 6.51% of the issued share capital of the Company.

Enquiries:

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14 November 2008

Peter Hambro Mining plc, Russia's second largest gold producer, notes recent media and market commentary on the Company's production plans and the recent weakness in the Company's share price.

The Company and its geological adviser, Wardell Armstrong International Ltd., have identified areas where there have been potential misunderstandings of the Company's Reserve and Resources in recent market analysis and as a result discussions are ongoing between the relevant parties.

In the meantime the Company is pleased to confirm that the development of Pokrovskiy, Pioneer and Malomir continues as planned and the Company would direct investors towards the comprehensive statement made on 5th November 2008.

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David Simonson / Tom Randell / Maria Suleymanova	

The contents of this announcement have been reviewed and approved for release by Dr. P. Newall, BSc,PhD, CEng, FIMMM, of Wardell Armstrong International. Dr. P. Newall has consented to the inclusion of the material in the form and context in which it appears.

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PETER HAMBRO MINING PLC

18 November 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by BlackRock Inc. (through BlackRock Investment Management (UK) Limited) that its holding in the Company has increased to 10,602,666 Ordinary shares, representing 13.06% of the total issued share capital of the Company.

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PETER HAMBRO MINING PLC

28 November 2008

Director's Dealings

Peter Hambro Mining PLC announces that it has been informed by Mr. Peter Hambro, Executive Chairman, and Dr. Pavel Maslovskiy, Deputy Chairman that, on 27th November 2008, companies associated with them purchased USD 4,000,000 nominal of the Company's 7.125 per cent. Guaranteed Convertible Bonds due 2010 ("the Bonds") at a price of USD 58.00 inclusive of accrued interest.

During the course of the last week, Peter Hambro, Pavel Maslovskiy, their associated companies and the managers of Peter Hambro's pension fund have, in aggregate, purchased USD 14,400,000 nominal of the Bonds.

The purchase does not affect the current equity shareholding of Peter Hambro and his associates in the Company, which remains at 5,283,179 shares, representing 6.51% of the issued share capital of the Company nor of Dr. Pavel Maslovskiy and his associates which remains at 14,960,787 shares representing 18.43% of the issued share capital.

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PETER HAMBRO MINING PLC

5 December 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Baring Asset Management Limited that its holding has increased to 6,559,756 Ordinary shares of £0.01 each, representing 8.08% of the total issued share capital of the Company. Massachusetts Mutual Life Insurance Company, the parent Company of Baring Asset Management Limited, holds on a consolidated basis 7,507,746 Ordinary shares of £0.01 each, representing 9.25% of the total issued share capital of the Company.

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PETER HAMBRO MINING PLC

16 December 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by BlackRock Inc. (through BlackRock Investment Management (UK) Limited) that its holding in the Company has decreased to 9,699,043 Ordinary shares, representing 11.95% of the total issued share capital of the Company.

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19 December 2008

Peter Hambro Mining plc included in prestigious
FTSE Gold Mines Index of the world's leading gold miners

Peter Hambro Mining plc (the "Company") has, as of today, been included in the FTSE Gold Mines Index (the "Index") of the world's leading gold mining companies.

Inclusion in the Index is conditional predominantly upon achieving a sustained production level of in excess of 300,000 ounces per annum, and receiving the majority of its revenue from the sale of gold as opposed to other metals.

The FTSE Gold Mines Index now constitutes the top 18 gold-focussed companies in the world, with a combined production level of around 34 million ounces, representing 32% of the world gold production of 107 million ounces (World Gold Council Gold Demand Trends, November 2008, annualised estimate).

Executive Chairman, Peter Hambro, said " We are very pleased to be recognised as one of a select group of leading gold producers in the world, as part of a highly esteemed peer group, and we expect our strong growth profile to cement our position in this historic index".

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PETER HAMBRO MINING PLC

24 November 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Baring Asset Management Limited that its holding has increased to 5,684,733 Ordinary shares of £0.01 each, representing 7.005% of the total issued share capital of the Company. Massachusetts Mutual Life Insurance Company, the parent Company of Baring Asset Management Limited, holds on a consolidated basis 6,432,733 Ordinary shares of £0.01 each, representing 7.927% of the total issued share capital of the Company.

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PETER HAMBRO MINING PLC

25 November 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by Baring Asset Management Limited that its holding has increased to 6,014,683 Ordinary shares of £0.01 each, representing 7.411% of the total issued share capital of the Company. Massachusetts Mutual Life Insurance Company, the parent Company of Baring Asset Management Limited, holds on a consolidated basis 6,762,683 Ordinary shares of £0.01 each, representing 8.333% of the total issued share capital of the Company.

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PETER HAMBRO MINING PLC

25 November 2008

Director's Dealings

Peter Hambro Mining PLC announces that it has been informed today by Mr. Peter Hambro, Executive Chairman, that on 21 November 2008 the managers of his pension fund purchased USD 500,000 nominal of the Company's 7.125 per cent. Guaranteed Convertible Bonds due 2010 ("the Bonds") at a price of USD 55.00. The purchase does not affect the current equity shareholding of Peter Hambro and his associates in the Company, which remain at 5,283,179, representing 6.51% of the issued share capital of the Company.

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PETER HAMBRO MINING PLC

26 November 2008

Director's Dealings

Peter Hambro Mining PLC announces that it has been informed today by Mr. Peter Hambro, Executive Chairman, and Dr. Pavel Maslovskiy, Deputy Chairman that, on 26th November 2008, companies associated with them purchased USD 9,900,000 nominal of the Company's 7.125 per cent. Guaranteed Convertible Bonds due 2010 ("the Bonds") at a price of USD 58.00 inclusive of accrued interest.

The purchase does not affect the current equity shareholding of Peter Hambro and his associates in the Company, which remain at 5,283,179 shares, representing 6.51% of the issued share capital of the Company nor of Dr. Pavel Maslovskiy and his associates which remain at 14,960,787 shares representing 18.43% of the issued share capital.

Enquiries:

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PETER HAMBRO MINING PLC

26th November 2008

PETER HAMBRO MINING PLC REFINANCES SHORT-TERM BANK DEBT FACILITIES AND OBTAINS ADDITIONAL BANK DEBT.

Peter Hambro Mining plc (the "Company", "the Group" or "PHM") announces that Joint Stock Company Pokrovskiy Rudnik, the Group's operating subsidiary and owner of the Pokrovskiy and Pioneer mining licences, has received two loans from companies controlled by Mr. Peter Hambro, Executive Chairman, Dr. Pavel Maslovskiy, Deputy Chairman, and their business associates ("The Related Party Loans"). The details of the loans totalling USD 19.25 million, which are extended on an arm's length basis and are unsecured, are:

- $9.25m maturing 30/10/09 at 18% p.a.
- $10m maturing 30/04/09 at 16% p.a.

The loan proceeds will be used for general corporate purposes and will refinance bank debt that is in short supply in the world's credit markets today.
The independent directors of Peter Hambro Mining PLC consider, having consulted with its nominated adviser JP Morgan Cazenove, that the terms of the Related Party Loans are fair and reasonable insofar as its shareholders are concerned
Separately, in the normal course of business the Company has refinanced a further USD 11 million of bank debt facilities with a Russian bank. Together, these financings constitute full refinancing of the Group's loans maturing before the end of April 2009.
In addition the Group has obtained additional loan facilities from a Russian bank in the amount of US$19 million maturing November 2009 which will be used for general corporate purposes.

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PETER HAMBRO MINING PLC

26 November 2008

Holdings in Company

Peter Hambro Mining Plc (the "Company") has received notification by BlackRock Inc. (through BlackRock Investment Management (UK) Limited) that its holding in the Company has decreased to 10,434,236 Ordinary shares of £0.01 each, representing 12.85% of the total issued share capital of the Company.

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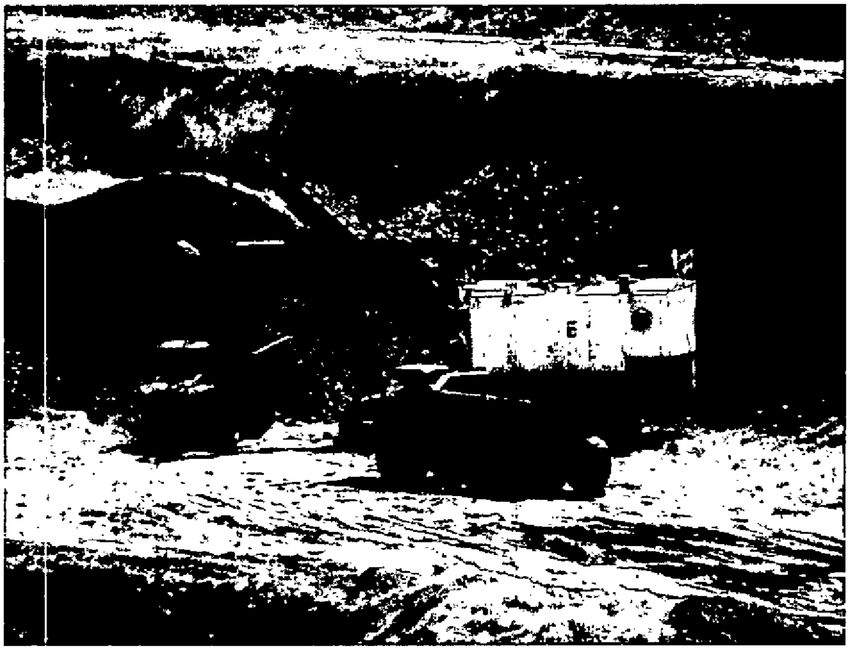
INTERNATIONAL

MINERAL EXPERT'S REPORT OF THE MINERAL ASSETS OF PETER HAMBRO MINING PLC, RUSSIAN FEDERATION



Prepared by:

Wardell Armstrong International Ltd

5th November 2008

Ref: 61-0524

This report has been prepared by Wardell Armstrong International with all reasonable skill, care and diligence, within the terms of the Contract with the Client and is addressed to the Client.

Wardell Armstrong International Limited
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www: http://www.wardell-armstrong.com
Company Number: 3813172
Registered Office: Sir Henry Doulton House, Forge Lane, Stoke on Trent, Staffordshire, ST1 5BD, UK

5th November 2008

The Directors
Peter Hambro Mining Plc
11 Grosvenor Place
London
SW1X 7HH

Dear Sirs

MINERAL EXPERT'S REPORT OF THE MINERAL ASSETS HELD BY PETER HAMBRO MINING PLC, RUSSIAN FEDERATION

1. Background

Wardell Armstrong International Limited ("WAI") has been commissioned by the Directors of Peter Hambro Mining ("PHM" the "Company") to prepare a Mineral Expert's Report ("MER") of the mineral assets held by the Company in the following regions of the Russian Federation:

- **Amur;**
- **Yamal; and**
- **Buryatia (the "Mineral Assets").**

WAI has prepared this MER for the Company. WAI has been informed that the Company does not have any other material Mineral Assets other than those referenced in this MER. All entries, including text, tables and other data, are quoted for the Mineral Assets and are not on an attributable basis.

2. Requirement and Structure of the Report

The requirement for this MER has been for WAI to examine and report on the existing information available on the various Mineral Assets held by the Company in the Far East and Polar Ural regions of the Russian Federation, which includes geological, resources/reserves, mining and metallurgical data and basic economic parameters. During site visits made by WAI, further information was gathered on infrastructure, equipment, costs, mining methods and environmental issues. For project sites, the data originates from both the Soviet period and on-going mining/exploration activities.

This MER has been structured on a technical discipline basis into sections on Geology, Mineral Resources and Ore Reserves, Mining Engineering, Mineral Processing, Tailings Management, Infrastructure, Occupational Health and Safety, Environmental Management, and a Financial Assessment for each of the Mineral Assets.

3. Verification, Validation and Reliance

The technical information as provided by the Company to, and taken in good faith by, WAI has not been independently verified by means of re-calculation, but all reserve and resource estimates have been substantiated by evidence from WAI's site visits and observations, are supported by details of exploration results, analyses and other evidence and take account of all relevant information supplied by the Company. WAI has, however, conducted a review and assessment of all material technical issues likely to influence the future performance of the Mineral Assets, which included the following:

- Inspection visits to the mining operations, processing facilities, surface structures and associated infrastructure, undertaken in 2007 and 2008, with:
    - Discussion and enquiry, following access to key on-site and corporate personnel between April and September 2007 and again in July 2008;
    - An examination of historical information and results made available by the Company in respect of mining;
    - An audit review and, where considered appropriate by WAI, modification of the current computer generated Micromine Resources Models and Estimates and its classification of mineral resources and ore reserves in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves as prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia, the ("JORC Code (2004)"); and
    - A review and where considered appropriate by WAI, modification of the Company's production forecasts and costs; and
- Satisfied itself that such information is both appropriate and valid for valuation as reported herein.

WAI has placed reliance on the Company that the following information provided by the Company to WAI is both valid and accurate for the purpose of compiling this MER:

- All technical information; and
- That the legal ownership of all mineral and surface rights has been verified and that no significant legal issues exist which would affect the likely viability of a project and/or the mineral resources and ore reserves as reported herein.

Finally, WAI has relied upon distribution costs and price projections as provided to it by the Company for its valuation of the Company's ore reserves. WAI understands that the Company has made its projections having considered current market projections.

4. Limitations, Reliance on Information, Declarations, Consent and Copyright

4.1 *Limitations*

The Company has confirmed to WAI that to its knowledge the information provided by the Company was true, accurate and complete and not incorrect, misleading or irrelevant in any aspect. WAI has no reason to believe that any facts have been withheld.

The achievability of the budgets and forecasts are neither warranted nor guaranteed by WAI. The forecasts as presented and discussed herein have been proposed by the Company's management and adjusted where appropriate by WAI, and cannot be assured. They are necessarily based on economic assumptions, many of which are beyond the control of the Company. Future cash flows and profits derived from such forecasts are inherently uncertain and actual results may be significantly more or less favourable than presented here.

4.2 Reliance on Information

WAI's valuation of the Company's reserves is effective at 30 June 2008 ("Valuation Date") and is based on information provided by the Company throughout the course of WAI's investigations, which in turn reflect various technical-economic conditions prevailing at the date of this report. In particular, the valuation of the ore reserves is based on gold price assumptions provided to it by the Company and exchange rates prevailing at the date of this MER. WAI understands that the Company has made its projections having considered current market projections. These and the underlying Technical Economic Parameters ("TEPs") can change significantly from those assumed over relatively short periods of time. Should these change materially, the valuation of the Company's ore reserves could be materially different.

To the best of the knowledge of WAI, having made enquiries of the Company, there has been no material change to the ore reserves between the Valuation Date and the date of this document.

4.3 Declarations

WAI will receive a fee for the preparation of this MER in accordance with normal professional consulting practice. This fee is not contingent on any event and WAI will receive no other benefit. For the preparation of this report, WAI does not have any pecuniary or other interests that could reasonably be regarded as capable of affecting its ability to provide an unbiased opinion in relation to the valuation of the Company's ore reserves.

WAI does not have, at the date of this MER, and has not had within the previous two years, any shareholding in or other relationship with the Company or the Mineral Assets and consequently considers itself to be independent of the Company.

In this MER, WAI provides assurances to the Directors of the Company that the TEPs, including production profiles, operating expenditures and capital expenditures, of the Mineral Assets as provided to WAI by the Company and reviewed and, where appropriate, modified by WAI are reasonable, given the information currently available.

This MER includes technical information, which requires subsequent calculations to derive subtotals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, WAI does not consider them to be material.

4.4 Consent and Copyright

Neither the whole nor any part of this MER nor any reference thereto may be included in any other document without the prior written consent of WAI regarding the form and context in which it appears.

Copyright of all text and other matter in this document, including the manner of presentation, is the exclusive property of WAI. It is an offence to publish this document or any part of the document under a different cover, or to reproduce and/or use, without written consent, any technical procedure and/or technique contained in this document. The intellectual property reflected in the contents resides with WAI and shall not be used for any activity that does not involve WAI, without the written consent of WAI.

5. Qualification of Consultants

WAI comprises over 50 staff, offering expertise in a wide range of resource and engineering disciplines. WAI's independence is ensured by the fact that it holds no equity in any project. This permits WAI to provide its clients with conflict-free and objective recommendations on crucial judgment issues. WAI has a demonstrated track record in undertaking independent assessments of resources and reserves, project evaluations and audits, MERs and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies and financial institutions worldwide.

This MER has been prepared based on a technical and economic review by a team of consultants sourced from the WAI offices in Europe over a 12 month period. These consultants are specialists in the fields of geology, resource and reserve estimation and classification, open pit mining, rock engineering, mineral processing, hydrogeology and hydrology, tailings management, infrastructure, environmental management and mineral economics.

The individuals listed below have provided input to this MER and have extensive experience in the mining industry and are members in good standing of appropriate professional institutions:

- **Phil Newall, BSc, PhD, FIMMM, CEng**, is a Director of Minerals with WAI and has practised his profession as a mine and exploration geologist for over 20 years for both base and precious metals;
- **Mark Owen, BSc, MSc, MCSM, CGeol, EurGeol, FGS**, is a Technical Director with WAI and has over 25 years international experience as a mine and exploration geologist in both surface and underground mining operations;
- **Anton Kornitskiy, MSc, PhD**, is a Senior Resource Geologist with WAI and has 10 years experience in the evaluation of a wide range of minerals, specialising in the assessment of gold deposits and in the use of Datamine® geological modelling software;
- **Owen Mihalop, BSc, MSc, MCSM, MIMMM, CEng** is a Principal Mining Engineer with WAI and has over 12 years broad based experience in the mining and quarrying industries. He has worked as an operations manager in industrial mineral mining and quarrying operations in the UK and has gained considerable project management experience through these roles;
- **Philip King, BSc, ARSM, MIMMM** is a Technical Director of Metallurgy with WAI and has over 20 years experience within the minerals industry in both process testwork and design for metallic and industrial minerals worldwide; and
- **Kim-Marie Clothier BSc, MRes, AIEEM, GradIMMM** is a Senior Environmental Scientist with WAI and has over 5 years experience, mainly dealing with Environmental and Social Impact Assessments on mining projects overseas

The Competent Person (CP) who has supervised the production of this MER is Dr P S Newall BSc PhD FIMMM CEng who is Director of Minerals with WAI and a Mining Geologist with over 20 years experience in the mining industry and has been responsible for the reporting of Mineral Resources and Ore Reserves on various properties internationally during the past 20 years including gold; precious and polymetallic deposits. He also has a significant amount of experience in Russia and the CIS countries having managed the preparation of several due diligence studies and MER's on behalf of companies with projects in these countries.

Yours faithfully

Dr. P S Newall
BSc PhD FIMMM CEng

For and on behalf of
Wardell Armstrong International Ltd

MINERAL EXPERT'S REPORT OF THE ASSETS OF PETER HAMBRO MINING PLC, RUSSIAN FEDERATION

DOCUMENT CONTROL

Report prepared for:	**Peter Hambro Mining plc**		
Contract Number:	**61-0524**	*Report Number:*	**MM345**
Report Status:	**Final**	*Version Number:*	**1.0**
Date of issue:	**5th November 2008**		

PREPARED BY:

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APPROVED FOR ISSUE BY:

Phil Newall		
Director	P. N.	5/11/08
	Signature	Date

WARDELL ARMSTRONG INTERNATIONAL LTD • WHEAL JANE • BALDHU • TRURO • CORNWALL TR3 6EH • UK COMPANY REG. No. 3813172 • VAT No. GB 136 9522 03

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PHOTOS

APPENDICES

EXECUTIVE SUMMARY

Introduction

Wardell Armstrong International ("WAI") has been commissioned by Peter Hambro Mining ("PHM", the "Company") to prepare a Mineral Expert's Report for PHM's portfolio of assets in the Amur, Yamal and Buryatia regions of Russia.

The Company's principal gold assets are located in the Amur Region of Far East Russia. The main asset is the Pokrovskiy Rudnik Mine open pit operation which has been in production since 1999 and which produced some 237koz Au in 2007 primarily from the Resin-In-Pulp (RIP) plant, but some 15% from the heap leach process. In addition, the Pioneer project nearby was commissioned in 2007 and is currently transporting high grade ore from the Andreevskaya deposit for treatment at Pokrovskiy as well as treating low grade oxide ores by heap leaching.

In addition, the Company plans to develop the Malomir project further to the east in early 2010 where a large refactory gold resource is currently being evaluated and a preliminary reserve statement made.

The Company also holds numerous exploration licences in the Amur Region for both hard-rock and placer gold development. These are at various stages of assessment and development, from grass-roots targets with little or no recent work, to active placer gold producers and more advanced drill projects. The most important ones are Tokur where small-scale gold production comes from a new gravity plant treating mine waste dumps and Albyn where a large resource is being delineated from an extensive trenching and drilling campaign.

The Company also holds a number of prospective gold and gold-PGM targets in the Yamal Region of the Polar Urals. Of these assets, Novogodnee Monto and Petropavlovskoye are at an advanced stage of exploration with defined resources which PHM hope to develop through to production.

In addition to the mineral assets, PHM has also acquired approximately 99.84% of OAO Irgiredmet with the remainder owned by Management of Irgiredmet, one of the best-known laboratory, research and scientific consulting companies in Russian. Irgiredmet is based in the Siberian city of Irkutsk.

For this report, the resources and reserves of PHM have been estimated using both the guidelines of the JORC Code (2004) and the Russian Standard Classification System. The resources and reserves for the principal assets of Pokrovskiy, Pioneer and Malomir have been estimated in accordance with the JORC Code (2004), whilst the remainder are classified under the Russian Standard Classification System. The production schedule and cash flow analysis utilise the Russian Standard Classification System reserve estimates.

Highlights

WAI's review of PHM's mineral assets, the Company benefits from the following positive factors:

- second largest gold producer in Russia (297koz in 2007) with a long track record of operation;
- principal assets are in the well developed Amur region;
- strong existing operations base at Pokrovskiy and recently commissioned Pioneer project;
- relatively low operating cost (cash cost/oz), open pit operations;
- large gold resource at Malomir scheduled to come on line in 2010;
- aggressive exploration strategy to bring new resources into the asset base; and
- highly experienced Russian personnel at all levels of management.

WAI assesses the potential risks to the Company as:

- Meeting its current production schedule; and
- Management of production costs particularly at Malomir and Pioneer.

In addition, the high grade ore columns seen at Pioneer (Andreevskaya in particular) are inherently extremely difficult to evaluate due to their small dimensions. Their metal contents are high and thus have considerable bearing on the value of the deposit. WAI believes that generally any estimation method from drilling will underestimate these targets and thus very often higher grades will be produced than predicted. However, only production reconciliation will determine whether this is a positive or negative factor on operations.

Licences

The licence term for all of PHM assets are summarised in the tables below.

Subsoil Use Licences Placer Gold										
Site	Licence Holder	Licence No	Area km²	Date of issue	Expiry date	Subject	Basic licence conditions			
							Submission of report	Start of exploitation	First year mining output (kg Au)	Mining output in following years
Selemja river valley with tributary Kera riv.	Koboldo OJSC (95.7% PHM Holding)	BLG 01142 BE	20.2	16.10.2000	31.12.2013	Mining			100	100
Big Karaurak upstream basin		BLG 01842 BR	27.2	13.07.2006	31.12.2017	Exploration and mining	II quarter 2011	2012	40	40
Lower reach basin of Big Karaurak (terrace+drag)		BLG 01841 BR	35.6	13.07.2006	31.12.2021	Exploration and mining	IV qu. 2009	2007	90	90
Valleys of Levy, Murzilka, Pobeda, Zonalny, Zavershayushy, Reshayushy, Platinovy – tributaries of Gar-2		BLG 01843 BR	18.8	13.07.2006	31.12.2019	Exploration and mining	II qu. 2010	2011	50	50
Valley of Chelogor brook, right-hand tributary of Small Karaurak.		BLG 01832 BR	2	13.06.2006	31.12.2012	Exploration and mining	IV qu. 2008	2009	15	15
Gar – 2		BLG 01885 BR	15	14.12.2006	31.12.2017	Exploration and mining	30.11.2009	2010	80	80
Kenurakh river, right-hand tributary of Selemdja		BLG 13959 BE	7	21.02.2007	30.12.2026	Mining		2009	100	100
Ima river, left-hand tributary of Kera		BLG 01139 BE	0.695	16.10.2000	31.12.2012	Mining				
Sashin stream, Natashin		BLG 01990 BR	5.7	05.02.2008	31.12.2016	Exploration and mining				
Maliy Lukachek stream		BLG 01991 BR	1.2	05.02.2008	31.12.2014	Exploration and mining				
Small Karaurak right-hand trib. Of Selemja		BLG 13973 BE	23	02.03.2007	30.12.2031	Exploration and mining	Till 30.12.2012	2014	70	70
Valley of brook Osipkan, r.-h. trib. Of Big Karaurak and its r.-h. trib. Nikolayevsky brook	Amur-Dore CJSC (100% PHM Holding)	BLG 01720 BR	9	17.08.2005	31.12.2015	Exploration and mining	IV qu. 2007	till 30.12.2008r.	30	30
Uspenskiy river		BLG 01637 BR	15	05.03.2005	31.12.2010	Exploration and mining				
Djeltulak Bolshoy		BLG 01960 BE	2.1	12.11.2007	31.12.2020	Mining				
Pikan stream, Cheremushkiniy		BLG 01961 BE	2.7	12.11.2007	31.12.2019	Mining				
Valleys of brooks Sagur, Motor, Berkachan, Selemja riv. Basin		BLG 01613 BR	1.4	14.01.2005	31.12.2014	Exploration and mining	II qu. 2008	Not specified	20	20
Valley of riv. Gar-1 with Levy brook. Gar riv. basin		BLG 01950 BR	4	03.08.2007	31.12.2014	Exploration and mining	31.01.2010	30.10.2010 r.	40	40
Riv. Ulunga, middle reach		BLG 01951 BE	1	03.08.2007	31.12.2014	Exploration and mining	31.06.2009	31.06.2010 r.	70	70
Stream Igak, left tributary of river Urkan	Elga LLC (100% PHM Holding)	BLG 01634 BR	30	03.03.2005	31.12.2019	Exploration and mining				
River Obka		BLG 01635 BE	1.18	03.03.2005	31.12.2012	Mining				
Streams: Talga-Makit, Ulagir (Ulegir, Uligir, Maliy and Bolshoy, right of the river Juvasit)		BLG 01636 BR	1.18	03.03.2005	31.12.2008 *	Exploration				
Brianta river	GDK Odolgo LLC (50% PHM Holding)	BLG 01563 BR	53.2	23.08.2004	31.12.2010	Exploration and mining				
Des river		BLG 01962 BR	255.1	15.11.2007	31.12.2021	Exploration and mining				
Sergeevskiy Stream	Pokrovskiy Rudnik OJSC (100% PHM Holding)	BLG 01061 BE	5.837	07.04.2000	31.12.2015	Mining				

(*The documents for extension of the licence are usually filed two-three months before the expiry date, PHM have not filed these yet.)

PHM Hard Rock Assets Licences

Company	Licence ID	% PHM Holding	Commodity	Deposit	Licence Type	Area		Licence Registration Date	Licence Expiry Date
				Amur Region					
OAO "Pokrovskiy Rudnik"	BLG 01181 BR	100%	Gold	Pioneer Deposit Including Flanks	Prospecting, Expl & Mining	52	km^2	15/01/2001	31/12/2013
	BLG 01697 BR		Gold	Zheltunakskaya Ore Prospective Field	Prospecting, Expl & Mining	147	km^2	14/06/2005	31/12/2030
	BLG 01460 BP		Gold	Tokur Ore Field (Including Glavnii Fault)	Prospecting	153	km^2	04/09/2003	04/09/2008
	BLG 13995 BR		Gold	Aprelskaya Area	Prospecting, Expl & Mining	46	km^2	13/03/2007	30/12/2031
	BLG 10590 BE		Gold	Pokrovskiy Deposit	Mining	4.21	km^2	20/02/1998	01/06/2014
	BLG 00900 BR		Gold	Sergeyevskiy Ore Field	Prospecting, Expl & Mining	95	km^2	06/05/1999	01/09/2020
ZAO "Malomyrskiy Rudnik"	BLG 01892 BP	98.61%	Gold	Malomir Ore Field (Malomir NE and SW Flanks)	Prospecting	38.5	km^2	01/02/2007	31/12/2009
	BLG 14039 BE		Gold	Malomir Gold Deposit	Exploration and mining	40	km^2	27/04/2007	15/04/2030
ZAO "Spanch"	BLG 01784 BR	100%	Gold	Albyn Ore Prospective Area	Prospecting, Expl & Mining	40	km^2	15/02/2006	31/12/2030
OOO GRK "Victoria"	BLG 01526 BR	100%	Gold	Chagoyanskaya Ore Prospective Area	Prospecting, Expl & Mining	35	km^2	25/05/2004	31/03/2024
OOO "Olga"	BLG 01551 BP	100%	Gold	Gar-II Occurrence	Prospecting	90	km^2	22/07/2004	31/12/2009
	BLG 01883 BR		Gold	Sugjar Occurrence	Prospecting, Expl & Mining	14	km^2	14/12/2006	31/12/2031
	BLG 01550 BP		Gold	Adamikha Occurrence	Prospecting	240	km^2	22/07/2004	30/09/2009
	BLG 13937 BR		Gold	Shaman Ore Field	Prospecting, Expl & Mining	60	km^2	12/02/2007	30/12/2031
OOO "Osipkan"	BLG 01866 BR	100%	Gold	Osipkan ore occurrence	Prospecting, Expl & Mining	24.5	km^2	22/09/2006	31/12/2031
	BLG 01984 BR		Gold	Sagur-Semertakskaya Ore Prospective Area	Prospecting, Expl & Mining	90	km^2	23/01/2008	31/12/2032
OOO "Rudoperspektiva"	BLG 13938 BR	100%	Gold	Oldoyskaya Area	Prospecting, Expl & Mining	742.6	km^2	12/02/2007	30/12/2031
	BLG 13939 BR		Gold	Taldanskaya Area	Prospecting, Expl & Mining	94	km^2	12/02/2007	30/12/2031
OOO "Tokurskiy Rudnik"	BLG 01366 BE	100%	Gold	Tokur Deposit	Mining	480	ha	22/11/2002	31/12/2013
OOO GDK "Odolgo"	BLG 13936 BR	50%	Gold	Solovevskaya Area	Prospecting, Expl & Mining	253.7	km^2	12/02/2007	30/12/2031
	BLG 01522 BR		Gold	Odolgo Ore Occurrence	Prospecting, Expl & Mining	4.5	km^2	24/05/2004	01/09/2018
				Yamal					
OOO "Yamalzoloto"	SLH 01212 BR	98.74%	Gold	Novogodneye-Monto deposit	Prospecting, Expl & Mining	0.48	km^2	31/01/2002	31/12/2020
	SLH01356 BP		Gold	Toupogol-Khanmeyshor area	Prospecting	10	km^2	04/04/2003	31/12/2009
OAO "Yamal Mining Company"	SLH 01588 BP	74.87%	Gold-PGM	Yarshor-Laptayeganskaya zone	Prospecting	163.11	km^2	06/05/2004	31/12/2009
	SLH 01589 BP		Gold	Voykaro-Shuchinskaya zone	Prospecting	4800	km^2	06/05/2004	31/12/2009
	SLH 01864 TP		Magnetite ores	Shuchinsky ore district	Prospecting	490	km^2	08/06/2006	31/12/2009
ZAO "Sever-Chrom"	SLH 13779 TE	74.87%	Chromite	Zapadnoye deposit	Exploration and mining	0.45	km^2	10/10/2006	10/03/2026
ZAO "Region"	UDE 01039 BR	98.61%	Gold	Talikit Area	Prospecting, Expl & Mining	766.55	km^2	19/04/2006	20/04/2026

Amur Region

Background

The region has a vast resource potential and gold production is one of the region's leading economic sectors, is currently ranked third amongst the gold producing regions of the Russian Federation.

The region's economy is diversified and based on industry, agriculture and construction; its key industries are the power, non-ferrous metallurgy, coal, food and forestry and woodworking industries. The region has two large hydroelectric power stations with plans for the construction of three more.

The region has a total area of almost 364,000km^2 and a population of approximately 1 million people. The Amur River extends along 1,246km of the southern border of the region and is the official dividing line between Russia and China.

The region has a good transport system, based on two of Russia's key railroads (Trans-Siberian and Baikal-Amur), two major rivers in the Amur and Zeya, a reasonable road network and importantly, good access to low cost electricity from two large hydroelectric plants. The capital of the region, Blagoveschensk, lies on the Amur River on the Chinese border and is served by regular flights from several major cities in Russia, including Moscow.

Resource Summary

Concurrently with resource estimates prepared under Russian requirements, PHM has also estimated Mineral Resources and Reserves in accordance with the guidelines of the JORC Code (2004) for the principal ore zones within the Pokrovskiy and Pioneer deposits. These have been reviewed by WAI, and in addition, WAI has prepared a resource estimate for the Malomir deposit using Datamine® geological modelling software in accordance with the guidelines of the JORC Code (2004).

The Micromine® estimates were prepared on behalf of PHM by Miramine (a Russian consultancy company based in Moscow). Miramine has estimated Mineral Resources and Reserves in accordance with the guidelines of the JORC Code (2004).

WAI has used the Micromine® models to establish Ore Reserves using NPV Scheduler and economic parameters provided by PHM, for Pokrovskiy and Pioneer, as well as for a conceptual mine plan at Malomir based on WAI's own Datamine® model. WAI considers that where sufficiently robust, the Micromine® models have been utilised as the primary reporting estimates for PHM and has reviewed them accordingly and made commentary on them in this report. In addition, WAI has prepared a new resource model for Malomir and similarly derived reserves using NPV Scheduler®. Furthermore, WAI has also audited an updated model for Andreevskoye prepared by Miramine.

WAI has taken the mineral resources prepared in accordance with the Russian Standard Classification System for those assets where no Micromine® models are available. WAI has reviewed Russian standard estimates for Albyn; Quartzite and Ozhidaemoe (both of which Malomir deposit), together with estimates for the Pokrovskiy flanks, in order to give an expert opinion on which part of these resources can be classified as mineral resources as defined by the JORC Code (2004).

WAI would like to stress, however, that this resource review did not include a complete QA/QC audit, nor a comprehensive audit of all the calculations and measurements utilised, to a level sufficient to allow WAI to confirm the quoted resource figures. However, WAI has no reason to believe that these estimates are inaccurate.

Summaries of the mineral resources and reserves attributed to PHM in the Amur Region are presented in the tables below. These tables are not alternatives to each other, but comprise those resources that have been prepared in accordance with the JORC Code (2004) and those that have been prepared in accordance with the Russian Standard Classification System. The PHM Yamal Resources are tabulated separately on page 26 of this executive summary.

PHM Mineral Resources Classified in accordance with the guidelines of the JORC Code (2004) (WAI July 2008)													
Type	Category	Pokrovka-1[2]				Pokrovka-3[2]				Andreevskaya[2]			
		Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Oxide (0.4g/t Au COG)	*Measured*	51	2.11	108	3					327	7.44	2,429	78
	Indicated	478	1.74	832	27					73	4.54	330	11
	Measured + Indicated	**529**	**1.78**	**940**	**30**					**399**	**6.91**	**2,759**	**89**
	Inferred	5,707	1.11	6,335	204					21	5.13	109	3.5
Sulphide (0.4g/t Au COG)	*Measured*	1,905	2.14	4,077	131	1,463	1.36	1,987	64	2,294	2.33	5,344	101
	Indicated	3,469	2.01	6,969	224	1,012	0.73	738	23	1,576	2.00	3,153	172
	Measured + Indicated	**5,374**	**2.06**	**11,046**	**355**	**2,474**	**1.10**	**2,725**	**87**	**3,869**	**2.20**	**8,498**	273
	Inferred	7,267	1.3	10,050	323	991	0.58	570	18	3,271	1.70	5,575	179
TOTAL[1]	*Measured*	1,956	2.13	4,185	134	1,463	1.36	1,987	64	2,621	2.97	7,773	250
	Indicated	3,947	1.98	7,801	251	1,012	0.73	738	23	1,649	2.11	3,483	112
	Measured + Indicated	**5,903**	**2.03**	**11,986**	**385**	**2,474**	**1.10**	**2,725**	**87**	**4,270**	**2.64**	**11,256**	362
	Inferred	12,974	1.26	16,385	527	991	0.58	570	18	3,292	1.73	5,684	183

Note:

[1] - TOTAL includes Oxide at 0.4g/t Au COG and Sulphide at 0.4g/t Au COG

[2] - WAI audit of PHM Micromine® resource models

PHM Mineral Resources Classified in accordance with the guidelines of the JORC Code (2004) (WAI July 2008)										
Type	Category	Pioneer [2]				Malomir [3]				
		Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Oxide (0.4g/t Au COG)	*Measured*	5,210	0.94	4,921	158				
	Indicated	3,842	0.82	3,147	101				
	Measured + Indicated	**9,052**	**0.89**	**8,068**	**259**				
	Inferred	11,688	0.73	9,253	276				
Sulphide (0.6g/t Au COG)	*Measured*	9,750	1.19	11,638	374	7,239	1.31	9,501	305
	Indicated	11,012	1.15	12,715	408	57,156	1.19	68,115	2,190
	Measured + Indicated	**20,762**	**1.17**	**24,353**	**782**	**64,395**	**1.21**	**77,616**	**2,495**
	Inferred	26,676	1.00	26,767	859	87,549	0.94	82,262	2,645
TOTAL [1] Oxide (0.4g/t Au COG) + Sulphide (0.6g/t Au COG)	*Measured*	14,960	1.11	16,559	532	7,239	1.31	9,501	305
	Indicated	14,854	1.07	15,862	510	57,156	1.19	68,115	2,190
	Measured + Indicated	**29,814**	**1.09**	**32,421**	**1,042**	**64,395**	**1.21**	**77,616**	**2,495**
	Inferred	38,364	0.92	35,355	1,137	87,549	0.94	82,262	2,645

Note:

1 - TOTAL includes Oxide at 0.4g/t Au COG and Sulphide at 0.6g/t Au COG

2 - WAI audit of PHM Micromine® resource models

3 - WAI Datamine® estimate based on PHM sample database

PHM Proven and Probable Mineral Reserves [1] Classified in accordance with the guidelines of the JORC Code (2004) (WAI July 2008)					
	Ore *(Mt)*	Grade *(g/t)*	Contained Gold *(kg)*	Contained Gold (oz)	Stripping Ratio *(t Waste:t Ore)*
Pokrovskiy Total	5.6	2.05	11,500	369,733	4.2:1
Andreevskaya	*2.8*	*3.66*	*10,400*	*334,368*	*11.7:1*
Bakhmut, Yuzhnaya and Promezhutochnaya	*24.7*	*1.03*	*25,500*	*819,843*	*4.8:1*
Pioneer Total	27.5	1.30	35,900	1,154,211	5.5:1
Malomir Total	50.8	1.26	64,000	2,057,646	3.6:1
Total PHM Reserve	**83.9**	**1.33**	**111,400**	**3,581,590**	**4.3:1**

PHM also evaluates mineral resources in accordance with the Russian Standard Classification System technical regulations, which classifies into A, B, C_1 and C_2 resource/reserve categories, as well as P_1, P_2 and P_3 "prognostic" resource categories.

The Russian Standard Classification System is based principally on the technical ability to extract a mineral reserve and takes into account the economic viability of extraction in the same way as internationally recognised mineral resource and reserve classification systems.

1 *Above reserves are inclusive of resources and based on a US$650/oz gold price.*

Resources prepared in accordance with the Russian Standard Classification System are evaluated using conventional projection and/or sectional methods internally by PHM. For Pokrovskiy resources and reserves were approved by Gosudarstvennaya Komissia po Zapasam, referred to as GKZ (Russian State Mineral Resources/Ore Reserves Authority) in 1987.

In accordance with Russian legislation, two documents are submitted to GKZ, initially a pre-feasibility study and thereafter a feasibility study. GKZ firstly approves the pre-feasibility study and later, on the basis of this pre-feasibility study approves the reserves when the full feasibility study is submitted.

A pre-feasibility study has already been submitted for the Pioneer deposit and a full feasibility study for Pioneer is expected to be submitted in November 2008. In addition, the pre-feasibility study for Malomir is expected to be submitted in November 2008 and a full feasibility study is expected to be submitted by the first quarter of 2009.

The Tokur and Burindinskoye resources were evaluated in the late 1980s and subsequently audited by PHM.

PHM Resources and Reserves Summary – Russian Standard Classification (PHM Annual Report 2007 – As at 01/01/08)

Deposit	Category	B + C1 Tonnage (kt)	B + C1 Grade (g/t Au)	B + C1 Metal (kg Au)	B + C1 Metal (koz Au)	C2 Tonnage (kt)	C2 Grade (g/t Au)	C2 Metal (kg Au)	C2 Metal (koz Au)	P1 Tonnage (kt)	P1 Grade (g/t Au)	P1 Metal (kg Au)	P1 Metal (koz Au)
Pokrovskiy Main	Balance	4,450	4.23	18,824	605	576	3.94	2,269	73	1,540	3.90	6,000	193
	Off Balance	8,162	1.0	8,162	262	23	0.91	21	0.7				
Stockpiles	Balance	4,259	1.33	5,665	182								
	Off Balance	3,924	0.73	2,865	92								
RIP Tailings	Balance	7,067	0.42	2,968	95								
Inner Flanks	Balance					92	3.91	360	12				
	Off Balance					11,430	1.20	13,716	441	2,730	1.70	4,641	149
Fanglomerates	*Off Balance*					3,100	1.00	3,100	100	2,560	0.80	2,048	66
Upper Luzhki	Balance									3,550	2.00	7,100	228
Anatolievsky	Balance									400	2.50	1,000	32
Pokrovskiy Totals	Balance	15,777	1.74	27,457	882	338	3.90	2,605	96	5,490	2.57	17,755	442
	Off Balance	12,086	0.97	11,027	354	14,553	1.16	16,837	541	5,290	1.27	6,689	215
Pioneer						72,658	1.61	116,979	3,761	21,760	1.63	35,469	1,140
Malomir						51,770	1.55	80,326	2,580	38,708	1.40	54,258	1,742
Tokur		3,932	3.24	12,740	410	8,851	2.36	20,888	672	15,010	3.40	51,034	1,641
Albyn										12,968	3.90	50,575	1,626
Novogodnee Monto	Balance	4,878	1.14	5,560	179	817	2.00	1,634	53	1,960	4.70	9,212	296
	Off Balance					185	1.04	192	6.6				
Toupugal		7,630	1.40	10,682	343	6,661	1.52	10,125	326	7,900	5.80	45,820	1,473
Ozernoye Au										2,300	1.00	2,300	74
PGM's										2,300	1.50	3,450	111
Amur Region						1,366	8.49	11,597	373	2,063	7.43	15,328	493
GROUP TOTAL (Excl. PGM's)		**44,303**	**1.54**	**67,466**	**2,168**	**157,529**	**1.66**	**261,101**	**8,409**	**115,749**	**2.49**	**287,823**	**9,253**

Note: Apart from the resource/reserve categories, there is also a Russian economic viability classification. This applies only when there is sufficient information (geological, metallurgical testwork, etc.) to define reserves (categories C_2 and higher).

Balansovye (**balance**) ore is ore that is considered as economic, above a defined cut-off-grade and considered as exploitable under currently available technology. By definition a Russian official C_1, B, or A category reserve is considered to consist of balance ore and is included in the Russian State balance (inventory) of mineral reserves. In international reporting terms such material would usually be considered as proved or probable reserves.

Zabalansovye (**out-of-balance** or **off-balance**) resources are uneconomic or marginal under present economic circumstances or with currently available technology. For example, they may consist of low-grade material, which may still be mined, but are not officially considered suitable for commercial exploitation, and are not included in the State balance. In international reporting terms these may or may not be considered to be measured, indicated resources. If unlikely to be economically exploitable in the foreseeable future, they would not even be considered as resources.

Pokrovskiy

OJSC Pokrovskiy Rudnik (98.6% owned by the Group) owns the Pokrovskiy Mine which currently represents the principal gold producer within the Group, producing some 297koz of attributable gold in 2007. The first gold was produced in 1999 from the heap leach operation, whilst in September 2002, PHM completed the construction of the new resin-in-pulp processing plant at Pokrovskiy and the first gold produced through the plant was poured. In 2004, PHM completed the upgrade of capacity at its resin-in-pulp plant at Pokrovskiy from 1Mt of ore per annum to 2.0Mt of oxide ore per annum.

The Pokrovskiy deposit consists of a set of five large, irregular, but mostly flat-lying ore bodies within a sequence of volcanic and sedimentary rocks of Mesozoic age, lying above a thick dacite sill. The ore bodies consist of gold disseminations that appear to be associated with intense block faulting, which characterises the geology of this region. Where the dacite sill is at its shallowest depths, more steeply dipping veins and mineralised zones occur, controlled principally by the distribution of faulting. There are also alluvial placer deposits along most of the surrounding stream valleys.

Mineralisation extends to at least 240m depth and two distinct deposits are recognised at Pokrovka 1 (the main area of current production) and Pokrovka 3 located 400m to the northeast. The Pokrovka 1 deposit comprises four separate mineralised zones including the Glavnoye, Zeyskoye, Novoye and Ozernoye zones. The Molodezhnoye mineralisation comprises the Pokrovka 3 deposit. The principal host rocks are granite at the Pokrovka 1 deposit and dacite tuff at the Pokrovka 3 deposit. Both units are cut by steep to shallow dipping quartz porphyry and diorite porphyry dykes.

All lithologies that comprise the deposit demonstrate intensive multiple-phase alteration, including argillisation, silicification, sulphidation and sericitisation. Gold mineralisation occurs in quartz veins and veinlets and areas of intense silicification up to 70m thick. High grade zones demonstrate intense silicification, brecciation and quartz in banded or colloform textures. Gold occurs as fine particles, both encapsulated in silica and in contact with sulphide minerals, predominately pyrite with minor marcasite, arsenopyrite, galena and sphalerite.

The mineralisation demonstrates reasonable continuity when outlined at a cut-off grade of 0.5g/t Au and remains more or less continuous at a cut-off grade of 1.0g/t Au. At a cut-off above 1.0g/t Au, the mineral resources become discontinuous and irregular in form.

Pokrovskiy is an active open pit mine using conventional truck and shovel excavation techniques and has been in production since 1999. Currently, ore production is in the order of 2.4Mtpa at a grade of 3.5g/t Au. In 2007, the plant processed 1.7Mt of ore at a grade of 4.4g/t Au with a recovery of 91%, whilst the heap leach operation treated some 784kt at a grade of 0.8g/t Au with an overall recovery of 69%.

The mineable reserves at Pokrovskiy are based on geological resources and have been economically optimised using cut-off grades based on gold prices of US$650 to US$750/oz. WAI has re-run the optimisation process using the same parameters as PHM and the results found to be within acceptable limits. The table below summarises the reserves under JORC (2004) guidelines at Pokrovskiy at three different gold prices.

Results of the Economic Optimisation of the Pokrovskiy Open Pit Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
	Gold Price (US$/oz)		
	650	***700***	***750***
Total			
Total Rock Mass, kt	29,000	29,100	30,500
Ore, kt	5,600	5,600	5,700
Grade, Au g/t	2.05	2.05	2.02
Gold, kg	11,458	11,494	11,519
Gold, koz	368	370	370
Waste, kt	23,400	24,160	24,800
Stripping Ratio (tOre/tWaste)	4.2:1	4.3:1	4.4:1
RIP Processing			
Ore to RIP Plant, kt	3,900	4,200	4,400
Grade, Au g/t	2.70	2.57	2.49
Gold, kg	10,518	10,718	10,861
Gold, koz	338	345	349
Economic Cut-Off-Grade	0.44	0.42	0.41
Heap Leach Processing			
Ore to Heap Leach, kt	1,700	1,400	1,300
Grade, Au g/t	0.56	0.54	0.51
Gold, kg	94	776	658
Gold, koz	30	25	21
Economic Cut-Off-Grade	0.29	0.28	0.27

The Proven and Probable reserves derived by WAI under JORC (2004) guidelines at Pokrovskiy are based on a US$650/oz gold price are 5.6Mt of ore at an average grade of 2.05g/t Au (economic COG of 0.4g/t) and require that 23.4Mt of waste be removed to access the orebody at a stripping ratio of 4.17:1. A significant further *Inferred* resource exists within the deposit.

PHM's current mining schedule is primarily based on reserves reported under the Russian Standard Classification System, which gives an inventory of mineable material of 15.9Mt at an average grade of 1.95g/t Au and requires that 42.3Mt waste be removed to access the orebody. This minig schedule also includes 274koz Au of B+C_1 reserves from stockpile material. It is planned that the current rate of production will continue until 2012 when the existing open pit will be exhausted. After 2012, production will move to a series of smaller open pits termed the Pokrovskiy Flanks which are currently estimated at 553koz Au at C_2 resources. The average grade of the flank deposits is lower than the current Pokrovskiy pit. It is planned from 2013 to 2019 that 2.0Mtpa at an average grade of 1.1g/t Au will be processed in the RIP plant and 0.6Mtpa, grading 1.1g/t Au, will be processed via the heap leach facility.

The mining schedule for Pokrovskiy is optimised to balance ore mining, waste mining and average grade each year. The mining rate and amount of blending required is not significantly different to the current operational practices and therefore WAI considers the schedule to be both practical and achievable. It should be noted however, that the Pokrovskiy Flanks deposits are not included in the block models reviewed by WAI. WAI believes that if these resources are modelled they are highly likely to be classed as *Inferred* at best under JORC Code (2004) guidelines. As a result, less reliance can be placed on the mining schedule after 2012. It is usual practice for mining companies to produce long term plans based on *Inferred* resources and WAI believes it is appropriate for these future resources to be included in the long term schedule, but as a guide only pending further exploration work.

The mining operations at Pokrovskiy utilise a mixture of Russian and Western built mobile equipment, all fitted with GPS tracking devices and controlled from a central point to ensure maximum utilisation. WAI believes the mining equipment fleet at Pokrovskiy is modern, well maintained and fit for purpose. The EKG shovels are reliable and cost effective. The Belaz dumper fleet has a low average age, the trucks are well maintained and while their efficiency and performance fall slightly below that of western built equivalents, their value for money and general ruggedness means they are well suited to this type of operation. The preventative maintenance programme and workshop facilities in place at Pokrovskiy are excellent. New Belaz trucks and a 5m^3 shovel were purchased in 2007/08.

Although WAI does not consider that Pokroviskiy overall is a high cost operation, the mining costs are higher than would normally be expected for an operation of this type and scale in this region, this is however, accounted for by the relatively complex blending operations and the amount of re-handling required to achieve a consistent feed to the mill.

Processing operations commenced at Pokrovskiy in 1999 with the commissioning of a heap leach operation, which initially treated a high-grade oxide ore source. The heap leach plant now treats low grade ("off balance") oxide ores at a rate of >700ktpa.

A RIP plant was commissioned in 2000 to treat 1.2Mtpa of oxide ore grading 4g/t Au. In 2004 an extra grinding line was installed which increased the plant capacity to 1.8Mtpa.

The majority of the oxide ores are now exhausted and the ore treated in the future will be a combination of primary ore and heap leach tailings and stockpiles which are not part of the resource base (from the earlier years of production) and currently are not included in the reserves. In 2008, ore from the trial mining operation at Andreevskaya is being processed through the plant.

The tonnage of ore treated in the RIP plant increased from 0.15Mtpa in 2002 to 1.73Mtpa in 2007. Over the same period, the grade of material treated through the plant has ranged from 5.7g/t to 3.8g/t Au. Plant recovery has ranged from 84% in 2002 to 91% in 2006. The RIP plant recoveries fell in the first half of 2008 to 87%, due to the treatment of a higher proportion of primary ore.

The tonnage of ore treated though the heap leach plant has increased from 81kt in 2002 to 784kt in 2007. The grade of material treated through the plant has fallen from 7.5g/t in 1999 to 0.8g/t Au in 2007. The heap leach plant recovery has varied significantly over the period, ranging from 33% in 1999 to 69% in 2007.

Overall, the Pokrovskiy plant operations are run efficiently and in line with best international practice.

Environmental monitoring carried out at the site is well organised and appropriate. The environmental monitoring scheme is comprehensive, testing for a range of determinands and compliance with Maximum Permisssable Concentrations ("MPCs") is a clear indication of PHM's commitment to environmental protection.

Pioneer

The Pioneer deposit lies some 35km northeast of Pokrovskiy. The Pioneer trial pit was started in June 2004, with ore taken from the Bakhmut pit and delivered for processing to the Pokrovskiy RIP plant at the end of 2004.

During the initial WAI visit in 2007, the Pioneer project was officially commissioned and plant throughput for 2008 is expected to be around 1.1Mt. The site comprises a primary crushing unit, a SAG mill, 2 spiral classifiers, a cyanide leaching circuit, a heap leach, a tailings dam and all necessary auxiliary divisions.

This commissioning was preceded by pre-stripping over six areas of the various orebodies that make up the Pioneer deposit, in order to complete geological exploration works and to prepare the deposit for operations.

The deposit comprises the three ore zones – Yuzhnaya (Southern), Promezhutochnaya (Intermediate) and Bakhmut that form the Pioneer structure. In addition, the higher grade Andreevskaya zone is located 1.3km to the southeast of the Pioneer structure, whilst there are also a number of other small ore structures nearby including Zvezdochka, Eastern, Western, Nikolayevskaya and Babayevskaya.

The Yuzhnaya zone has been traced along strike in a northwesterly and northerly direction for 1,500m by trenching, drilling and recently by pre-stripping. The zone is composed of variably silicified diorite porphyries, granite-porphyries and sandstones. The altered rock assemblage has been outlined in a north-south direction with a thickness of 50-150m, although in the north, the strike changes to northeasterly. The assemblage appears to dip to the west at 55-65°. Within the alteration zone, there are mineralised zones with a thickness of 10-80m. The largest zone (#1) contains 91% of all estimated resources. Two high grade areas with gold grades of 20-30g/t Au, thickness of 2-3m and strike extent of 10-40m have been identified and locally termed "ore columns".

The Promezhutochnaya mineralised zone has been traced in a northwesterly direction for some 590m. It is separated from the Yuzhnaya zone by a 150m barren zone. The geology is similar to Yuzhnaya, although the thickness of the alteration zone is between 40-100m and dips to the northwest at 55-65°. The oxidation zone is less developed here compared to Yuzhnaya, usually around 10-30m deep, but up to 70-80m along fracture zones. The mineralisation has been tested down to 300m and contains several discrete zones varying from 5-50m thick. The largest mineralisation zone (#1) contains 98% of all resources. Two significant rich areas (ore columns) were found with gold grades up to 10-25g/t Au, thickness 2-3m and strike extent 10-60m.

Bakhmut is located at the eastern end of the system where it joins the Promezhutochnaya mineralised zone. It has been traced in an easterly direction for 970m. The zone is composed of quartzitic and argillised rocks with a thickness of 50-150m. Hydrothermal and metasomatic alteration is similar to that seen at Yuzhnaya and Promezhutochnaya, although the alteration tends to be associated with diorites and the dykes of diorite porphyries. This zone includes previously delineated ore bodies "Ore column", "Apophysis 1" and "Apophysis 8" associated with areas of merging dislocations. The oxidation zone extends to 30-100m depth, whilst the mineralisation has been tested to 290m. In the central part of the zone, a pilot open-pit was developed where high grade ore of the "Ore Column" was stripped to the level of 260m.

The Andreevskaya ore zone lies to the southeast of the main area, has an east-northeast strike and dips to the southeast at between 60-70°. The zone is represented by sub-parallel and branching zones of mylonitisation and silicification of sandstones, diorite porphyries and granite-porphyry with impregnations and sometimes accumulations of pyrite. The thickness of the zone at surface varies from 4m to 16.3m, averaging 9.2m (visible thickness) and from drill hole data at depth, 6.4m (main zone thickness). Average grades of gold from trench data vary from 0.92g/t to 55.81g/t Au, and from holes drilled in 2006 (total 36 holes) from 0.58 to 45.51g/t Au. Due to the relavitvely narrow mineralised zones in combination with their highly nuggety Au grade distribution, resource estimation at Andreevskaya has proved problematic and this factor is reflected in the relatively low classification given to this asset at this time.

The Pioneer deposit is characterised by the presence of numerous high grade "ore columns". Seven have been identified at Yuzhnaya, two at Promezhutochnaya and several at Bakhmut. The geometry of these structures is highly variable, as are the grades, but as a general rule, they are relatively small (a few metres wide) with high gold grades (tens or hundreds of g/t Au). They have a considerable impact on the contained metal within the deposits and it is likely that final production grades may well be in excess of those predicted, as these small, high grade zones cannot be properly modelled and are therefore not properly included the resource estimates.

The Pioneer mine consists of four main open pits which are at an early stage of development and production. On the mining side, production has commenced and overburden stripping is continuing. The mining equipment for the project is on site, with more deliveries due in late 2008/early 2009. Mining infrastructure, including roads, crushing facilities and power supply, is now in place. Production is planned to ramp up from the current 1.1Mtpa to 3.7Mtpa during 2009 and will reach a maximum rate of 6.1Mtpa by 2010. Open pit mining will utilise conventional truck and shovel techniques, with drilling and blasting of the ore and waste where necessary.

The reserves at Pioneer are based on the geological resources and have been economically optimised using a cut-off grade based on a gold price of US$650/oz. WAI has re-run the optimisation process using the same parameters as PHM and the results found to be within acceptable limits.

The Pioneer mine consists of four main open pits, Yuzhnaya, Promezhutochnaya, Bakhmut and Andreevskaya. The results of the economic optimisation are displayed in the tables below.

Results of the Economic Optimisation of Bakhmut, Yuzhnaya and Promezhutochnaya Open Pits Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
Parameters	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total Rock Mass, kt	142,845	155,664	162,013
Waste, kt	118,174	128,639	133,689
Oxidized Ores			
Ore, kt	9,765	9,783	9,804
Grade, g/t	0.84	0.85	0.85
Total Metal, kg	8,292	8,303	8,314
Total Metal, koz	267	267	267
Economic Cut-Off Grade, g/t	0.2	0.16	0.15
Primary Ores			
Ore, kt	14,902	17,242	18,520
Grade, g/t	1.15	1.09	1.06
Total Metal, kg	17,175	18,809	19,549
Total Metal, koz	551	605	629
Economic Cut-Off Grade, g/t	0.5	0.45	0.42
Total			
Ore, kt	24,671	27,025	28,324
Grade, g/t	1.03	1.00	0.8
Total Metal, kg	25,437	27,112	27,863
Total Metal, koz	818	872	896
Stripping Ratio (tOre/tWaste)	4.79:1	4.76:1	4.72:1

Results of the Economic Optimisation of the Andreevskaya Open Pit Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
Factors	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total Rock Mass, kt	35,922	37,123	37,038
Waste, kt	33,089	33,985	33,570
Ore, kt	2,833	3,138	3,468
Grade, g/t	3.66	3.36	3.08
Economic Cut-Off Grade, g/t	0.42	0.39	0.36
Total metal, kg	10,360	10,532	10,676
Total metal, koz	333	339	343
Stripping Ratio (tOre/tWaste)	11.7:1	10.8:1	9.7:1

The Pioneer reserves as derived by WAI are based on a US$650/oz gold price. This gives combined Proven and Probable reserves of 27.5Mt at an average grade of 1.30g/t Au and requires that 151.2Mt waste be removed to access the orebodies.

The Pioneer mining schedule derived by PHM using the Russian Standard Classification System, expects the production to reach a maximum rate of 6.1Mtpa of ore by 2010, but the production rate is expected to reduce slightly towards the end of the mine life in 2017. The average grade over the life of the mine is expected to be 1.6g/t Au, but this varies between 2.6g/t at the beginning of the operation to 1.7g/t Au in 2017, mainly due to the influence of the Andreevskaya open pit, which has a much higher average grade than Bakhmut, Yuzhnaya and Promezhutochnaya.

The mining schedule proposed for Pioneer is optimised to balance ore mining, waste mining and average grade each year. Mining will take place from four separate open pits and will thereafter be blended in the combined processing facilities. WAI considers the proposed schedule to be both practical and achievable given PHM's experience and management expertise gained through the Pokrovskiy operations. It should be noted, however, that the combined mining schedule includes *Inferred* resources and as such, less reliance can be placed on proposed tonnage and grades in the latter parts of the schedule. WAI believes it is appropriate for these future resources to be included in the long term schedule as a guide only, pending further exploration work.

The mining equipment fleet planned for Pioneer will be modern and comprise Liebherr and Caterpillar excavators and Volvo and Caterpillar trucks. A preventative maintenance programme and workshop facilities similar to those in place at Pokrovskiy have been implemented at Pioneer, with a GPS dispatch system planned for the truck fleet.

The majority of the mining infrastructure at Pioneer has been constructed and the mine has been brought into production as planned.

The orebodies at Pioneer have been subjected to several detailed metallurgical test programmes. There are three different ore type categories within the deposits, namely Oxide, Transition (Mixed) and Primary.

The majority of the Oxide ores at Pioneer are clay-rich, which renders them difficult to process directly, either by heap leaching or RIP technologies.

Consequently, PHM is using a novel processing method which involves disaggregating ores in a SAG mill to break down the clay minerals, followed by a size separation. The coarser material will be heap-leached using a disposable pad system and the finer material will be subjected to standard RIP processing. This processing method will only be used during the summer months. During the winter months, higher grade ores will be treated, and only through a RIP Plant.

Three processing modules are planned at Pioneer, and will be constructed over a three year period. The first section unit is now commissioned.

The ores treated will be a combination of high grade material from Andreevskaya – which will be treated by grinding and agitation leaching, and low grade ores from Bakhmut, Promezhutocheyna and Yuzhnaya using a combination of heap and agitation leaching.

The first module will have a capacity of some 0.8Mt in the summer period using the hybrid heap leach and agitation leach method. In the winter months, the unit will be capable of treating 50ktpm of high grade ore from Andreevskaya, giving a total plant throughput of 1.1Mtpa.

The other two modules will each treat 2.0 Mtpa and construction of the second module commenced in July 2008.

After five years, the second and third modules will be converted to treat the Transition and Primary ores. This will involve the addition of a second mill in each module, a flotation plant and a pressure oxidation plant.

WAI has examined the testwork results and PHM development plans and is in general agreement with the results. However, WAI considers that more testwork should be undertaken, particularly with regard to the pressure oxidation of the sulphide concentrates to establish operating criteria and costs and also to investigate alternative methods if applicable.

During 2007, PHM commissioned the Pioneer mine with heap leach production, followed by trial mining of the high-grade Andreevskaya deposit, with ore treatment at the Pokrovskiy plant in 2008.

A preliminary assessment of potential environmental impacts resulting from operations at Pioneer, carried out by the mining company, considers the environmental impacts will be predominantly local and of a moderate to low level. The preliminary assessment also considers mitigation measures that will be put into place and an assessment of future pledges to achieve compliance with regard to the IFC performance standards.

WAI would recommend that strict environmental controls are implemented from the early stage of construction and development and that appropriate waste water and sewage treatment facilities are installed, to protect surface water quality.

Malomir

The Malomir deposit is located in the Selemdja area of the Amur region, 80km to the west of the area's capital, Ekimchan and 35km to the north of Stoyba.

The geology of the area comprises metamorphosed rocks of volcanogenic-terrigenous nature of Carboniferous age. All of the rocks are intensively sheared and variably folded and are metamorphosed to greenschist facies. These stratified rocks are intruded by late Palaeozoic bodies and dykes of granite, diabase, diorite porphyries, andesites and olivine basalt.

In terms of structure, low-angle overthrust faults (10-30°) and a system of approximately N-S and E-W high-angle faults are widespread. The flat-dipping tectonic zone, "Diagonal", has a thickness of 100-300m, extends for more than 6km and appears to have a major ore controlling influence. This zone, which appears fairly continuous, has been traced along strike from drilling for more than 1500m and to a depth of 350m.

Overall, there are three principal mineralised zones within the deposit: Malomir, Ozhidayemoye and Quartzite and it is believed that they form part of a single, faulted mineralised structure.

The Malomir and Ozhidayemoye orebodies, which appear to be both related to the Diagonal Thrust Zone, are controlled by relatively flat-dipping tectonic zones seen as compression, crush and brecciation zones, giving rise to entirely silicified areas (quartz metasomatites) and to veinlet silicification, often with an intensive (up to 5%) sulphide mineralisation. The major ore minerals, which total 2-3%, are represented by pyrite and arsenopyrite.

The orebodies of the Quartzite zone are controlled by a steeply northwesterly dipping tectonic zone. The mineralisation seems to be generally low grade, but can be thick (averaging around 14m) and sometimes has intensive sulphide mineralisation (up to 5%). Sulphides are generally represented by pyrite. The sulphide content of the ore fluctuates from single grains to 2-5%. Arsenopyrite and visible gold are also rarely present in the form of single grains, suggesting the gold is locked within the sulphides.

Mineralisation of the Malomir zone is of veinlet-impregnated type of gold-sulphide hosted within a black shale. Metallurgically, the mineralisation can be classed as refractory, due to the gold association with sulphides. Most of the identified orebodies are concentrated in the "Diagonal" zone with more than 94% of the resources identified therein. The remaining 6% are concentrated in the "Southern" and "Northern" zones.

Currently there is no mining activity on site at Malomir, but a large scale trenching/pre-stripping operation has been completed to allow sampling for resource estimation purposes. It is intended that the Malomir project will commence mining early 2010. A pre-feasibility study, including a preliminary open pit design, has been completed by PHM.

The Malomir project is an advanced stage development project and as such, much technical work still needs to be completed in order to accurately estimate essential parameters used in the reserve calculation. WAI has calculated a preliminary reserve for Malomir based on the current geological resources, but this calculation relies upon preliminary assumptions, particularly metallurgical. The results of the preliminary economic optimisation and reserve calculation are shown in the table below.

Results of the Economic Optimisation of the Malomir Open Pit Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
Parameters	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total Rock Mass, kt	231,982	256,969	248,078
Waste, kt	181,220	200,243	223,892
Ore, kt	50,762	56,726	60,186
Grade, g/t	1.26	1.22	1.21
Total Gold, kg	63,994	69,333	72,616
Total Gold, koz	2,057	2,229	2,335
Stripping Ratio, t ore/t waste	3.57:1	3.53:1	3.72:1
Economic COG, g/t	0.59	0.54	0.50

The proposed mining schedule for Malomir, based on Russian Standard reserves is based on a US$650/oz gold price. This gives indicative preliminary reserves of 50.8Mt at an average grade of 1.26g/t Au and requires that some 181Mt of waste be removed to access the orebody at a stripping ratio of 3.57:1.

The reserves calculated at Malomir, and therefore the open pit design, must be considered as preliminary only, as there is still much work to be done in terms of metallurgical testing and cost estimation. At this early stage, however, WAI is of the opinion that Malomir represents a significant open pit mineable resource which has a high potential of becoming a profitable operation in the near future, subject to the planned test work yielding the results expected.

PHM intends to start mining at Malomir in early 2010. The preliminary schedule will be to mine 3.0Mt of ore in 2010, 4.0Mt in 2011 and ramping up to 6.0Mtpa from 2012 onwards. Given PHM's experience in developing and mining Pokrovskiy and in commissioning the Pioneer project, the development and mining schedule for Malomir is realistic and achievable. The size of the task is certainly within PHM's capabilities and there are no natural impediments such as terrain or location. The area has established lines of communication and is amenable to open pit mining.

The Malomir ore is known to be predominantly refractory and has been subjected to several detailed metallurgical test programmes. There are three different ore type categories within the deposits, namely Oxide, Transition and Primary. The testing of the orebody is continuing and pilot scale tests are on going through 2008.

The Primary and Transition ore types are highly refractory due to the significant levels of gold associated with sulphide minerals (up to 40%). Various processing options were considered to treat the flotation concentrates and PHM selected Pressure Oxidation ("POX") as the most suitable method, following comminution and flotation.

The Company believe that the Malomir flotation concentrates could be effectively processed using autoclave oxidation and cyanidation.

This view was based on the studies carried out by Irgiredmet on similar flotation concentrates from Pioneer which had a gold grade of 25-30g/t Au and sulphur content of 21%. It was predicted that autoclave treatment of the flotation concentrates at temperatures of 200-220°C at pressures of 2.5-3.0MPa for 1-2 hours, using 80% oxygen, would result in 97-98% oxidation of the sulphur and arsenic minerals present. Subsequent leaching of the oxidised concentrate would give a stage gold recovery of not less than 95%.

Overall gold recovery is expected as being approximately 80%, with a flotation recovery of 82-84%.

WAI has inspected the testwork programmes and concurs that the chosen flowsheet is appropriate at this time. However, further work is required to verify the various assumptions made, particularly as more details of the orebodies emerge.

With regard to the environment, WAI considers that the rationale for environmental assessment at the site is sound, but is concerned that the environmental supervision of exploration activities needs improving. A number of examples of poor practice were observed, both with regard to poor housekeeping and insufficient sewage treatment at the site.

It will be important to test and source a sustainable potable water supply, given the potential for acid drainage and high arsenic in the ore. The potential impact on water quality can not be assessed until acid drainage potential and arsenic leaching potential have been characterised via chemical testing. Water protection measures to protect the local rivers will also be required.

WAI recommends that in parallel with the OVOS, an ESIA be conducted to ensure compliance with the Equator Principles and IFC Performance Standards.

Other Amur Assets

Apart from the principal PHM assets of Pokrovskiy, Pioneer and Malomir, the Company also has an extensive portfolio of exploration assets in Amur which at one end of the scale includes the advanced stage exploration projects at Tokur and Albyn, the numerous placer gold operations which are currently in production, through to grass-roots exploration prospects.

As a portfolio of assets, WAI considers them to be strategically sound and, importantly, many of the properties have the potential for the discovery of significant gold resources.

Clearly this will require considerable effort and exploration expenditure, but PHM has embarked upon an aggressive programme of works to achieve this.

Yamal Region

The Yamal exploration licences cover an area of approximately 997km^2, stretching 200km along the eastern side of the polar Urals in the Yamalo-Nenetsky Autonomous Region. Twelve exploration targets have been identified within the licences.

The main exploration areas lie at the northern end of the Urals, on the Yamal peninsula adjacent to the estuary of the River Ob. The most significant asset is Novogodnee Monto which lies west-northwest of the regional centre of Salekhard and is well serviced with infrastructure, due to its location in the primary oil and gas region of the Russian Federation.

To both the north and south of Novogodnee Monto, there are a variety of prospects for gold, PGMs and base metals actively being explored by the group.

In April 2004, PHM acquired 90% of the share capital of OJSC Yamalzoloto for a total consideration of US$10.4M. On acquisition, the licence area covered 11 main mineral occurrences, one of which, Novogodnee Monto, was well explored and had a significant amount of historical geological data.

In September 2005, PHM announced that it had subscribed for 74.9% of the shares of OAO "Yamalskaya Gornaya Kompania" ("Yamal Mining") which owned a number of attractive assets in the Yamal Region, as well as the remaining 10% of OAO "Yamalzoloto" not already owned by PHM. The remaining 25.1% of the shares of Yamal Mining are owned by the local government. Yamal Mining holds the licences for Ozernoye, which contains gold; platinum, palladium and copper mineralisation; Rudniye Gorki which contains copper-molybdenum and gold, potentially porphyry copper type mineralisation and Yashor Laptayeganskaya which contains gold and PGMs in black shales.

The Voykaro-Shutchinskaya Gold Exploration Licence (No.SLKh 01589 BP) is the main asset held by PHM, which permits "Geological investigation for gold exploration within the Voykaro-Shutchinskaya zone". The licence covers an area of 4,800km^2 and is valid for the period from 06.05.04 to 31.12.09. It is located between 80km north and 85km south-west of the town of Labytnangi and lies within the Priuralsky and Shuryshkarsky districts of the Yamal Region.

Included inside this licence are the following:

- *Ozernoye-Pyatirechensky* - This licence, held by Yamal Mining (YGK), covers an area of 105km^2 and consists of bushveld style layered ultrabasics, PGM's and gold potential;
- *Rudniye Gorki 1* - This licence, held by Yamal Mining (YGK), covers an area of 20km^2 and contains magnetite skarns with copper-gold mineralisation;
- *Rudniye Gorki 3* - This licence, held by Yamal Mining (YGK), covers an area of 32km^2; and
- *Manyukuyu* - This licence, held by Yamal Mining (YGK), covers an area of 12km.

Additonal separate licences include the following:

- *Yarshor-Laptayeganskaya* - This licence (No. 101588), is held by Yamal Mining (YGK) (74.87% PHM Holding), and is a permit for gold and PGM exploration within the black shale stratum 9Malomir style) of the Yarshor-Laptayeganaskaya zone, which covers an area of 163.11km^2;
- *Toupugol-Khanmeishorsky* – This licence (No. 01356) is held by Yamalzoloto (98.74% PHM Holding) and is for gold exploration and assessment and is valid from 04.04.03 to December 2009, and covers an area of 42.22km^2 and excludes the Novogodnee Monto licence which lies within in;
- *Novogodnee Monto* – This licence (No.01212) held by Yamalzoloto (98.74% PHM Holding) lies within Toupugol-Khanmeishorsky Licence which is for gold exploration and mining and is valid from 31.01.02 to 2020, and covers an area of 0.48km^2; and
- *Zapadnoye* – This licence (No. 013779) held by Server-Chrome for exploration and mining of chromium ores, is valid from 10.10.06 to 10.03.26, and covers an area of 0.45km^2.

A considerable amount of exploration has been undertaken by PHM on all of the licence areas; however, with the exception of Novogodnee-Monto (gold and iron), Zapadnoye (chromite) and the intensive exploration of Petropavloskoye in 2007 (a gold deposit which lies inside the Toupugol-Khanmeishorsky licence area), all other licences have identified only those resources classified in the prognostic P category under the Russian Standard Classification System.

Russian Standard Classification System resource and reserve estimates have been undertaken by PHM on the Novogodnee Monto, Petropavloskoye and Zapadnoye deposits. With the exception of Zapadnoye, none of the stated resources have received official GKZ approval, but it is understood from PHM staff that there is no foreseeable reason for these approvals not to be granted. Until such time, WAI believes that they should be treated as provisional. However, WAI has reviewed the exploration work undertaken by PHM (density of drilling and trenching over each project as a whole) and consider that both these deposits show considerable merit and potentially may well support the development of mining projects. A summary of the Mineral Resources and Reserves held by PHM (by company) in the Yamal Region are presented in the tables below.

Resource and Reserve Summary – Russian Standrad Classification
Yamalzoloto
(PHM Annual Report as at 01/01/08)

		Gold			Magnetite			Gravel
Site	**Category**	**Tonnage (kt)**	**Grade (g/t)**	**Metal (kg)**	**Tonnage (kt)**	**Grade (Fe_{Mgt}%)**	**Metal (kt)**	**Tonnage (000's m^3)**
				Novogodnee Monto				
Metasomatic Zones	C_1	64	3.80	244				11,279
	C_2	472	2.59	1223				13,828
Magnetite Ores	C_1	4814	1.11	5,324	4,814	41.16	1,981	
	C_2	345	1.22	419	529	41.61	220	
Skarn	P_1	1,960	4.67	9,144				
				Toupugol-Khanmeishorsky Area				
Petropavlovskoye	C_1	7,630	1.40	10,665				
	C_2	6,661	1.52	10,156				
	P_1	5,000	6.00	30,015				
Karyerniy	P_1	1,000	10.0	10,000				
Karachentseva	P_1	667	4.50	3,000				
Anomalny	P_1	833	6.00	5,000				
Toupugolsky	P_1	437	8.00	3,500				
Khanmeishorsky	P_1	2,657	3.50	9,300				

Resource and Reserve Summary - Russian Standrad Classification
Yamal Mining Company
(PHM Annual Report as at 01/01/08)

					Ozernoye-Pyatirechenskaya Area					
		Gold			**Platinoids**			**Other**		
Site	**Category**	**Tonnage (kt)**	**Grade (g/t)**	**Metal (kg)**	**Tonnage (kt)**	**Grade (g/t)**	**Metal (kg)**			
Ozernoye	P_1	2,300	1.0	2,300	2,333	1.50	3,500			
	P_2	-	-	-	6,667	1.50	10,000			
					Rudnogorskaya Area					
Rudniy-Gorkiy-3	P_1	1,667	1.50	2,500	-	-	-	-	-	-
Elkashor								**Copper**		
								Tonnage (Mt)	**Metal (%)**	**Metal (kg)**
	P_2	-	-	-	-	-	-	8.0	0.10	800
								Molybdenum		
								Tonnage (Mt)	**Metal (%)**	**Metal (kg)**
	P_2							8.0	0.06	200
					Yarshor-Laptayeganskaya Area					
Sandy Bay	P_1	1,000	10	10,000	-	-	-	-	-	-

Mineralisation in the Novogodnee Monto deposit and surrounding areas occurs principally in skarns (metasomatically altered rocks) associated with igneous intrusions of Devonian-Carboniferous age within a Silurian-Devonian volcanic and sedimentary sequence. There are two main types of mineralisation: massive magnetite-bearing ore bodies and quartz/carbonate/sulphide stockworks. It is believed that these were formed during two discrete and significantly different mineralising events *viz*; an early magnetite skarn event and a later metasomatic quartz-pyrite event.

Two styles of mineralisation are present, namely magnetite-sulphide skarn with localised gold-rich zones and metasomatic-quartz-pyrite vein zones with localised quartz stockwork development. PHM describe the metasomatites as structurally controlled zones of strong quartz-sericite alteration and it is likely that quartz veins are end members of metasomatic zones, where dilation has allowed deposition of quartz as a discrete vein.

The Petropavlovskoye deposit lies approximately 1km to the west of Novogodnee Monto and parallel to it, with an N-S orientation. It has been identified along a total strike length of approximately 2.8km and is structurally cut out by approximately E-W trending faults.

Exploration has continued at Petropavlovskoye throughout 2007 and has identified a central area stockwork, with quartz vein zone mineralisation lying to the north of it and a combination of stockwork and east-west trending quartz veins to the south. A pre-feasibility study is currently being prepared by TsNIGRI, in order to define the open pit optimisation parameters. These will then be sent to the local TKZ for approval of production conditions.

The central part of the Petropavlovskoye deposit consists of a gold-bearing quartz stockwork (extensional ladder-veins in an N-S orientated shear zone) deposit, approximately 50-120m thick, which can be traced continuously along strike for a distance of approximately 500m and to a depth of at least 200m. Beyond the 500m zone explored in detail, mineralisation has been established to continue northwards for a further 1,500m (with the central quartz vein intersected in three drill holes here too) and southwards for a further 850m. The structure outcrops at surface along its northward extension, but southwards it plunges at an angle of about 30-35°, so that it can be traced only in drill holes.

Exploration drilling, with inclined holes to intersect the steeply dipping structure, as well as the steeply dipping veinlets, has been undertaken within the central stockwork area.

A shallow open cut to expose the central part of the ore zone was excavated in 2006 in order to confirm the continuity and style of mineralisation (including east-west quartz "ladder" veins accross the north-south trend of the ore body). The stockwork itself has been found to be larger than expected in surface area and the open-cut had been extended to the north and west during the 2007 summer exploration season.

In the Karachentseva area, immediately to the south of Novogodnee Monto, drilling in 2007 totalling 16 holes for a total of 3,300m has located gold-bearing intersections with quartz veins and quartz-sulphide veinlets in zones of beresite and skarn. Exploration continues to define structurally continuous zones.

WAI has reviewed the exploration data for work undertaken on the Toupugol-Khanmeishorsky licence area to date and is satisfied that it represents a high quality exploration asset with the potential to produce further assets similar to those identified at Novogodnee Monto and Petropavlovskoye.

PHM proposes to exact gold and magnetite from the Novogodnee Monto deposit using traditional metallurgical processing routes. 405ktpa of ore is expected to be treated at a grade of 1.06g/t Au and 42.3% Fe. Principally, gold will be processed by leaching flotation concentrates with cyanide. The gold content within the leached solutions will be further upgraded by electro-winning and smelted to produce a gold and silver alloy (doré), containing 70% Au and 30% Ag. It is intended that magnetite will be concentrated to produce a product containing 68.9% Fe using magnetic separation technology.

In 2005, metallurgical testwork was undertaken on sample 3-T from the Petropavlovskoye deposit. The sample contained 3.02% total sulphur and 2.96% sulphide sulphur and 1.02g/t Au. Flotation testing gave a gold recovery of 84.5% to a concentrate assaying 25.5g/t Au. The flotation concentrate was leached with cyanide to obtain an overall recovery of 76.1%. Overall, silver recovery was 46.6%.

In 2006, Sample TP-5 from the Petropavlovskoye deposits was tested by the TsNIGRI Institute in Moscow. The sample was described as being a quartz-sulfide gold ore type. After fine grinding (94% passing 0.071mm), only 20% of the gold was liberated, 53% was present as composite particles and 25% was locked in sulphides. Flotation testing gave a gold recovery of 91.1% to a concentrate assaying 26.6g/t Au. The flotation concentrate was leached with cyanide to obtain overall recoveries of gold and silver of 82% and 61.5% respectively.

Based on these results, TsNIGRI recommended that the Petropavlovskoye ore should be treated using flotation with subsequent cyanidation of the flotation concentrate. Pilot scale testwork using X-ray radiometric sorting was carried out by "Technogen" CJSC, under agreement with Yamalzoloto. The results were generally poor, and as a result, sorting by this method cannot be readily employed.

The environmental protection section and preliminary EIA has been reviewed by WAI for Novogodnee Monto.

WAI recommend that a full EIA and OVOS study should be carried out to ensure that all environmental and social impacts have been identified and adequately addressed at the site.

In addition to the principal assets of Novogodnee Monto, Petropavlovskoye and the Zapadnoye chrome deposit (described below), PHM also has an extensive portfolio of exploration assets in Yamal. These include a range from the green-field exploration targets to well-known mineral occurrences. The prospective targets include the Ozernoye-Pyatirechenskoye area, which contains layered bushveld-style ultramafics with significant PGM, gold and base metal mineralisation, the adjacent Rudniye Gorki areas with gold bearing magnetite skarn and base metal sulphide mineralisation and the Yarshor-Laptayega area, with known gold and potential PGM mineralisation associated with the major thrust-fault zones.

As a portfolio of assets, WAI considers them to be strategically sound, and importantly, many properties have the potential for the discovery of significant gold resources as well as PGMs and other minerals. Clearly, to achieve this will require considerable effort and exploration expenditure, but PHM has embarked upon an aggressive programme of works to undertake this.

The Zapadnoye deposit is located approximately 35km due west from the railhead township of Harp. Harp can be accessed direct from Salekhard, (a distance of approximately 43km) by metalled road. Another route exists to the deposit from the north, via a very poor road that runs through the Makar-Ruz valley, a distance of approximately 22km, to a second railhead terminal, namely, Polar Ural Station. This deposit is located within the Rai-Iz ophiolite (ultrabasic) massif, 5km south-west of the similar but larger Tsentralnoye deposit being worked currently by OAO Kongor-Chrome.

The chromite ores at Zapadnoye are exclusively hosted within dunite intrusives and consist of NE-SW striking, steeply dipping (80-90°) tabular ore bodies. The mineralisation consists essentially of massive chrome-spinel (probably *picotite*) along with the gangue mineral olivine, occurring in thin reefs (0.3 - 4.0m in thickness) up to 550m in length, together with other lenses up to 50m in length.

Development of the deposit will be dependent upon logistics. In particular, a road will need to be constructed. There are two potential routes: either 22km northwards to the railway line, or 38km eastwards to the public road. Part of that route would be adjacent to and parallel with the Kongor-chrome private road, but it cannot be assumed that there will be permission to use this. Because of the rugged terrain this route would also require the construction of two bridges. The northward route would clearly be preferred, except for the fact that it lies across the mountain-tops and would be subject to severe weather conditions.

WAI consider that this deposit is still a 'greenfield site' and although it shares some commonality with the Central deposit which is currently being mined nearby, it has no immediate infrastructure (power, water supply or suitable access road) associated with it.

The ore deposit is tabular, with sub-vertical dip, and ore bodies plunge 35-45° sub-parallel with the slope of the hill. Within the ore body, there are three major ore zones, which have been evaluated to a depth of 450m (i.e. down to river level). Mineralisation is continuous, and the deposit is open at depth as well as laterally (into the mountain-side).

The ore bodies are open in all directions. They comprise essentially massive chrome-spinel occurring in thin reefs (0.3-4.0m) up to 550m in length, and lenses (up to 50m), which dip steeply (80-90°). Ores of this deposit are of a metallurgical type which makes them simple to process.

In 2002 exploration works were completed on the Zapadnoye deposit and GKZ approved the following reserves:

Zapadnoye GKZ Approved Reserves (2002) (PHM Annual Report as at 01/01/08)		
Category	**Tonnage (t)**	**Grade (%Cr_2O_3)**
C_1	492,200	38.71
C_2	1,164,100	37.77

Beyond the original evaluation of 1.6Mt of C_1 and C_2 reserves, P_1 resources of 4.5Mt are now established, as well as a further 1Mt of P_2 resources (lateral extension and deeper levels).

In March 2006, Yamal Mining received a 20 year exploration and mining licence on this deposit to exploit chromite ores. Drilling of a further 20 boreholes, totalling 5,000m was undertaken in 2006 to a depth of 530m. This concentrated on proving that the ore zones extended both to the east and west (flanks) of the deposit. Structural continuity and additional previously undefined ore zones have been confirmed from this drill programme, although drill spacing was not sufficiently closely spaced to allow definition of further C_1 reserves.

Considerable exploration potential exists, particularly for lateral strike extension to both existing structures and from blind as yet undiscovered targets.

Irgiredmet Russian Laboratory Research and Scientific Institutes

Irgiredmet (the "Institue") is one of the best known Russian laboratory research and scientific institutes. It was established in 1871 and functioned as the leading State research centre for gold mining in Russia and the former Soviet Union. The company provides R & D expertise, testwork and process optimisation for precious metals, base metals and diamonds. Activities range from preliminary investigations to process development and design, construction and commissioning of plants. With over 130 years of history, it has a wealth of information, intellectual capital and expertise, which gives it a leading position in the Russian gold mining industry.

The company was privatised in 1993 when 89% of the issued share capital was purchased by current and former employees. At present PHM hold a 99.84% equity holding in OSJC Irgiredmet. PHM intends to increase its stake in Irgiredmet to 100%, implying a total valuation of the business of US$50M.

The Institute is governed by a Scientific and Technical Council consisting of the Chief of Departments and Senior Specialists. The Council is split into three divisions - Engineering and Technical, Minerals Processing and Mining and Geology. The purpose of the council is to approve all reports produced by the various departments, including project evaluation and design work. The Council also approves internal funding for postgraduate research projects.

Irgiredmet's facilities consist of 10 specialised laboratories including a project design department, laboratory and pilot plant testing facilities, an analytical department, a commercial department and a marketing department.

A total of 270 staff is employed, of which eight are Senior Management. A total of 95 are employed as senior research personnel, 52 as engineers and 63 as technicians.

The work undertaken by Irgiredmet is licenced by the Ministry of Finance and the Ministry of Science and Education. Licences are also held for the undertaking of chemical and physical analyses (by the State Committee on Standards). Irgiredmet is also licenced to undertake Design Studies, Construction Management and Industrial Safety Studies.

Irgiredmet's detailed knowledge of State regulations with regards to mining project development also enables then to advise clients whether their projects are compliant with State legislation.

The total income for the company in 2006 was R513.5M with a profit of R59.8M. Of the non-laboratory departments, the Commercial Centre has the greatest income (R183.7M). The Business Centre income is some R40.4M. Of the laboratories, No. 7 has the greatest income at R105.5M, followed by the Analytical Centre (R27.9M).

In 2006 a total of 98% of the Institute's business came from within Russia. The CIS countries accounted for only 1.3% of income, with the majority coming from Kazakhstan. Foreign income (0.7%) was derived from Germany and Mongolia.

The Insitute has an established reputation and is certainly an excellent acquisition for PHM. The Institute will provide invaluable assistance in the preparation of technical studies, particularly in relation to State legislation compliance. The company is not, however, in a position to compete as a business entity on an international basis with other recognised laboratories, due to the tight restrictions on exporting and importing test samples to and from the Russian Federation.

Financial Analysis

WAI has conducted a financial analysis of PHM's mining operations over the next 2.5 years. A financial analysis model was constructed based on the production schedule provided by PHM which utilises the Russian Standard Classified reserves.

Summary of the PHM Group Financial Analysis				
		2008	**2009**	**2010**
	Unit	**Q3 and Q4**	**Q1 - Q4**	**Q1 - Q4**
Gold Produced	*kg*	5,828	15,910	25,014
Gold Produced	*Tr. oz*	187,395	511,576	804,309
Total Revenue	*US$m*	159.3	434.8	627.4
Total Capital Expenditure	*US$m*	72.1	142.5	100.2

Note: 2010 Revenue figures include US$24.2M from aggregate sales.

The assets included in the above table are the reserves at Pokrovskiy, Pioneer, Malomir, Yamal and Placers Deposit. All have also been classified in accordance with the guidelines of the JORC Code (2004).

The gold price assumptions used in the cash flow model are as follows:

- Short Term (2008/2009) – US$850/oz.
- Medium Term (2010/2011) – US$750/oz
- Long Term (2012 and beyond) – US$650/oz.

The PHM Gold Production Forecast is shown in the following graph.

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SECTION A: INTRODUCTION AND TERMS OF REFERENCE

1.1 Background

Wardell Armstrong International Limited ("WAI") was commissioned by Peter Hambro Mining Plc ("PHM" or the "Company") in July 2007, to prepare a Mineral Expert's Report ("MER") for PHM's portfolio of mineral assets in the Far East and Polar Ural regions of the Russian Federation. A detailed site visit was undertaken in September 2007 and a follow-up visit by the same team of experts in July 2008.

PHM is currently traded on the AIM Market of the London Stock Exchange. The Company is headquartered in London, with a board of directors composed of UK and Russian citizens. PHM's shareholders include large institutional investors.

1.2 Consultants and Interests

WAI is an internationally recognised, independent minerals industry consultancy. All consultants used in the preparation of this report are employed directly by WAI and have over 15 years of relevant professional experience. WAI staff have visited the majority of the properties described in this MER.

Neither WAI, its directors, employees or company associates hold any securities in PHM, its subsidiaries or affiliates, nor have:

- any rights to subscribe for any PHM securities either now or in the future; and
- any vested interest or any rights to subscribe for any interest in any PHM properties or concessions, or in any adjacent properties and concessions held by PHM.

The only commercial interest WAI has in relation to PHM is the right to charge professional fees to PHM at normal commercial rates, plus normal overhead costs, for work carried out in connection with the investigations reported herein. The payment of these professional fees is not dependent on any events.

1.3 Study Strategy

The basic strategy for this MER has been to examine and report on the existing information available on the various properties held by PHM in the Far East and Polar Ural regions of the Russian Federation, which includes geological, resources/reserves, mining and metallurgical data and basic economic parameters. During the site visits conducted by WAI, further information was gathered on infrastructure, equipment, costs, mining methods and environmental issues. For the project sites, the data originates from both the Soviet period and on-going mining/exploration activities.

1.3.1 The JORC Code (2004)

Extracts from the JORC Code (2004) defining the types of mineral resources and reserves are presented below.

1.3.1.1 Reporting of mineral resources

A 'Mineral Resource' is a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into *Inferred, Indicated* and *Measured* categories.

A '*Measured* Mineral Resource' is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and/or grade continuity.

An '*Indicated* Mineral Resource' is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

An '*Inferred* Mineral Resource' is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified by geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability.

1.3.1.2 Reporting of ore reserves

An 'Ore Reserve' is the economically mineable part of a *Measured* or *Indicated* Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.

A 'Probable Ore Reserve' is the economically mineable part of an *Indicated* and in some circumstances, *Measured* Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.

A 'Proved Ore Reserve' is the economically mineable part of a *Measured* Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.

1.4 Comparison between Russian and the JORC (2004) Code

1.4.1 Russian Standard Classification System

1.4.1.1 Russian Standard Category of Resources and Reserves

The Russian Standard Classification System for classification of reserves and resources, developed in 1960 and revised in 1981, is still used today in the Commonwealth of Independent States, including Kazakhstan. Essentially, it divides mineral concentrations into seven categories of three major groups, based on the level of exploration performed: explored reserves (A, B, C_1), evaluated reserves (C_2) and prognostic resources (P_1, P_2, P_3).

The following description of the resource and reserve classification is derived from a paper by S.A. Diatchkov (1994) and has been modified to relate to currently acceptable international standards.

The classifications of the reserves described by Diatchkov are those that were developed by the authorities of the former Soviet Union. In principle, they follow a succession of approximations that are applied to various stages of exploration. This means that reserves are assigned to classes based on the degree of reliability of data and indicate their comparative importance for the national economy.

Reserves and resources are classified into five main categories and designated by the symbols A, B, C_1, C_2 and P_1. Capital letters are used to designate ores that are economic. Sometimes, the same group of letters are written in lower case (i.e. a, b, c) when the mineralisation is considered sub-economic. Alternatively, a simple classification into 'balansovye' (commercially exploitable reserves) and 'zabalansovye' (uneconomic resources) is used.

The reserves include the first four categories, A, B, C_1 and C_2 as defined here:-

Category A:

The reserves in place are known in detail. The boundaries of the deposit have been outlined by trenching, drilling, or underground workings. The quality and properties of the ore are known in sufficient detail to ensure the reliability of the projected exploitation.

Category B:

The reserves in place have been explored but are only known in fair detail. The boundaries of the deposit have been outlined by trenching, drilling, or underground workings. The quality and properties of the ore are known in sufficient detail to ensure the basic reliability of the planed exploitation.

Category C_1:

The reserves in place have been estimated by a sparse grid of trenches, drillholes or underground workings. This category also includes reserves adjoining the boundaries of A and B reserves as well as reserves of very complex deposits in which the distribution cannot be determined even by a very dense grid. The quality and properties of the deposit are known tentatively by analyses and by analogy with known deposits of the same type. The general conditions for exploitation are known tentatively.

Category C_2:

The reserves have been extrapolated from limited data, probably only a single hole. This category includes reserves that are adjoining A, B, and C_1 reserves in the same deposit.

Prognostic Resources:

Prognostic resources are estimated for mineralisation outside the limits of areas that have been explored in detail and are often based on data from trenches and from geochemical and geophysical surveys.

Category P_1:

Resources under the P_1 category may extend outside the actual limits of the ore reserves defined in the C_2 category. The outer limits of P_1 category resources are determined indirectly by extrapolating from similar known mineral deposits in the area. P_1 is the main source from which C_2 reserves can be increased.

Category P_2:

These resources represent possible mineral structures in known mineral deposits or ore-bearing regions. They are estimated based on geophysical and geochemical data. Morphology, mineral composition and size of the orebody are estimated by analogy with similar mineralised geologic structures in the area.

Category P_3:

Any potential ore-bearing deposits are classified as resources in the P_3 category. The presence of these resources relies on the theoretical definition of a "favourable geological environment". Resource figures are derived from figures of similar deposits in the region. Estimates of Prognostic Resources routinely depend on assumptions and projections regarding the probable dimensions (length, width and depth) and grade of the deposit that are subject to confirmation by more detailed investigations.

1.4.2 Conversion of B, C1 and C2 Russian Standard Classification System Categories to the JORC Code (2004)

Under the Russian Standard Classification System C_1 and sometimes C_2 equate to reserve categories, whereby international ore reserve and mineral resource equivalents are as follows:

- **Proved Reserves** equate to reserves containing A and B with a ***Measured*** **Resource** equivalent;
- **Probable Reserves** equate to C_1 and some C_2 with an ***Indicated*** **Resource** equivalent; and
- ***Inferred*** **Resources** equate to C_2.

The table below illustrates how WAI believes the mineral reserves categories of the Russian Standard Classification System correlate to the mineral resource and ore reserve categories under the JORC Code (2004).

<table>
<tr><th>JORC Code</th><th>MEASURED</th><th>INDICATED</th><th>INFERRED</th><th>UNCLASSIFIED</th></tr>
<tr><td rowspan="5">Russian Standard Classification Categories</td><td>A + B</td><td colspan="3"></td></tr>
<tr><td></td><td colspan="2">C_1</td><td></td></tr>
<tr><td></td><td colspan="2">C_2</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2">P_1</td></tr>
<tr><td colspan="3"></td><td>$P_2 + P_3$</td></tr>
</table>

Note that Russian Standard Classification Categories A, B, C_1 and C_2 can be compared to JORC Code ore reserves as well with consideration of mining dilution and recovery. These are termed 'Balanced' or 'On Balance' reserves. "Out of Balance" reserves would be considered sub-economic under the guidelines of the JORC Code (2004).

In the Russian Standard Classification System, balanced reserves comprise that volume of material which has demonstrated the presence of a metal to a sufficient level of confidence whose economic viability has been demonstrated and approved by the State Commission for Reserves (Gosudarstvennaya Komissia po Zapasam), referred to as GKZ. From the perspective of the Russian State balanced reserves represent the basis of taxation. However, whilst balanced reserves may include an adjustment for overall mining recovery other technical factors such as mining dilution and mining losses may not be considered.

Balanced reserves that have been subject to further exploitation, exploration and the full rigours of technical and economic feasibility studies, and have been incorporated into mine production schedules, are referred to as operational reserves. Operational reserves include adjustments for dilution and mining recovery, which are the result of detailed calculations. Furthermore the operational plan must be approved by the GKZ.

Drill holes can only be used to define C_1, and underground development for A and B. In addition, economic parameters are applied to obtain a C_1 and C_2 reserve. Hence, "C category" has reserve implications built in.

However, once the C_1 and C_2 "reserves" are approved, a mining scheme (pit design) can be established and the mineable reserve is established as an in-pit reserve statement based on design and economic parameters.

It is however the opinion of WAI that in general, C_1 and C_2 reserves and resources should be considered resources only, as to obtain reserves under the JORC Code (2004), differing mine design and reserve parameters are applied.

1.4.3 Conversion of P under the Russian Standard Classification System to the JORC Code (2004)

Prognostic Resources are estimated for mineralisation outside the limits of areas that have been explored in detail and are often based on data from trenches and from geochemical and geophysical surveys.

Category P_1

Resources under the P_1 category may extend outside the actual limits of the ore reserves defined in the C_2 category. The outer limits of P_1 type resources are determined indirectly by extrapolating from similar known mineral deposits in the area. P_1 is the main source from which C_2 reserves can be increased.

Category P_2

These resources represent possible mineral structures in known mineral deposits or ore-bearing regions. They are estimated based on geophysical and geochemical data. Morphology, mineral composition and size of the orebody are estimated by analogy with similar mineralised geologic structures in the area.

Category P_3

Any potential ore-bearing deposits are classified as resources in the P_3 category. The presence of these resources relies on the theoretical definition of a "favourable geological environment". Resource figures are derived from figures of similar deposits in the region.

WAI Comment: Estimates of Prognostic Resources routinely depend on assumptions and projections regarding the probable dimensions (length, width and depth) and grade of the deposit that are subject to confirmation by more detailed investigations. It is the opinion of WAI that these deposits equate to "Exploration Results" as they cannot be attributed as a resource and can therefore be considered only as exploration potential.

1.5 Disclaimer

WAI has reviewed data provided by PHM on its assets in the Far East and Polar Ural regions of the Russian Federation and has drawn its own conclusions therefrom, augmented by its direct field examination. WAI has not carried out any independent exploration work, drilled any holes, nor carried out any sampling and assaying.

As such, significant data exist regarding the properties. However, much of the original Russian data cannot be verified by WAI, but for the purposes of this document, WAI are confident that it can be taken as reliable.

This report has been prepared by Wardell Armstrong International with all reasonable skill, care and diligence, within the terms of the Contract with the Company and is addressed to the Company.

SECTION B: ASSETS HELD IN THE AMUR REGION

1.0 INTRODUCTION

The Amur region is home to PHM's primary operations and a large proportion of its development assets, including several placer gold operations. The region has a vast resource potential and gold production is one of the region's leading economic sectors, currently ranked third amongst the gold producing regions of the Russian Federation.

The region's economy is diversified and based on industry, agriculture and construction; its key industries are the power, non-ferrous metallurgy, coal, food and forestry and woodworking industries. The region has two large hydroelectric power stations, with plans for the construction of three more.

The Amur region is located in the southeastern part of the Russian Federation (Figure 1.1) and borders China in the south and southwest, the Republic of Sakha (Yakutia) in the north, the Khabarovsk Territory in the north-east and east, and the Jewish Autonomous Region in the southeast.

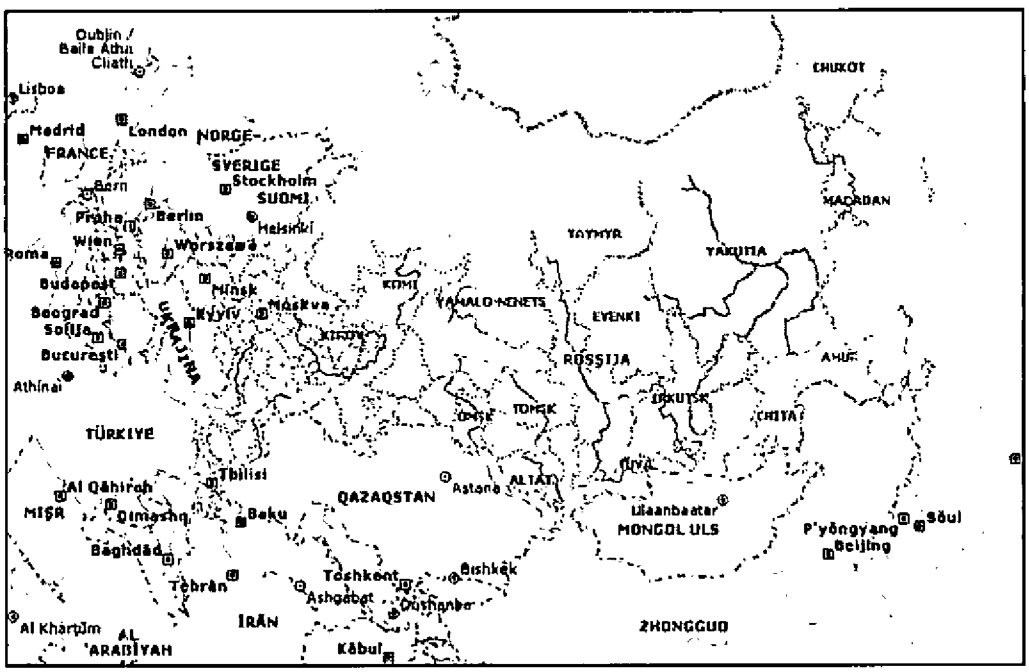


Figure 1.1: Location of Amur Region, Far East Russia

The region has a total area of almost 364,000km^2 and currently has a population of approximately 875,000 people. The Amur River extends along 1,246km of the southern border of the region and is the official boundary between Russia and China.

1.1 Location, Access, Infrastructure and Climate

PHM has assets throughout Amur Region (Figure 1.2), ranging from the fully operational Pokrovskiy Mine which forms the backbone of PHM, to the nearby recently commissioned Pioneer Mine and the advanced stage Malomir development project in the east of the region. In addition to this, PHM has numerous exploration assets at various stages of exploration.

The region has a good transport system, based on two of Russia's key railroads (Trans-Siberian and Baikal-Amur), two major rivers in the Amur and Zeya, a reasonable road network and importantly, good access to low cost electricity from two large hydroelectric plants. The capital of the region, Blagoveschensk, lies on the Amur River on the Chinese border and is served by regular flights from several major cities in Russia including Moscow.

The climate is extremely continental, characterised by a long severe winter and a short, moderately hot summer. The winter season lasts for 7 months. The average precipitation is 456mm, 70% of which occurs in the summer season. Snow thaw begins in April and ends in June. The snow cover forms at the end of September and reaches a thickness of 0.8 to 1.5m. Temperatures fall to -54°C at their lowest in January and +39°C at their highest in June. Average annual temperature is -4.6°C. The mean monthly temperature in January is -32.8C. Temperature of the coldest five-day period reaches - 45°C.

The vegetation in the area is typical of the northern part of the Taiga zone. Taiga forest (Dahurian larch, fir, poplar, birch and aspen) predominates up to an elevation of about 1,000m. At heights of 1,000-1,200m, cedar elfin wood, alder and dwarf arctic birch predominate.

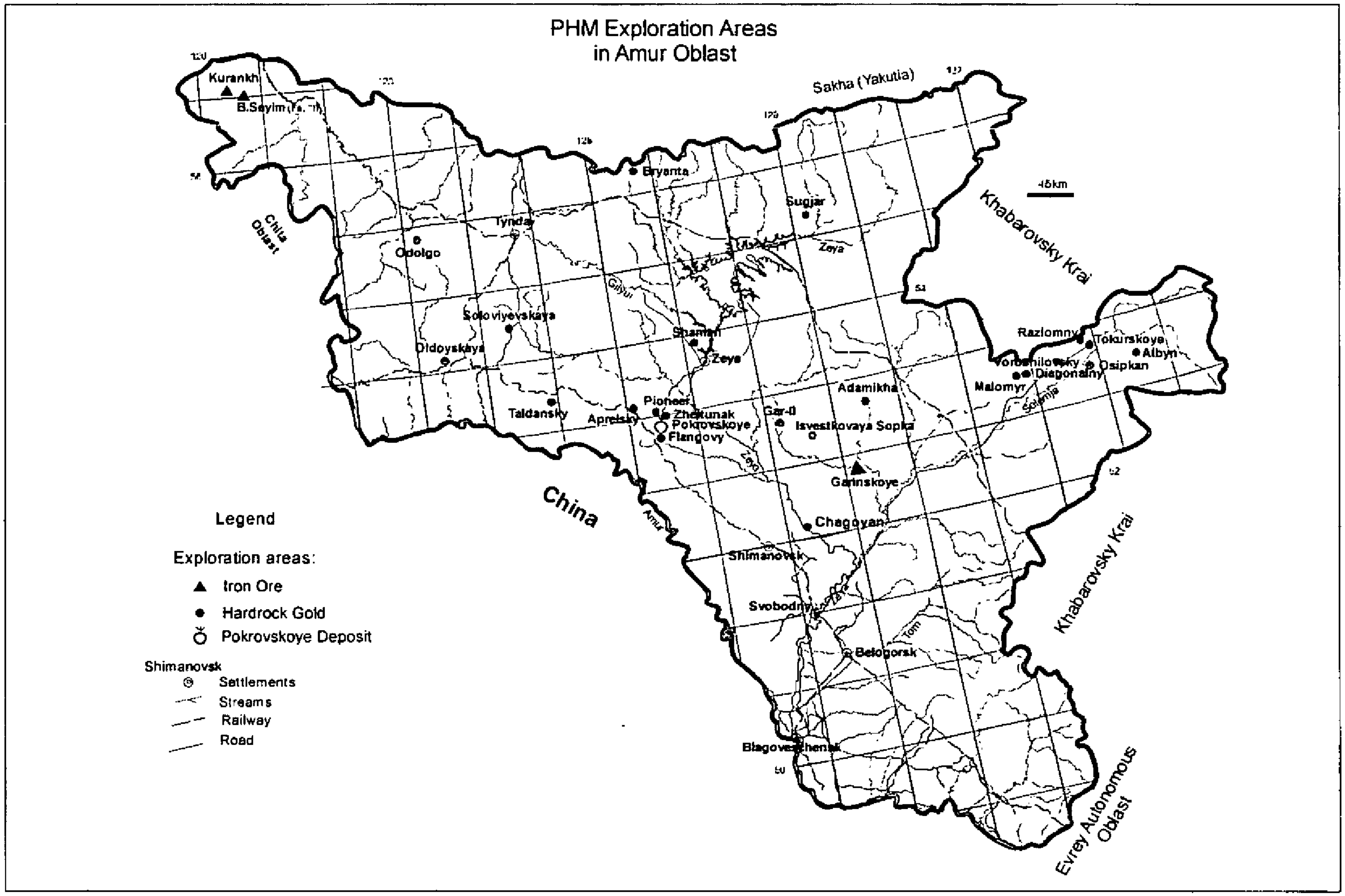


Figure 1.2: Principal Mining Operations and Deposits in the Amur Region

1.2 Mineral Rights and Permitting

Due to the large number of both hard rock and placer assets owned by PHM, details of individual licences will be provided separately for each asset. However, WAI has inspected all of the licence documentation and can confirm it to be in good order.

1.3 Environmental Issues

WAI was initially commissioned by PHM to carry out a review of environmental and social issues associated with the development of the Pokrovskiy, Pioneer, Malomir, Tokur, Albyn and Yamal projects, to provide a preliminary evaluation of the projects in that respect and to identify the main issues likely to affect valuation and viability. WAI was also requested to assess operations at the Pokrovskiy Mine in relation to the International Cyanide Management Code (International Cyanide Management Institute, 2006). WAI was supported in this task by staff at PHM Engineering (PHME), the technical division of PHM who undertake the development of technical studies involved in these projects.

Sources of material reviewed, consulted or examined during this initial study were:

- Typical plans and geological sections of the mines;
- Maps showing the conceptual layout of the Pokrovskiy and Malomir mines and related infrastructure;
- Reports and maps showing the results of analysis of sampling to establish environmental baseline criteria (soil quality, surface geochemistry, river bottom sediment, dust, air quality, landscape value, land use, surface water conditions and surface geology) (Pokrovskiy, Pioneer and Malomir);
- Subsoil use licences and various state approvals;
- PHM environmental and social web pages;
- PHM 2006 Sustainability report;
- IFC 2004 audit summary of Pokrovskiy mine;
- PHM Environmental Policy;
- Minutes of community meetings;
- Copies of the Company newspaper;
- Declaration of water consumption for Pokrovskiy 2006;
- PHM 2007 and 2006 IFC bi-annual audit submissions;
- Rationale for CN destruction *via* formaldehyde;
- Pokrovskiy 2006 monitoring report; and
- Health and safety documentation for Pokrovskiy.

The methodology used by WAI in carrying out this initial study was to:

- Review project information and seek further clarification of project description as necessary;
- Review the environmental/social studies previously undertaken;
- Visit the sites (21st September 2007 Malomir, Albinskiy, Tokur, Pokrovskiy and Pioneer 23rd and 24th September 2007) and make a visual inspection of the project area and its surroundings;
- Review and comment on key environmental and social issues;
- Assess projects with particular focus on the IFC Performance Standards (IFC, 2006);
- Assess cyanide management at Pokrovskiy in line with the International Cyanide Management Code;
- Advise on recommendations to satisfy 'Best Practice Environmental Management'; and
- Assess the adequacy of planned progressive rehabilitation and closure costs.

Subsequent to this initial visit in September 2007, WAI was commissioned by PHM to update the original report, based on changes that had happened since this time. During the second visit to Blagoveschensk, the operations were not revisited by WAI's Environmental Scientist, since PHM's main Environmental Manager, Vera Usova, is based at the Blagoveschensk office and would not have been present on site to provide information. The rest of the WAI team visited the sites during this time. Thus WAI's Environmental Scientist spent 2 days at the PHM offices in Blagoveschensk from 13th to 14th July 2008, discussing progress at the various sites with Vera Usova and members of the Pokrovskiy and Pioneer Environmental team, who were also present. During this update visit, the following documents were either provided for review, or briefly reviewed during the visit:

- PHM Annual Report – 2007;
- PHM Sustainability Report – 2007;
- Various Pioneer baseline environmental data (air, soil and water);
- Baseline data collection monitoring programme (Pioneer);
- Power Point Presentations on MC PetroPavlovsk (formerly Management Company Peter Hambro Mining), Pokrovskiy, Pioneer, Malomir and Albyn; and
- Company newspapers – December 2007 and March 2008 editions.

The main issues raised during the September 2007 site visit were discussed and progress regarding these issues is reported here. Other achievements and general developments since the last visit are also discussed here.

1.4 Preparation of PHM Mineral Resource Estimates

PHM estimates mineral resources and reserves by classical projection and cross sectional methods in accordance with the Russian Standard Classification System technical regulations. The Pokrovskiy conventional resource statement was last reviewed and approved by GKZ in 1986. PHM has been updating the Pokrovskiy resource by depleting it by the production tonnages and grades, as well as by re-evaluating certain areas where additional exploration drilling data become available.

Concurrently with the Russian Standard Classification System estimates, PHM has commissioned Miramine (a Russian consultancy company, based in Moscow) to prepare computer generated geostatistical estimates for Pokrovskiy and Pioneer, whilst WAI has prepared an updated Malomir model, all of which are reported in accordance with the guidelines of the JORC Code (2004). The geostatistical estimates have been generated using Micromine® (Miramine) and Datamine® (WAI) mining software.

PHM has based their business plan on open pit reserves, derived from the Russian Standard Classification System estimates. Where the Micromine® resource model estimates were available, WAI has reviewed them within the scope of this report accordingly.

1.5 Summary of Resources

Concurrently with resources estimates prepared under Russian Standard Classification System requirements, PHM has also evaluated mineral resources in accordance with the guidelines of the JORC Code (2004), using Micromine® mining software for the principal ore zones within Pokrovskiy and Pioneer and at Malomir using Datamine® prepared by WAI.

The Micromine® estimates were prepared by Miramine or by PHM under Miramine supervision. Miramine has estimated mineral resources and ore reserves in accordance with the guidelines of the JORC Code (2004).

PHM has used Micromine® models to establish mineral resources for Pokrovskiy and Pioneer, as well as for a conceptual mine plan at Malomir. WAI considers that where sufficiently robust, the Micromine® models have been utilised as the primary reporting estimates for PHM and has reviewed them accordingly and made commentary on them in this report. WAI has not undertaken any modelling exercise, but has reviewed them to confirm these resource and reserve estimates, WAI has undertaken pit optimisation utilising NPV Scheduler® to replicate the reserve estimates that have been used in the financial evaluation.

PHM evaluates mineral resources in accordance with the Russian Standard Classification System technical regulations, which classifies into A, B, C_1 and C_2 resource/reserve categories, as well as P_1, P_2 and P_3 "prognostic" resource categories.

Resources prepared in accordance with the Russian Standard Classification System are evaluated using conventional projection and/or sectional methods internally by PHM. The resources at Tokur were evaluated in late 1980's and subsequently audited by PHM. WAI has not undertaken an audit of these mineral resource and reserve statements, but has no reason to believe that they are not robust.

WAI has taken the Mineral Resources prepared in accordance with the classical Russian Standard Classification System for those assets where no Micromine® models are available.

A summary of the Mineral Resources and Reserves attributed to PHM in the Amur Region are presented in Table 1.1, Table 1.2, Table 1.3 and Table 1.4 below. These tables are separated into those that have been prepared in accordance with the guidelines of the JORC Code (2004) and those that have been prepared in accordance with the Russian Standard Classification System.

Table 1.1: PHM Mineral Resources
Classified in accordance with the guidelines of the JORC Code (2004) (WAI July 2008)

Type	Category	Pokrovskiy-1[2]				Pokrovskiy-3[2]				Andreevskaya [2]			
		Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Oxide (0.4g/t Au COG)	*Measured*	51	2.11	108	3					327	7.44	2,429	78
	Indicated	478	1.74	832	27					73	4.54	330	11
	Measured + Indicated	**529**	**1.78**	**940**	**30**					**399**	**6.91**	**2,759**	**89**
	Inferred	5,707	1.11	6,335	204					21	5.13	109	3.5
Sulphide (0.4g/t Au COG)	*Measured*	1,905	2.14	4,077	131	1,463	1.36	1,987	64	2,294	2.33	5,344	101
	Indicated	3,469	2.01	6,969	224	1,012	0.73	738	24	1,576	2.00	3,153	172
	Measured + Indicated	**5,374**	**2.06**	**11,046**	**355**	**2,474**	**1.10**	**2,725**	**88**	**3,869**	**2.20**	**8,498**	273
	Inferred	7,267	1.3	10,050	323	991	0.58	570	18,	3,271	1.70	5,575	**179**
TOTAL [1]	*Measured*	1,956	2.13	4,185	134	1,463	1.36	1,987	64	2,621	2.97	7,773	250
	Indicated	3,947	1.98	7,801	251	1,012	0.73	738	24	1,649	2.11	3,483	112
	Measured + Indicated	**5,903**	**2.03**	**11,986**	**385**	**2,474**	**1.10**	**2,725**	**88**	**4,270**	**2.64**	**11,256**	362
	Inferred	12,974	1.26	16,385	527	991	0.58	570	18,	3,292	1.73	5,684	183

Note:

[1] - TOTAL includes Oxide at 0.4g/t Au COG and Sulphide at 0.4g/t Au COG

[2] - WAI audit of PHM Micromine® resource models

<table>
<tr><th colspan="10">Table 1.2: PHM Mineral Resources
Classified in accordance with the guidelines of the JORC Code (2004) (WAI July 2008)</th></tr>
<tr><th rowspan="3">Type</th><th rowspan="3">Category</th><th colspan="4">Pioneer [2]</th><th colspan="4">Malomir [3]</th></tr>
<tr><th rowspan="2">Tonnage (kt)</th><th rowspan="2">Grade (g/t Au)</th><th colspan="2">Metal</th><th rowspan="2">Tonnage (kt)</th><th rowspan="2">Grade (g/t Au)</th><th colspan="2">Metal</th></tr>
<tr><th>(kg Au)</th><th>(koz Au)</th><th>(kg Au)</th><th>(koz Au)</th></tr>
<tr><td rowspan="4">Oxide (0.4g/t Au COG)</td><td>Measured</td><td>5,210</td><td>0.94</td><td>4,921</td><td>158</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Indicated</td><td>3,842</td><td>0.82</td><td>3,147</td><td>101</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Measured + Indicated</td><td>9,052</td><td>0.89</td><td>8,068</td><td>259</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Inferred</td><td>11,688</td><td>0.73</td><td>9,253</td><td>276</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="4">Sulphide (0.6g/t Au COG)</td><td>Measured</td><td>9,750</td><td>1.19</td><td>11,638</td><td>374</td><td>7,239</td><td>1.31</td><td>9,501</td><td>305</td></tr>
<tr><td>Indicated</td><td>11,012</td><td>1.15</td><td>12,715</td><td>408</td><td>57,156</td><td>1.19</td><td>68,115</td><td>2,190</td></tr>
<tr><td>Measured + Indicated</td><td>20,762</td><td>1.17</td><td>24,353</td><td>782</td><td>64,395</td><td>1.21</td><td>77,616</td><td>2,495</td></tr>
<tr><td>Inferred</td><td>26,676</td><td>1.00</td><td>26,767</td><td>859</td><td>87,549</td><td>0.94</td><td>82,262</td><td>2,645</td></tr>
<tr><td rowspan="4">TOTAL [1] Oxide (0.4g/t Au COG) + Sulphide (0.6g/t Au COG)</td><td>Measured</td><td>14,960</td><td>1.11</td><td>16,559</td><td>532</td><td>7,239</td><td>1.31</td><td>9,501</td><td>305</td></tr>
<tr><td>Indicated</td><td>14,854</td><td>1.07</td><td>15,862</td><td>510</td><td>57,156</td><td>1.19</td><td>68,115</td><td>2,190</td></tr>
<tr><td>Measured + Indicated</td><td>29,814</td><td>1.09</td><td>32,421</td><td>1,042</td><td>64,395</td><td>1.21</td><td>77,616</td><td>2,495</td></tr>
<tr><td>Inferred</td><td>38,364</td><td>0.92</td><td>35,355</td><td>1,137</td><td>87,549</td><td>0.94</td><td>82,262</td><td>2,645</td></tr>
</table>

Note:

1 - TOTAL includes Oxide at 0.4g/t Au COG and Sulphide at 0.6g/t Au COG

2 - WAI audit of PHM Micromine® resource models

3 - WAI Datamine® estimate based on PHM sample database

Table 1.3: PHM Proven and Probable Mineral Reserves[1]
Classified in accordance with the guidelines of the JORC Code (2004)
(WAI July 2008)

	Ore	Grade	Contained Gold		Stripping Ratio
	(Mt)	*(g/t)*	*(kg)*	(oz)	*(t Waste:t Ore)*
Pokrovskiy Total	5.6	2.05	11,500	369,733	4.2:1
Andreevskaya	*2.8*	*3.66*	*10,400*	*334,368*	*11.7:1*
Bakhmut, Yuzhnaya and Promezhutochnaya	*24.7*	*1.03*	*25,500*	*819,843*	*4.8:1*
Pioneer Total	27.5	1.30	35,900	1,154,211	5.5:1
Malomir Total	50.8	1.26	64,000	2,057,646	3.6:1
Total PHM Reserves	**83.9**	**1.33**	**111,400**	**3,581,590**	**4.3:1**

[1]Note: *The above reserves are inclusive of resources and based on a US$650/oz gold price*

Table 1.4: PHM Resources and Reserves Summary – Russian Standard Classification System (PHM Annual Report 2007 – As at 01/01/08)

		B + C_1				C_2				P_1			
Deposit	Category	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Pokrovskiy Main	Balance	4,450	4.23	18,824	605	576	3.94	2,269	73	1,540	3.90	6,000	193
	Off Balance	8,162	1.0	8,162	262	23	0.91	21	0.7				
Waste Dump	Balance	4,259	1.33	5,665	182								
	Off Balance	3,924	0.73	2,865	92								
RIP Tailings	Balance	7,067	0.42	2,968	95								
Inner Flanks	Balance					92	3.91	360	12				
	Off Balance					11,430	1.20	13,716	441	2,730	1.70	4,641	149
Fanglomerates	*Off Balance*					3,100	1.00	3,100	100	2,560	0.80	2,048	66
Upper Luzhki	Balance									3,550	2.00	7,100	228
Anatolievsky	Balance									400	2.50	1,000	32
Pokrovskiy Totals	Balance	15,777	1.74	27,457	882	338	3.90	2,605	96	5,490	2.57	17,755	442
	Off Balance	12,086	0.97	11,027	354	14,553	1.16	16,837	541	5,290	1.27	6,689	215
Pioneer						72,658	1.61	116,979	3,761	21,760	1.63	35,469	1,140
Malomir						51,770	1.55	80,326	2,580	38,708	1.40	54,258	1,742
Tokur		3,932	3.24	12,740	410	8,851	2.36	20,888	672	15,010	3.40	51,034	1,641
Albyn										12,968	3.90	50,575	1,626
Novogodnee Monto	Balance	4,878	1.14	5,560	179	817	2.00	1,634	53	1,960	4.70	9,212	296
	Off Balance					185	1.04	192	6.6				
Toupugal		7,630	1.40	10,682	343	6,661	1.52	10,125	326	7,900	5.80	45,820	1,473
Ozernoye Au										2,300	1.00	2,300	74
PGM										2,300	1.50	3,450	111
Amur Region						1,366	8.49	11,597	373	2,063	7.43	15,328	493
GROUP TOTAL (Excl. PGM's)		**44,303**	**1.54**	**67,466**	**2,168**	**157,529**	**1.66**	**261,101**	**8,409**	**115,749**	**2.49**	**287,823**	**9,253**

2.0 POKROVSKIY

2.1 Introduction

OJSC Pokrovskiy Rudnik (98.6% owned by PHM) owns the Pokrovskiy Mine which currently represents the principal gold producer within PHM, producing some 237koz of gold in 2007 (Photo 2.1). The Pokrovskiy mine has excellent infrastructure, including electricity supply, roads, heating plant, laboratory, accommodation, canteen and offices. It is equipped with a full mining fleet, including trucks, bulldozers, shovels and drill rigs.

Photo 2.1: Pokrovskiy Rudnik Operations

The Pokrovskiy Licence was issued on 16th May 1994 by the State Geology Committee of the Russian Federation and was re-issued to JSCP Pokrovskiy Rudnik in 1998. The licence runs until 1st June 2014 and may thereafter be extended, with the consent of the licensing authority.

The first gold was produced in 1999 from the heap leach operation, whilst in September 2002, PHM completed the construction of the new resin-in-pulp processing plant at Pokrovskiy and the first gold produced through the plant was poured. In 2004, PHM completed the upgrade of capacity at its resin-in-pulp plant at Pokrovskiy from 1Mt of ore per annum to 2.0Mt of oxide ore per annum.

Access to the Pokrovskiy mine is either by air service from Blagoveschensk to Zeya (88km from the mine) or by Trans-Siberian Railways from Khabarovsk (18 hours) to Tygda (10km from the mine). A car journey from the regional capital Blagoveschensk to the mine takes approximately 7 hours. Alternatively, direct helicopter transfer from Blagoveschensk to the mine takes approximately 1½ hours.

2.2 Mineral Rights and Permitting

The Pokrovskiy mining operation is covered by Licence No BLG 10590BR for commercial mining of gold and silver. The licence covers an area of 413ha and is valid from 20.02.1998 to 01.06.2014. The coordinates of the licence area are given in Table 2.1 below.

Table 2.1: Coordinates of Pokrovskiy Mining Operation

Co-ordinate	Latitude (N)	Longitude (E)
1	53°13'30"	126°20'00"
2	53°13'06"	126°19'07"
3	53°13'19"	126°20'05"
4	53°12'27"	126°20'41"
5	53°12'44"	126°20'31"
6	53°13'32"	126°21'15"
7	53°13'45"	126°21'00"
8	53°13'41"	126°21'12"

2.3 Geology and Mineralisation

2.3.1 Regional Geology

The geology of the Pokrovskiy area is dominated by global tectonics, in that it lies close to the generally east-west trending plate junction between the Amur and Eurasian plates and is thus host to a variety of structurally controlled mineral occurrences including gold, base metals, iron ore and PGMs.

The Pokrovskiy gold deposit is located at the edge of the Sergeyevskiy granodiorite massif, which is situated in the western part of the Umlanko-Ogadjinsky intra-continental belt of Late Mesozoic age. The regional stratigraphy comprises flat to gently dipping Jurassic sandstones, siltstones and argillites, in turn overlain by Late to Mid-Cretaceous dacite to andesitic tuff, lavas and breccias. An extensive granitic complex that included coarse grained to porphyritic units subsequently intruded this sequence. Late-stage intrusive activity is manifest as dacite sills and dykes.

Upper Cretaceous stratigraphy includes sandstone and conglomerates, which are subsequently overlain by Cenozoic sands and recent alluvial deposits, including gold placer deposits.

2.3.2 Deposit Geology

The Pokrovskiy deposit consists of a set of five large, irregular, but mostly flat-lying ore bodies within a sequence of volcanic and sedimentary rocks of Mesozoic age, lying above a thick dacite sill (shaped like an inverted bowl). The ore bodies consist of gold disseminations that appear to be associated with intense block faulting, which characterises the geology of this region.

Significant mineralisation has yet to be found below the sill, which thus currently forms a 'floor' to the deposit. Some of the fractures that intersect the dacite sill are mineralised within the sill and may represent the channels through which the hydrothermal mineralising fluids travelled.

In general, away from the central Pokrovskiy area where the dacite sill is at its shallowest depths, instead of flat-lying ore bodies there are more steeply dipping veins and mineralised zones, controlled principally by the distribution of faulting, within the same sequence of Mesozoic sedimentary and volcanic rocks that host the main Pokrovskiy ore deposit.

There are also alluvial placer deposits along most of the surrounding stream valleys. To the southeast of the central Pokrovskiy area there is potentially a very large area in which gold-bearing rocks, originally identified as fanglomerates, occur. These are thick flood-deposited sediments derived from erosion of the Pokrovskiy area and the natural separation processes makes these, in themselves, a very large and attractive exploration target. However, recent work has reconsidered the genesis of these deposits and suggests that they are, in fact, tectonic mélanges with a smaller footprint than first believed. Work on this prospect is still ongoing.

Two principal fault directions are present in the deposit area, namely northwest and northeast. The early northwest-trending system defines the structural fabric of the district. Shallow-dipping thrust faults are also present on the property and a dominant example occurs at the base of the mineralised granite.

Figure 2.1 shows the geology in plan, as well as a cross-section through the various ore zones.

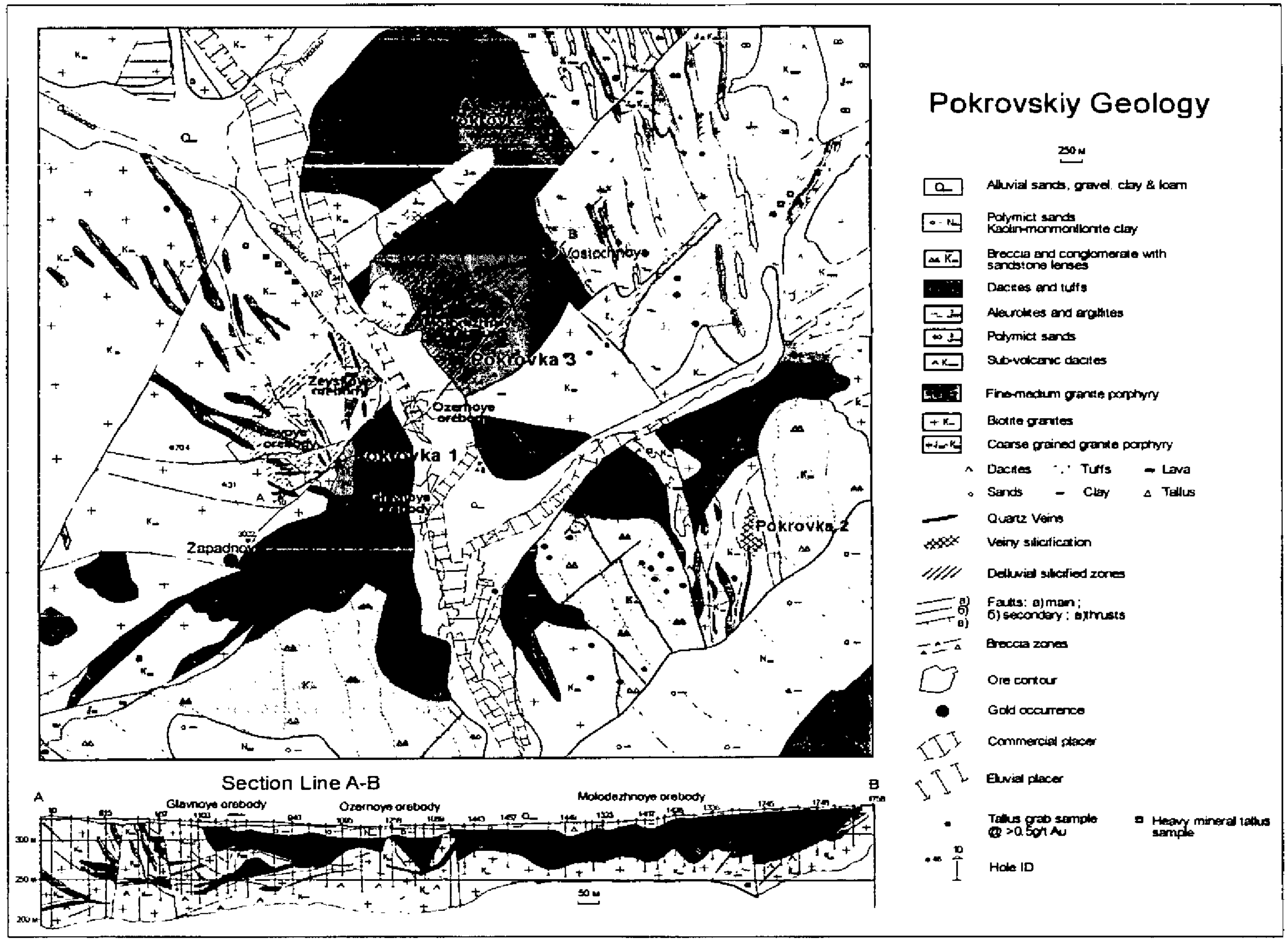


Figure 2.1: Geological Plan and Section of the Pokrovskiy Deposit

The Pokrovskiy deposits occur within a granitic-structural complex measuring 1,400m by 800m with mineralisation extending to at least 240m depth. Two distinct deposits are recognised at Pokrovka 1 (the main area of current production) and Pokrovka 3 located 400m to the northeast.

The Pokrovka 1 deposit comprises four separate mineralised zones including the Glavnoye, Zeyskoye, Novoye and Ozernoye zones . The Molodezhnoye mineralisation comprises the Pokrovka 3 deposit. The principal host rocks are granite at the Pokrovka 1 deposit and dacite tuff at the Pokrovka 3 deposit. Both units are cut by steep to shallow dipping quartz porphyry and diorite porphyry dykes.

Cretaceous lavas, breccias and tuffs are present over the southern portion of the Pokrovka 1 deposit and host the Pokrovka 3 deposit. A sill-like body of porphyritic dacite underlies the Pokrovka 1 deposit and part of the Pokrovka 3 deposit. The contact with the overlying granite or tuff is strongly brecciated and appears to represent a thrust fault.

All lithologies that comprise the deposit demonstrate intensive multiple-phase alteration including argillisation, silification, sulphidation and sericitisation with increasing propylitisation at depth. Argillic alteration is most widespread and its extent is coincident with the porphyritic dacite sill. Kaolinite, montmorillonite, chlorite, sericite, carbonate and pyrite comprise the argillic phase, which is overprinted by a later quartz-sericite-pyrite phase.

Gold mineralisation occurs in quartz veins and veinlets and areas of intense silicification up to 70m thick. Several distinct phases of quartz mineralisation are recognised and the highest grades are associated with chalcedonic quartz and amethyst. High grade zones demonstrate intense silicification, brecciation and quartz in banded or colloform textures. Gold occurs as fine particles, both encapsulated in silica and in contact with sulphide minerals, predominately pyrite with minor marcasite, arsenopyrite, galena and sphalerite.

The mineralisation demonstrates reasonable continuity when outlined at a cut-off grade of 0.5g/t Au and remains more or less continuous at a cut-off grade of 1.0g/t Au. At a cut-off above 1.0g/t Au, the mineral resources become discontinuous and irregular in form.

Both the Pokrovka 1 and Pokrovka 3 deposits demonstrate deep weathering and 60% of the mineralisation is classified as oxidised. The 40% portion of unweathered mineral resources occurs near the base of the Glavnoye mineralisation.

2.4 Mineral Resources

2.4.1 Resources Estimated in accordance with the Guidelines of the JORC Code (2004) - Pokrovskiy Micromine® Block Model

2.4.1.1 Structural Interpretation and Cut-Off Grade Philosophy

Two deposits were identified and modelled by Miramine (Moscow) on behalf of PHM in 2008 for Pokrovskiy, namely Pokrovka 1 and Pokrovka 3.

Natural cut-off-grades (COG) of 0.37g/t Au for Pokrovka 1 and 0.30g/t Au for Pokrovka 3 were identified from the grade histograms, illustrated in Figure 2.2 and Figure 2.3 below.

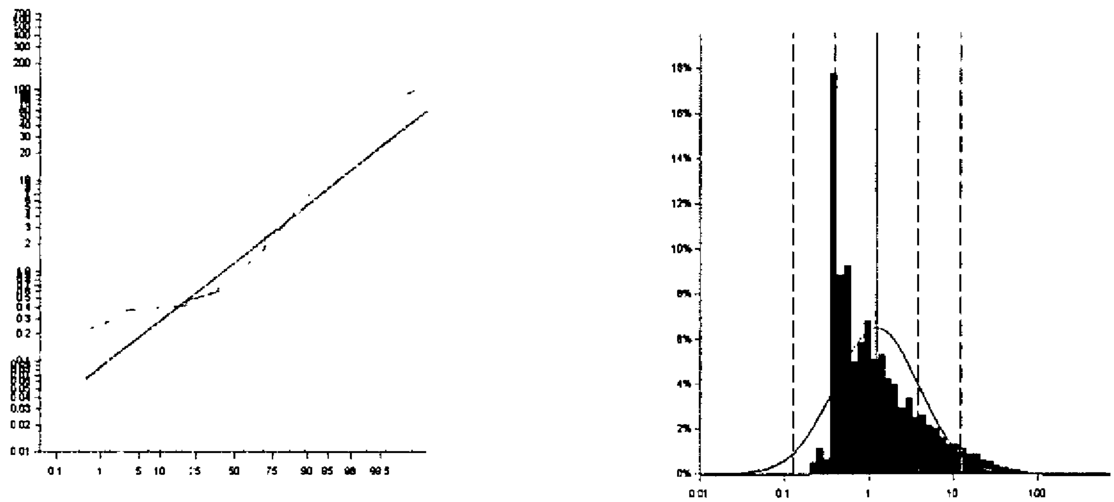


Figure 2.2: Statistical Plots for Pokrovka 1 Mineralised Zone (Miramine 2008) Showing Natural COG Limit at 0.37g/t Au

Pokrovka 1 was subdivided into four mineralised zones, numbered 1 to 4 as shown in Figure 2.4. These zones were identified as similar strike and dip; broadly corresponding to the Novoe, Zeyskoe, Ozernoe and Glavnoe Zones identified in the conventional estimate.

Distinct wireframes were constructed for each ore zone using the natural COG. Wireframes were extrapolated on ½ distances between pay and non-pay drill holes. Small waste inclusions within the mineralisation model were also digitised, modelled and subsequently excluded from the mineralised envelope. No minimum mining width was used and, as such, width of the wireframe model is only restricted on sample length and may be as narrow as 1m. The wireframe model for Pokrovka 1 and Pokrovka 3 Mineralised Zones are shown in Figure 2.5.

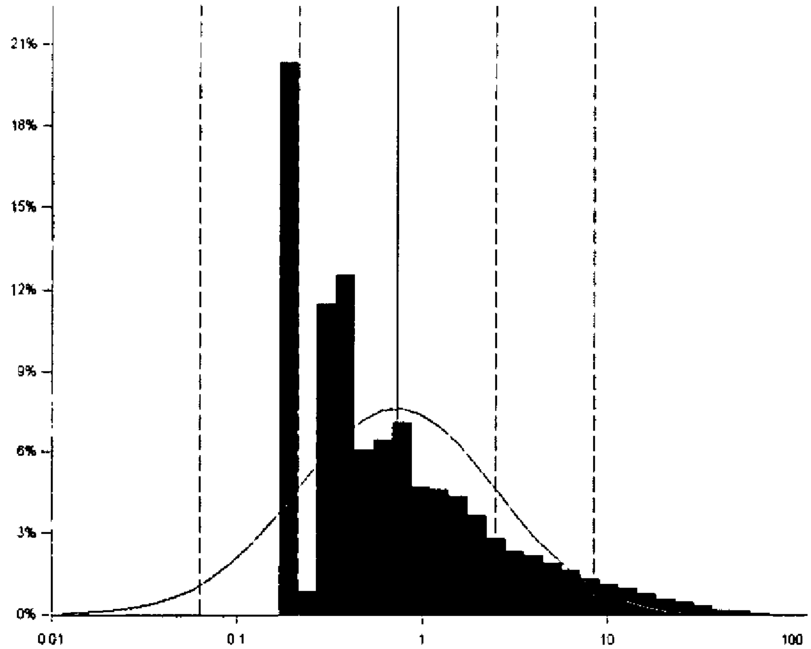


Figure 2.3: Log Histogram for Pokrovka 1 Mineralised Zone (Miramine 2008) Showing Natural COG Limit at 0.30g/t Au

WAI is of the opinion that within Pokrovka 1, there is no sharp boundary between Ore Zone 2 and Ore Zone 4 and that they form a single mineralised entity. Therefore, Zone 2 and 4 should be treated as a single orebody, with different dip zones if appropriate (see Figure 2.4 below).

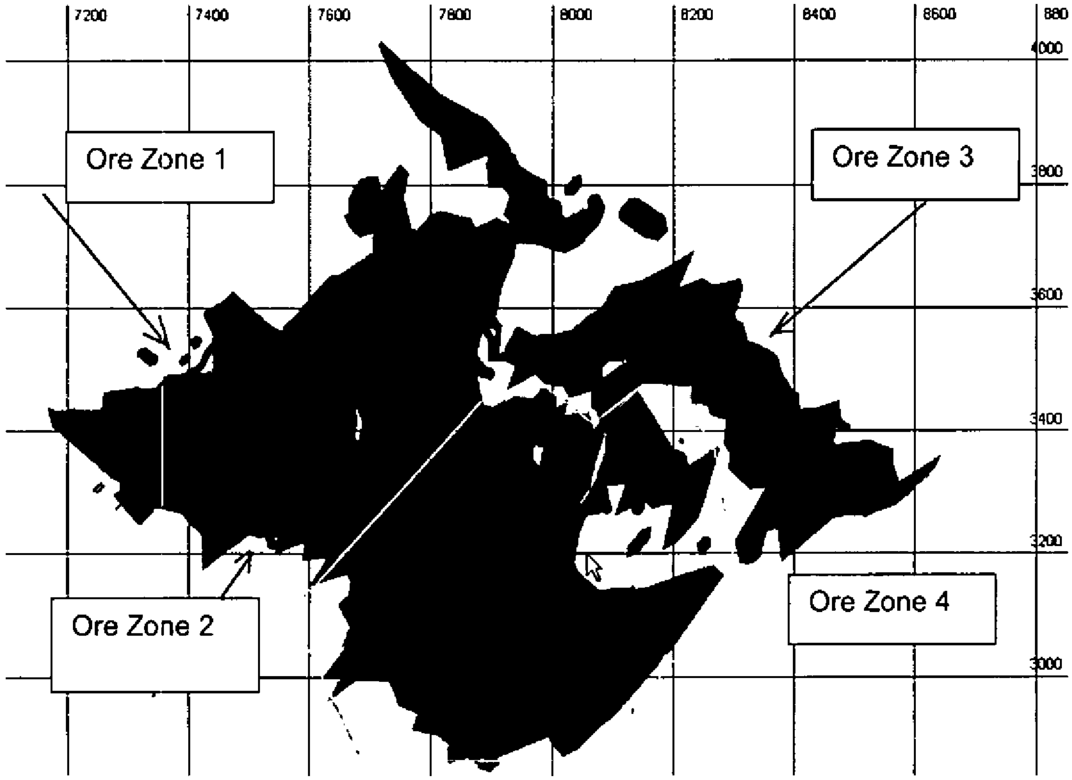


Figure 2.4: Ore Zones within Pokrovka 1 Deposit (Miramine 2008)

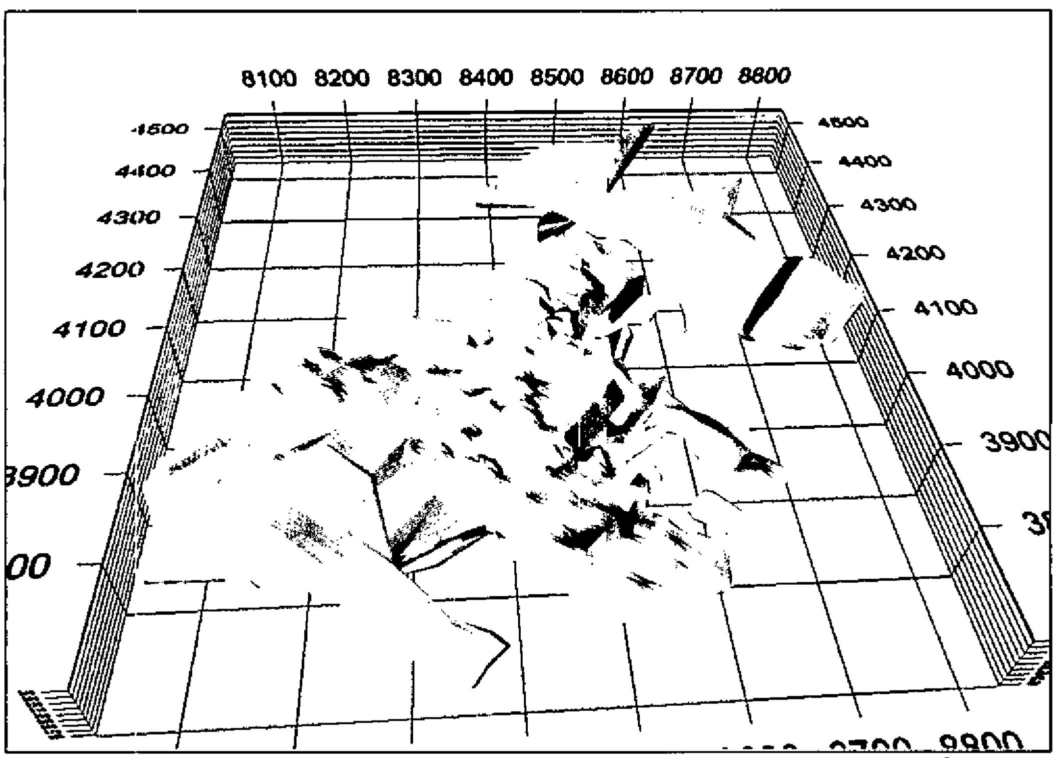


Figure 2.5: Wireframe Model for Pokrovka 1 (Yellow) and Pokrovka 3 (Orange) Deposits (Miramine 2008)

2.4.1.2 Top Cutting of the High Grades

The mineralised envelope wireframes were used to identify samples belonging to each ore zone and each ore body. Statistical analysis of the samples within wireframes identified grade outliers, which were cut as follows:

- 22.0g/t Au within Ore Zone 1 (Pokrovka 1);
- 47.7g/t Au within Ore Zone 2 (Pokrovka 1);
- 55.5g/t Au within Ore Zone 3 (Pokrovka 1);
- 41.5g/t Au within Ore Zone 4 (Pokrovka 1), and
- 16.59g/t Au within Pokrovka 3.

WAI Comment: The cutting of high grades is common practice to provide a realistic unbiased grade estimate in the case of the positively skewed distributions.

2.4.1.3 Variography

A geostatistical review of the deposit was undertaken with the aims of:

- To estimate the presence of anisotropy within the deposit;
- To derive the spatial continuity of mineralisation along the principal main anisotropic orientations;
- To produce a suitable variogram model and determine the principal variogram model parameters; and
- To generate suitable search parameters for the resource estimation.

Samples within mineralised envelopes previously top cut were composited to 1m sample lengths and used to produce experimental semi-variograms.

Surface semi-variogram contour plots were produced to assess the main directions of anisotropy, 18 horizontal semi-variograms were used to produce the plots ranging from 000° to 170° azimuth at 010° increments. The final Au semi-variogram contour plot is shown in Figure 2.6 below.

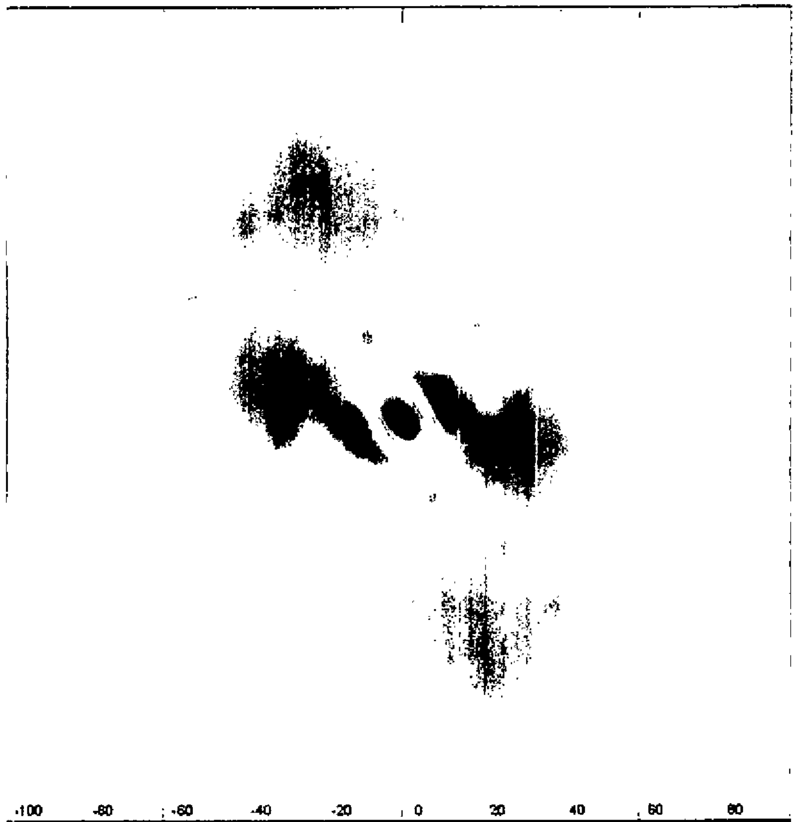


Figure 2.6: Pokrovka 1 Semi-Variogram Contour Plot

The semi-variogram contour plot exhibits that the dominant direction of anisotropy is around 120°.

Anisotropic experimental semi-variogram plots were produced for each ore zone, examples of which are shown in Figure 2.7 and Figure 2.8 below.

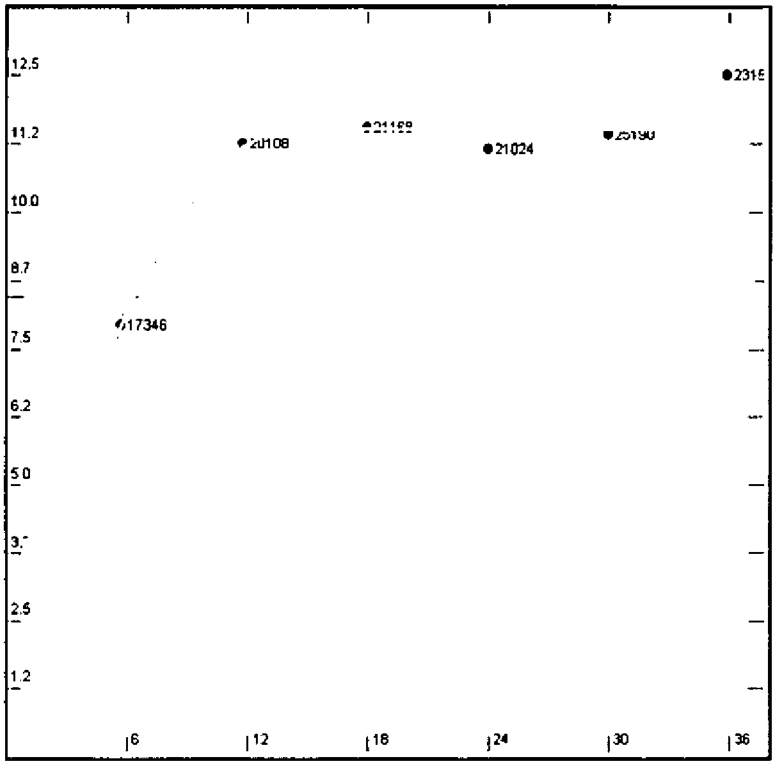


Figure 2.7: Pokrovka 1 Zone 1 Experimental Semi-Variogram and Semi-Variogram Model for the First Axis of Anisotropy (Miramine 2008)

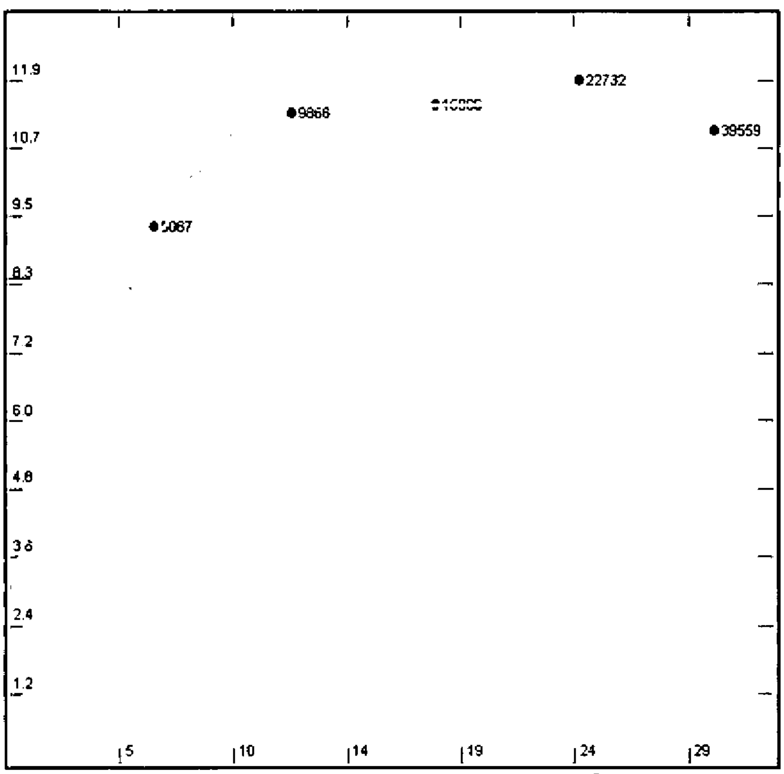


Figure 2.8: Pokrovka 1 - Zone 1 Experimental Semi-Variogram and Variogram Model for the Second Axis of Anisotrophy (Miramine 2008)

Directional experimental semi-variograms for Au grades were generated and spherical semi-variogram models were fitted for the four ore zones identified at Pokrovka 1 and that of Pokrovka 3. Variogram model parameters are summarised in Table 2.2 below.

WAI Comment: WAI has observed that the grade anisotropy identified by Miramine for all of the zones listed in Table 2.2 does not conform to the zone morphology and payshoot orientation that has been established by PHM. Miramine is of the opinion that this deviation is due to small veins within the mineralised zones having different orientations to the strike exhibited by the mineralised zones as a whole. Although this factor should be further investigated in any future modelling exercise, WAI does not believe this significantly impacts on the current resource estimate.

Table 2.2: Au Variogram Parameters (Miramine 2008)

	Strike	Dip	Cross Strike
Pokrovka 1, Zone 1			
Azimuth	20°	157°	251°
Dip	70°	15°	13°
Nugget	3.0	3.0	3.0
Sill	8.5	8.5	8.5
Range, m	14	12	8
Pokrovka 1, Zone 2			
Azimuth	103°	193°	13°
Dip	0°	79°	11°
Nugget	3.0	3.0	3.0
Sill	53.8	53.8	53.8
Range, m	38	34	20
Pokrovka 1, Zone 3			
Azimuth	315°	135°	225°
Dip	70°	20°	0°
Nugget	9.5	9.5	9.5
Sill	34.7	34.7	34.7
Range, m	10.0	8.0	6.0
Pokrovka 1, Zone 4			
Azimuth	58°	142°	345°
Dip	-26°	12°	38°
Nugget	1.5	1.5	1.5
Sill	22.4	22.4	22.4
Range, m	22	23	10
Pokrovka 3			
Azimuth	46°	144°	283°
Dip	18°	24°	59°
Nugget	0.33	0.33	0.33
Sill	22.4	22.4	22.4
Range, m	39	58	20

In addition, differences have been noted in the semi-variogram ranges for the various ore zones with very similar mineralisation which would not normally be expected. To improve this, although the impact on the current estimate is minor, WAI would recommend that for future estimates variography studies be undertaken using grade control blast hole samples.

2.4.1.4 Volumetric Model

Two separate volumetric block models were created for Pokrovka 1 and Pokrovka 3, with parameters summarised in Table 2.3 below.

Table 2.3: Pokrovka 1 and Pokrovka 3 Volumetric Model Parameters (Miramine 2008)

Parameter	Pokrovka 1	Pokrovka 3
Cell Minimum Co-Ordinate		
X (Easting)	7,165	7,807.5
Y (Northing)	2,845	3507.5
Z (RL)	40	255
Cell Dimensions (Minimum Sub-Cell Dimension)		
X (m)	15 (1.5)	15 (1.5)
Y (m)	15 (1.5)	15 (1.5)
Z (m)	5 (1.0)	10 (1.0)
Number Of Cells		
X	100	80
Y	81	80
Z	60	10
Maximum Cell Co-Ordinate		
X	8,650	8,992.5
Y	4,045	4692.5
Z	335	345

Parent cell dimensions were chosen based on drill hole spacing and a mining bench height of 5.0m.

The key fields to identify cells belonging to different zones were also established during volumetric modelling stage.

WAI Comment: WAI is of the opinion that the volumetric model has been constructed in an appropriate manner.

2.4.1.5 Bulk Density

At depth the ore zones are consolidated with a density of 2.4t/m^3, near surface mineralisation is unconsolidated and has a density of 2.0t/m^3. Pokrovka 3 comprises un-consolidated material and therefore has a density of 2.0t/m^3. Pokrovka 1 comprises both consolidated and unconsolidated material, separated by the Glavniy fault.

The bulk density values have been calculated from measurements taken from hand specimens, grab samples and from excavations in various types of ore.

For the pit optimisation waste cells were added to the resource model. A density of 2.0t/m^3 was applied to cells with absent density values and where the block centroids exceeded

259m RL which corresponded to the mean average elevation of un-consolidated material in the resource model. For all remaining waste cells a density of 2.4t/m^3 has been applied.

2.4.1.6 Composite Search Strategy and Grade Interpolation

Grades were interpolated into the volumetric model independently for each ore zone identified using an Ordinary Kriging algorithm (OK), based on the semi-variogram models described in Table 2.2 and composite search parameters, which are summarised in Table 2.4 below. Only Au grades were estimated.

Table 2.4: Pokrovka 1 and Pokrovka 3 Search Parameters (Miramine 2008)

Search	Radii (m)	Minimum No of Composites	Maximum No Of Composites		Min. No of Holes
			Pokrovka 1	Pokrovka 3	
1st	2/3 of the semi-variogram range (seeTable 2.2)	3	12	20	2
2nd	Semi-Variogram Range	3	12	20	2
3rd	Doubled Semi-Variogram Range	1	12	20	1

Note: Elliptical search, search ellipsoid is orientated parallel to the anisotropy identified in the variography study within each zone as summarised in the Table 2.2.

For verification, grades were also interpolated with an alternative inverse power of distance cubed (ID^3) estimator using the same search parameters. Miramine reported the discrepancy between the two estimations to be within 1% (rel).

WAI Comment: It is the opinion of WAI that the philosophy behind the search strategy employed by Miramine is satisfactory, although minor alterations to the search parameters may be appropriate.

2.4.1.7 Resource Classification and Model Evaluation

The classification used during the recent Miramine resource study is based on the the JORC Code (2004). Resources have been classified into three groups, *Measured, Indicated and Inferred*, on the basis of the search ellipsoid parameters and semi-variogram model ranges, as quoted in Table 2.2 and Table 2.4.

***Measured* Resources:**

Measured resources were reported for cells which were interpolated using search radii not exceeding 2/3 of the semi-variogram model ranges, and which used a minimum of 3 samples.

Indicated **Resources:**

Cells could be assigned an *Indicated* classification if they were interpolated using search radii which did not exceed the range of the omni directional semi-variograms and which incorporated a minimum of 3 samples.

Inferred **Resources:**

Cells which were estimated with radii exceeding semi-variogram ranges or which used less than 3 drill hole samples were classified as *Inferred*.

2.4.2 Miramine Resources

The Micromine® classified resources for Pokrovkska 1 (excluding all mined out material as of August 2008) produced by WAI evaluation of the model are given in Table 2.5 below.

Table 2.5: Pokrovka 1 Classified Resource- Micromine® Model (Miramine 2008, WAI Model Evaluation)

Category	Tonnage (kt)	Grade Au (g/t)	Metal Au (kg)	Metal Au (koz)
At 0.37g/t Au COG				
Measured	1,990	2.11	4,197.6	135
Indicated	4,007	1.95	7,825.8	252
Measured + Indicated	**5,997**	**2.01**	**12,023.4**	**387**
Inferred	13,369	1.24	16,538.8	532
At 0.50g/t Au COG				
Measured	1,810	2.28	4,118.6	132
Indicated	3,596	2.13	7,644.2	246
Measured + Indicated	**5,406**	**2.18**	**11,762.8**	**378**
Inferred	10,775	1.43	15,403.5	495
At 0.80g/t Au COG				
Measured	1,383	2.78	3,847.5	124
Indicated	2,704	2.62	7,075.5	227
Measured + Indicated	**4,088**	**2.67**	**10,923.1**	**351**
Inferred	5,980	2.07	12,390.5	398

Note: The Miramine report does not provide a classified resource statement for the remaining resources below the current open pit shell. WAI noted a field in the current model for material located in the pit as of August 2008, WAI removed this material and checked the model against the latest wireframes. The resources reported in this table are correct as of August 2008. For the final reporting of resources in executive summary resources are reported at a 0.4g/t Au COG.

Category	Tonnage (kt)	Grade Au (g/t)	Metal Au (kg)	Metal Au (koz)
Measured	1,463	1.36	1,987	64
Indicated	1,012	0.73	738	23
Measured + Indicated	2,474	1.10	2,725	87
Inferred	991	0.58	570	18

Table 2.6: Prokrovka 3 Classified Resource Micromine® Model (Miramine, July 2008)

WAI Comment: WAI is of the opinion that whilst the search parameters applied at Pokrovka 1 works for areas of denser drilling and trench sampling, in areas such as Zones 1 and 3 limited trench samples and closely spaces holes can yield conservative results.

2.4.2.1 WAI Audit

WAI has audited the resource estimation methodology employed by Miramine and has performed model checks.

In order to investigate grade distribution within the mineralised zone, WAI has projected the combined Micromine block model for Zone 1-4 onto the horizontal plane and generated grade contour lines as shown in Figure 2.9.

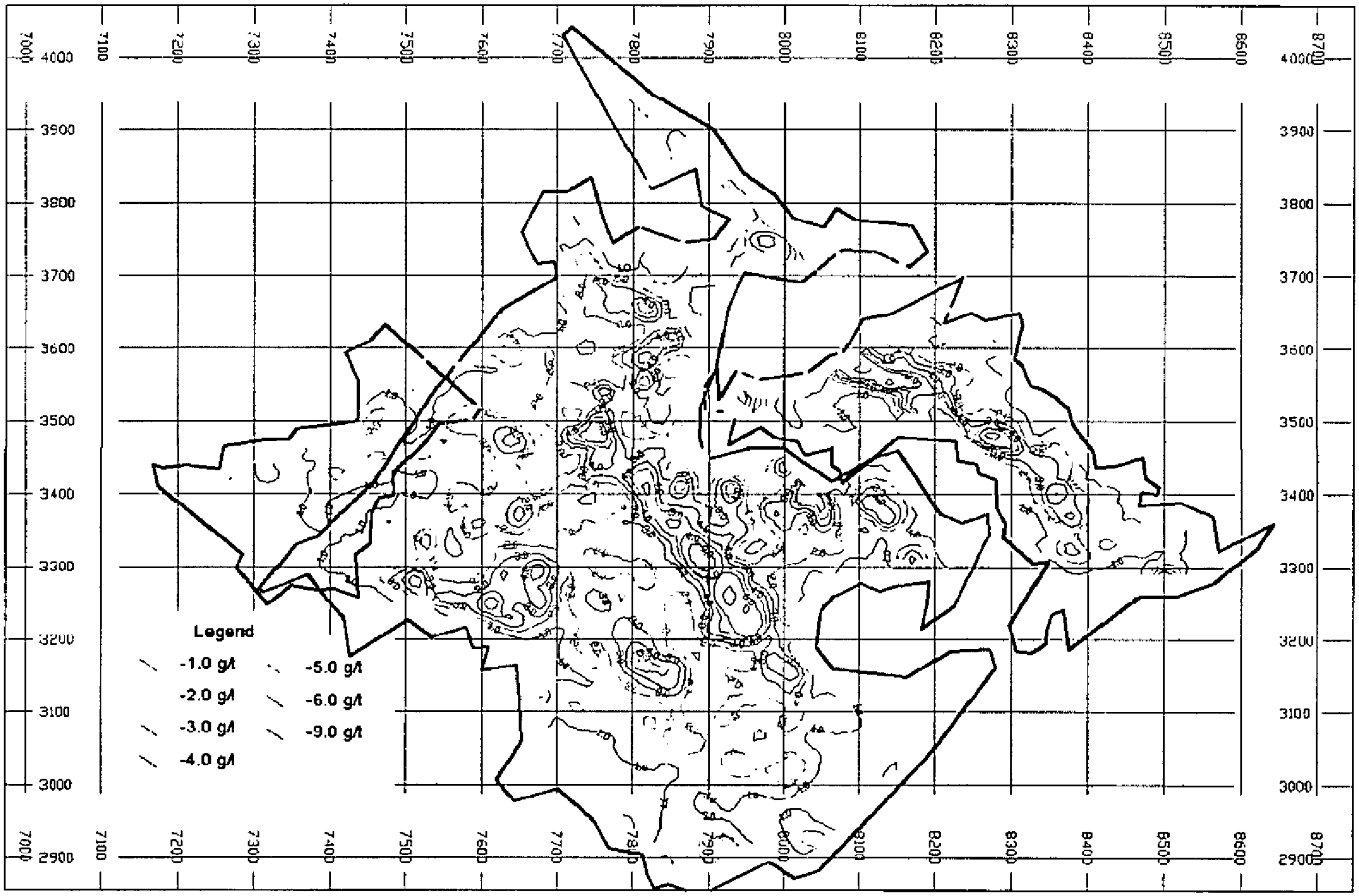


Figure 2.9: Miramine Pokrovka 1 Model Grade Contour Lines (Horizontal Projection WAI, 2007)

Figure 2.9 clearly illustrates the presence of high grade payshoots striking northwest–southeast. Grade anisotropy directions, established by Miramine from experimental semi-variograms, do not correspond with this finding.

As the grade anisotropy applied by Miramine is not supported by geological observations and does not correspond to ore zone morphology, WAI has checked the impact that anisotropy has on grade estimation. WAI has run an alternative grade interpolation using an isotropic 25×25×25m search ellipsoid with inverse power of distance cubed (ID^3) and nearest neighbour (NN) estimators. Cells corresponding to approximately 30Mt (from 44Mt of the total in the model) were estimated in this exercise, which roughly corresponds to the combined *Measured + Indicated* resources (including mined out material) identified by Miramine. The average grade difference between the Miramine estimate and WAI is approximately 3% (rel), (2.10g/t Au against 2.16g/t Au), with the WAI check estimate being higher. WAI has considered this difference to be negligible and concludes that anisotropy has no material impact on the global grade estimate. Incorrect application of the anisotropy for grade interpolation, however, distorts the local grade estimate.

In addition, WAI has compared block model grades against sampling for the Pokrovka 1 deposit. The average grade of the samples lying inside parent cells, plotted against average grade of the cell, is shown in Figure 2.10 below.

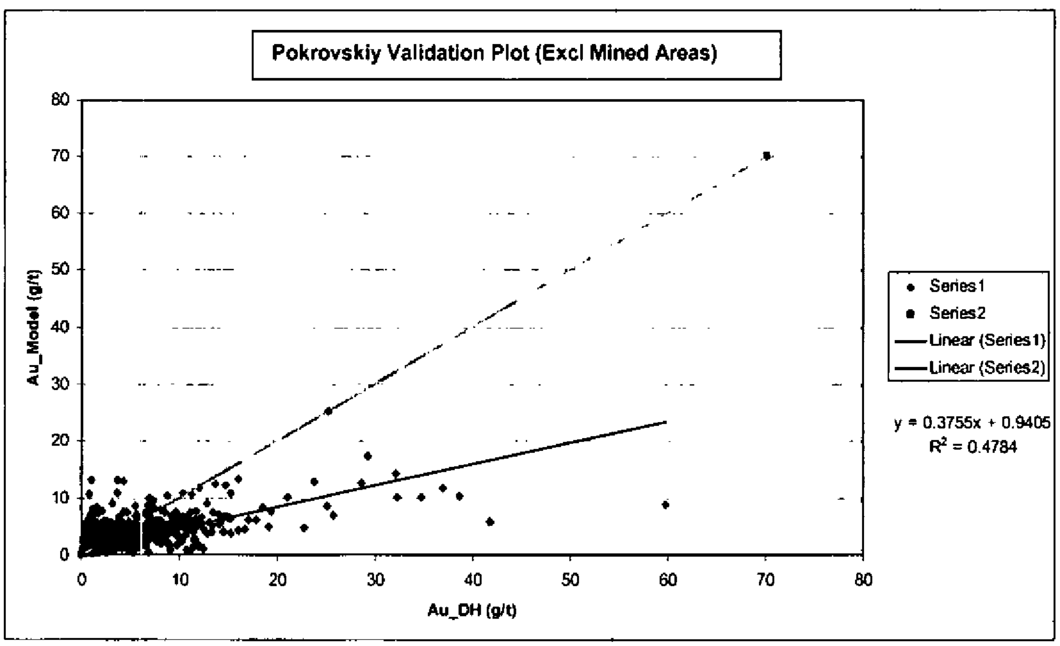


Figure 2.10: Correlation between Block Grades of Miramine 2008 Model and Sample Grades (WAI 2008; Red line shows ideal theoretical correlation)

The trend slope coefficient of 0.38 in Figure 2.10 suggests that there is strong conditional bias in the Miramine resource model thus causing low grade areas to be overestimated and high grade areas to be underestimated, this leads to a smoothing of grades. Whilst the effect on the global resource grade will be negligible, locally within the model there will be areas of overestimated and underestimated grades.

These discrepancies may arise due to the conditional bias, as well as bias between exploration and grade control sampling results. Inappropriate anisotropy will have a negative impact on the local grade estimation, making conditional bias worse. Robustness of the Miramine estimate for 0.8g/t Au is supported by positive reconciliation against production records, although low grade material may be significantly overestimated.

2.4.2.2 WAI Conclusions

The Miramine resource estimate is supported by a positive reconciliation against production records. Basic checks by WAI also confirm the global tonnage and grade estimate. WAI, however, concluded that the Miramine resource model introduces a conditional bias in the resource estimate, where low grades are overestimated and high grades underestimated. Although this model provides an adequate unbiased estimate at 0.8g/t Au COG, low grades of 0.3-0.8g/t are likely to be overstated. The high grade portion of the deposit may be underestimated, although according to the current PHM plans, no selective mining of high grades will take place and therefore this shortfall will not have a material effect on the deposit evaluation.

A reconciliation study (Miramine 2007), as well as basic checks performed by WAI, shows that anisotropy does not affect the global estimate, although semi-variogram ranges and anisotropy orientation are used in resource classification.

The resource classification philosophy can be improved by taking into consideration grade control samples.

WAI recommends further reconciliation between grade control, head grade and the resource model to investigate that there is no bias between different sampling techniques and to check the accuracy of the local grade estimates in the model.

2.4.3 Russian Resource Estimate

Mineral resources quoted by PHM in accordance with the Russian Standard Classification System methodology are presented in Table 2.7 below. Pokrovka 1 and 3 resources and reserves have been audited and approved by GKZ, whilst the remainder are internal PHM estimates that have not been independently audited.

WAI understand that resources and reserves for the Inner Flanks and Fanglomerates are expected to be approved by GKZ by the end of 2008. The estimates that will be submitted may vary from those in Table 2.7 below.

Table 2.7: Pokrovksiy Russian Classified Resources (PHM Annual Report 2007 – as at 01/01/08)

	Category	$B + C_1$				C_2				P_1			
Deposit		**Tonnage (kt)**	**Grade (g/t Au)**	**(kg Au)**	**(koz Au)**	**Tonnage (kt)**	**Grade (g/t Au)**	**(kg Au)**	**(koz Au)**	**Tonnage (kt)**	**Grade (g/t Au)**	**(kg Au)**	**(koz Au)**
Pokrovskiy	Balance	4,450	4.23	18,825	605	576	3.94	2,269	73	1,450*	3.90	6,000	193
	Out of Balance	8,162	1.09	8,880	285	23	0.91	21	0.7				
Stockpiles	Balance	4,259	1.33	5,652	182								
	Out of Balance	3,924	0.73	2,860	92								
RIP Tailings	Balance	7,067	0.42	2,980	96								
Inner Flanks	Balance					92	3.91	360	12				
	Out of Balance					11,430	1.20	13,720	441	2,730	1.70	4,650	150
Fanglomerates	Out of Balance					3,100	1.00	3,100	100	2,560	0.80	2,050	66
Upper Luzhki	Balance									3,550	2.00	7,100	228
Anatolievsky	Balance									400	2.50	1,000	32
TOTAL	**Balance**	**15,777**	**1.74**	**27,457**	**883**	**668**	**3.90**	**2,605**	**96**	**5,490**	**2.57**	**14,100**	**453**
TOTAL	**Out of Balance**	**12,086**	**0.97**	**11,740**	**377**	**14,553**	**1.16**	**16,841**	**541**	**5,290**	**1.27**	**6,700**	**215**

Note:

- 0.80g/t Au COG used to identify "Balance" resources.
- * not reflecting the transfer of P_1 resources to C_1 (258kt, 1,346kg Au and out-of-balance 444kt ore, 354kg Au), drilled on a 20 x 20 grid, which are currently with GKZ State Expertise (audit).
- GKZ Categories A, B, C_1 and C_2 can be compared to JORC Code ore reserves due with consideration of mining dilution and recovery. These are termed 'Balanced' or 'On Balance' reserves. "Out of Balance" reserves would be considered sub-economic under the guidelines of the JORC Code (2004).

In addition to the resources quoted above, Prognostic resources in the P_2 and P_3 categories (Russian classification scheme) were also estimated as B*alance* 24,000kt at 2.00g/t Au and *Out of Balance* 3,400kt at 0.8g/t Au (P_2) and *Balance* 108,000kt at 2.00g/t Au (P_3).

2.5 Mining

Pokrovskiy is an active open pit mine that has been in production since 1999. Current ore production is in the order of 2.4Mtpa at a grade of 3.5g/t Au. In 2007, the RIP plant processed 1.7Mt of ore at a grade of 4.4g/t Au, with a recovery of 91%, whilst the heap leach operation treated some 784kt at a grade of 0.8g/t Au, with an overall recovery of 69%.

The open pit is mined using conventional truck and shovel excavation techniques. The near surface horizons are generally 'free digging' but drilling and blasting of the rock is required to liberate the ore and waste at depth.

2.5.1 Reserve Estimation

The reserves at Pokrovskiy are based on geological resources. The reserve calculation takes into account mining and economic factors to give an indication of the amount of rock that is economically mineable, or can be termed 'ore'. The factors that are considered when calculating reserves include the cost of mining, cost of processing, recovery of ore from the pit, dilution of the ore by waste material, efficiency of the processing method, physical constraints of the mining operation and metal prices.

For a deposit such as Pokrovskiy, which is amenable to open pit mining, the calculation of reserves often takes place in conjunction with the mine design in a process termed 'pit optimisation'.

2.5.2 Mine Design and Pit Optimisation

The design of the Pokrovskiy open pit is based upon a geological resource modelled by PHM using Micromine® geological software. WAI has imported PHM's block model into Datamine® and utilised the open pit optimisation programme NPV Scheduler® to establish a reserve from the *Measured* and *Indicated* resources. The optimisation process was run by WAI using the input parameters given in Table 2.8 below and the results are shown in Table 2.9.

Table 2.8: Pokrovskiy Initial Optimisation Parameters		
Parameter	**Unit**	**Value**
Ore Mining Cost	US$/t	1.6
Waste Mining Cost	US$/t	1.05
RIP Processing Cost	US$/t	7.0
Heap Leach Cost	US$/t	2.9
G&A Cost	US$/t	0.25
Refining & Transport Charge	%	1.0
Royalty Payment	%	6.0
Mining Dilution Factor	%	7
Mining Recovery Factor	%	97
RIP Recovery Factor	%	90
Heap Leach Recovery Factor	%	60
Gold Price	US$/oz	600 – 700
Environmental	US$/t	0.1

Table 2.9: Results of the Economic Optimisation of the Pokrovskiy Open Pit Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
	Gold Price (US$/oz)		
	650	***700***	***750***
Total			
Total Rock Mass, kt	29,000	29,100	30,500
Ore, kt	5,600	5,600	5,700
Grade, Au g/t	2.05	2.05	2.02
Gold, kg	11,458	11,494	11,519
Gold, koz	368	370	370
Waste, kt	23,400	24,160	24,800
Stripping Ratio (tOre/tWaste)	4.2:1	4.3:1	4.4:1
RIP Processing			
Ore to RIP Plant, kt	3,900	4,200	4,400
Grade, Au g/t	2.70	2.57	2.49
Gold, kg	10,518	10,718	10,861
Gold, koz	338	345	349
Economic Cut-Off-Grade	0.44	0.42	0.41
Heap Leach Processing			
Ore to Heap Leach, kt	1,700	1,400	1,300
Grade, Au g/t	0.56	0.54	0.51
Gold, kg	94	776	658
Gold, koz	30	25	21
Economic Cut-Off-Grade	0.29	0.28	0.27

The proven and probable reserves derived by WAI for Pokrovskiy are based on a US$650/oz gold price are 5.6Mt of ore at an average grade of 2.05g/t Au (economic COG of

0.4g/t) and require that 23.4Mt of waste be removed to access the orebody at a stripping ratio of 4:17. A significant further *Inferred* resource exists within the deposit, however, this has not been included in the open pit optimisation as under the JORC Code (2004) code for the reporting of mineral resources and reserves, Inferred resources cannot be used to determine economic reserves.

PHM's current mining schedule is primarily based on reserves reported under the Russian Standard Classification System, which gives an inventory of mineable material of 15.9Mt at an average grade of 1.95g/t Au and requires that 42.3Mt waste be removed to access the orebody. This mining schedule also includes 274koz Au of B+C_1 reserves from stockpile material. It is planned that the current rate of production will continue until 2012 when the existing open pit will be exhausted. After 2012, production will move to a series of smaller open pits termed the Pokrovskiy Flanks which are currently estimated at 553koz Au at C_2 resources. The average grade of the flank deposits is lower than the current Pokrovskiy pit. It is planned from 2013 to 2019 that 2.0Mtpa at an average grade of 1.1g/t Au will be processed in the resin-in-pulp plant and 0.6Mtpa, grading 1.1g/t Au, will be processed via the heap leach facility.

The Pokrovskiy mining schedule is optimised to balance ore mining, waste mining and average grade each year. The mining rate and amount of blending required is not significantly different to the current operational practices and therefore WAI considers the schedule to be both practical and achievable. It should be noted however, that the Pokrovskiy Flanks deposits are not included in the block models reviewed by WAI. As a result, less reliance can be placed on the mining schedule after 2012. It is usual practice for mining companies to produce long term plans based on *Inferred* resources and WAI believes it is appropriate for these future resources to be included in the long term schedule, but as a guide only pending further exploration work.

2.5.3 Mining Equipment

The mining operations at Pokrovskiy utilise a mixture of Russian and Western built mobile equipment. The prime earth moving excavators are 4 EKG electric rope shovels, equipped with 5m^3 rock buckets. In addition, there are 4 diesel hydraulic excavators, comprising two Caterpillar 330 LMEs, one Komatsu PC1100 and one Russian built excavator, all equipped with 2.5m^3 buckets.

The haulage fleet comprises 22 Belaz 45t rigid dump trucks, equipped with heated bodies. In addition to this, there are 4 Atlas Copco ROC F6 DTH crawler mounted drill rigs and an assortment of ancilliary equipment, including 3 Caterpillar D9R bulldozers, various water bowsers, fuel bowsers, personnel and equipment transports.

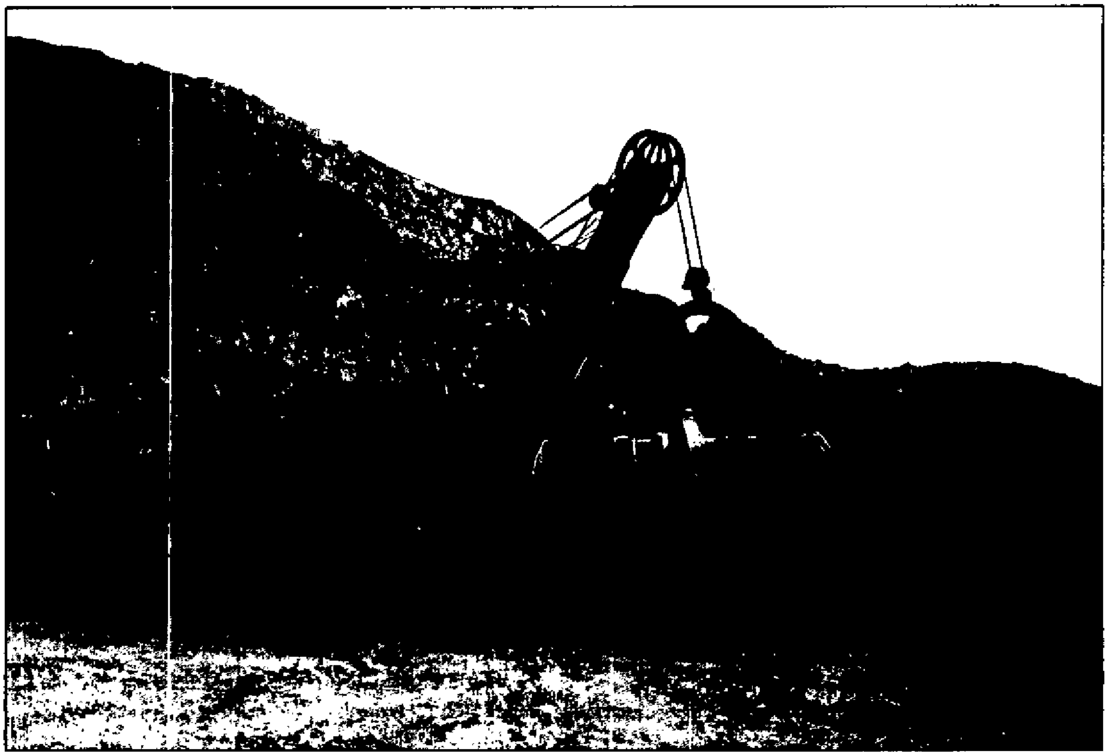


Photo 2.2: Ore Loading Operations at Pokrovskiy Mine

Each item of mobile mining equipment at Pokrovskiy is fitted with a GPS tracking device. A controller, based in a central control centre, is able to keep track of each vehicle and log its movements throughout the shift. The controller will allocate trucks to each shovel, to ensure maximum shovel utilisation and minimal queuing times for the truck fleet. The controller is able to contact each individual vehicle/operator via a two-way radio system and change operating strategy throughout the day, depending on production requirements. The system in place at Pokrovskiy depends entirely on the controller to optimise the truck fleet. There is no assistance from computer based optimisation packages.

Full maintenance facilities are present at Pokrovskiy and the majority of servicing and repairs are carried out on-site. The workshops are well equipped with separate areas for engine and transmission repairs, diesel pump repairs, electrical repairs, welding and fabrication work, machining and 3 general servicing bays. Parts are readily available for the whole fleet within Russia.

An active preventative maintenance programme is in place at the mine and vehicle availability is constantly monitored to assess the performance of the fleet. Currently the Belaz dumper fleet is 86% available. Some 15% of downtime is attributable to breakdowns, with 85% caused through planned maintenance. Utilisation factors for the fleet are lower, currently running at 70%. Each vehicle undergoes a basic oil change type service every 500 operating hours, which equates to approximately every six weeks. The western built equipment, including the bulldozers and excavators, are currently 90% available.

WAI Comment: The mining equipment fleet at Pokrovskiy is modern, well maintained and fit for purpose. The EKG shovels are reliable and cost effective. The Belaz dumper fleet has a low average age, is well maintained and, while their efficiency and performance fall slightly below that of their western built equivalents, their value for money and general ruggedness means they are well suited to this type of operation. The preventative maintenance programme and workshop facilities in place at Pokrovskiy are excellent.

The mine as a whole appears to have a large number of vehicle units, given the quantities of ore and waste being mined. However, this is explained by the complex blending operations that are necessary for maintaining a constant feed to the resin-in-pulp plant.

Given the complex nature of the operation using multiple shovels and blending of ore types, it may be worth considering a computerised haulage optimisation programme to increase the efficiency of the truck and shovel operations.

2.5.4 Mining Infrastructure

The main items of infrastructure associated with the Pokrovskiy pit include haul roads, waste tips, electrical supply, water pumping facilities, blending/stockpiling area, weighbridge and the primary crusher.

The haul roads within the pit are well constructed. The grade does not appear to exceed 10%; they are sufficiently wide for 2 vehicles to pass, have a safety berm and are well maintained. The main haul road is constructed on the footwall of the pit and, therefore, does not interfere with the main advance. Temporary spur roads from the main haul road allow access for drills, shovels and trucks to the highwall.

There are several waste tips at Pokrovskiy; all appear to be well constructed using bulldozers to compact material in thin layers. The tips are limited in height to around 30m and are re-profiled and vegetated on completion. Drainage channels are present at the toe of the tips and no evidence of stress or failure was observed.

Drainage from the main pit is provided by means of a sump at the base of the pit, equipped with a single-stage electric centrifugal slurry pump. A fixed steel pipeline runs up the footwall of the pit to a series of settlement lagoons. Average pumping rates in the summer months are in the region of 24,000l/day, however, due to the permafrost type conditions, there is little or no groundwater infiltration or significant precipitation during the winter period (October – May).

The electrical supply to the pit is used to power the 4 EKG rope shovels, the water pump and often 2 or 3 exploration diamond drills. The supply is fed from the main site sub-station via an underground armoured cable to the edge of the pit, from where several overhead lines radiate out to various locations. All the electrical poles and transformers are skid mounted to enable them to be easily moved when required.

There are six ore types present at Pokrovskiy and these vary in hardness, composition, mineralogy and grade. In order to maintain a constant feed of material (mainly in terms of grade) to the resin-in-pulp plant, the ore is blended on a series of stockpiles prior to being crushed or processed.

In general, there are either 3 or 4 active stockpiles (Photo 2.3) at any one time; 1 under construction, 1 feeding the plant and 1 or 2 in reserve. Each stockpile contains 50kt of ore divided into 6 layers of approximately 8.5kt each. Ore is transported to the stockpiles from the pit across a weighbridge, to ensure the piles are constructed accurately. When feeding the crusher, however, the ore is loaded from the stockpile and transported directly to the crusher using a Caterpillar 330 excavator and 2 Belaz 45t dump trucks.

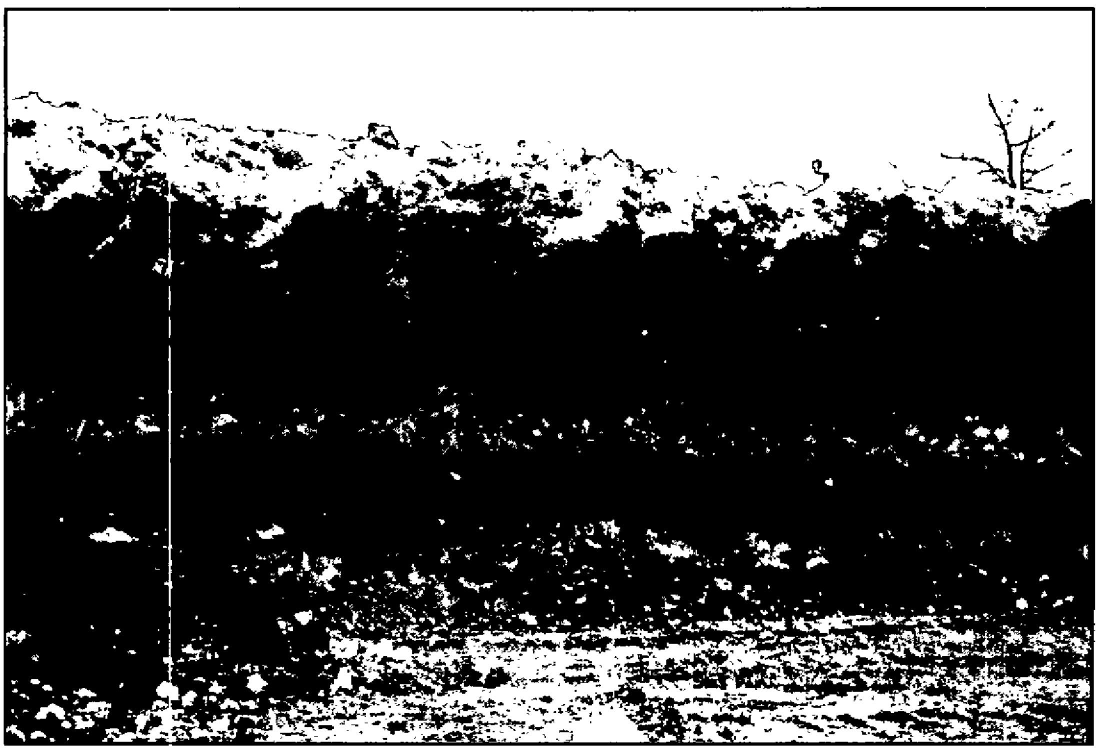


Photo 2.3: Blended Ore Stockpile at Pokrovskiy

The primary crusher is a jaw type crusher of Chinese manufacture. Due to the nature of the blending/stockpiling operation, there is little requirement for secondary breaking at the crusher station.

WAI Comment: The mining infrastructure is, as expected for a mature operation such as Pokrovskiy, efficient and well suited to the production requirements. The tips and haul roads are well designed and constructed and the pumping and electrical infrastructure is appropriately located.

The blending stockpiles, while complex and relatively expensive to operate, provide a very accurate and consistent feed to the mill, which is required to achieve high metal recoveries.

2.6 Mineral Processing

2.6.1 Introduction

Processing operations commenced at Pokrovskiy in 1999, with the commissioning of a heap leach operation which initially treated a high-grade oxide ore source. The heap leach plant now treats low grade ("off balance") oxide ores at a rate of 700ktpa.

A RIP plant was commissioned in 2000 to treat 1.2Mtpa of oxide ore grading 4g/t Au. In 2004, an extra grinding line was installed which increased the plant capacity to 1.8Mtpa.

The majority of the oxide ores are now exhausted and the ore treated in the future will be a combination of primary ore and heap leach tailings from the earlier years of production.

2.6.2 Plant Flowsheet

2.6.2.1 Resin-in-Pulp Plant

(a) Stockpile Area

Ore is transported to a stockpile area using 45t Belaz trucks. The various ore sources are blended to an exceptionally high standard to ensure a consistent feed of material to the RIP plant in terms of grade, ore hardness and degree of refractoriness. Each ore type is placed in compacted horizontal layers to form an ore stockpile of some 50kt, before being recovered using an excavator. The ore is weighed before and after this process using a weighbridge. The plant is fed with a constant head grade of 4g/t Au +/- 0.2g/t Au.

(b) Primary Crushing

Ore is reclaimed from the stockpile area and fed into a hopper fitted with 400mm grizzly bars. The material is reclaimed using an apron feeder and passes to a 1200 x 900mm jaw crusher, which reduces the material from a nominal top size of 800mm to 200mm. The crushed product is then conveyed to one of three coarse ore stockpiles, each of 2kt capacity. The stockpiles each feed one of three grinding lines.

During the WAI site visit, two lines were operating solely on primary ore, whilst the third line was treating the blend of oxide and primary ores.

(c) Grinding

When first constructed, the plant consisted of two grinding lines, each consisting of a SAG and ball mill. A third line was added in 2004 to increase the plant capacity to some 1.8Mtpa.

Ore is reclaimed from the stockpiles using sub-level feeders and conveyed via a belt weightometer to a 5.5m x 1.8m steel lined SAG mill fitted with an 800kW motor. Cyanide is added to the SAG mill, so that cyanidation commences at an early stage in the process. The SAG mill discharge gravitates to a 2.4m diameter spiral classifier and the classifier sands are returned to the SAG mill feed. The classifier overflow is pumped via a sump to a set of three 500mm cyclones and the cyclone underflow gravitates to a 5.4 x 3.2m rubber lined ball mill.

The SAG mill is fed with 100mm balls and the ball mill with 60mm balls.

The Pokrovskiy grinding section is shown in Photo 2.4.

Photo 2.4: Pokrovskiy Grinding Section

The cyclone overflow, grading 82% passing 74 microns, passes to one of two 50m diameter thickeners. The thickener overflows are pumped back to the grinding circuit. The thickener underflows are pumped via trash screens to the leach pachucas. A third Supaflo thickener, 24m in diameter, was commissioned in late 2007.

(d) RIP Leaching

Leaching takes place in two parallel lines of pachucas. The first two pachucas are used for leaching only and resin is added in the third pachuca. There are a total of 28 pachucas, each of 200m^3 capacity. The concentration of cyanide in leaching is 200-250ppm and the pH is

10.5. The cyanide concentration falls to 100-150mg/l in the last pachucas. The leach residence time in the pachuca circuit is only 14 hours, but the total leach residence time, including the grinding circuit and thickening sections, is 36 hours.

"Puralite" resin, which is of a UK design but manufactured in China, is used as the absorbent. Resin is moved counter currently against the flow of pulp using air lift pumps. The resin is sized between 0.6 and 1.2mm and is added at a concentration of 3.6g/l. Final loadings are typically 3.5kg of gold per tonne of resin and there is typically 40t of resin in the circuit.

The plant tailings are detoxed only in the summer period using formaldehyde which is added directly to the tailings pipeline. The cyanide detox process takes place as the pulp is being pumped to the tailings dam.

The simple method of detoxing results in cyanide levels of 50ppm in the tailings discharge during the summer months. It was reported that the cyanide level falls to <5ppm in the tailings dam water, due to natural degradation.

(e) Desorption

The loaded resin is treated over a shaking table to remove quartz, before being stripped using thiourea and sulphuric acid. Desorption is a multi-stage process that involves selectively removing loaded metals in a series of 18 x $5m^3$ columns.

In the first three columns, copper, iron and zinc are removed by a cyanide wash. Silver is then selectively removed using an acidified thiourea solution, before gold is stripped in four columns. Residual thiourea is washed from the resin in a further four columns, and finally, ammonia is removed using sodium hydroxide in the last two columns.

The gold content of the stripped resin was reported to be 0.05kg/t Au.

(f) Electrowinning and smelting

The stripped silver and gold rich solutions are sent to the electrolytic section, where separate silver and gold rich sludges are produced. The grade of gold in solution ranges from 400ppm to 1,200ppm.

Each section has two cells each, containing 11 cathodes and 11 electrodes, with a cathode area of $120m^3$.

These concentrates are calcined and smelted to produce separate silver and gold doré bars. The payment terms for gold are the same in both products.

2.6.3 Tailings Dam

The RIP tailings are pumped a distance of some 4.8km through a 325mm diameter lagged, steel pipeline and discharged via a system of 0.15m diameter spigots. The dam was reported as having been built on a natural clay base and was not plastic lined.

Water is reclaimed from the dam and returned via a 219mm diameter pipeline at a rate of approximately 300m^3/h.

The dam was reported to contain some 8Mm^3 of tailings material and was approximately at 50% of its final design capacity. The dam wall is constructed using clay and overburden, using a downstream construction technique, with a slope of 28°.

The tailings dam is frozen for approximately 6 months of the year. The temperature of the tailings pumped to the dam in winter is approximately 10°C and the water return is at 1.5°C.

The Pokrovskiy Tailings Dam is shown in Photo 2.5.

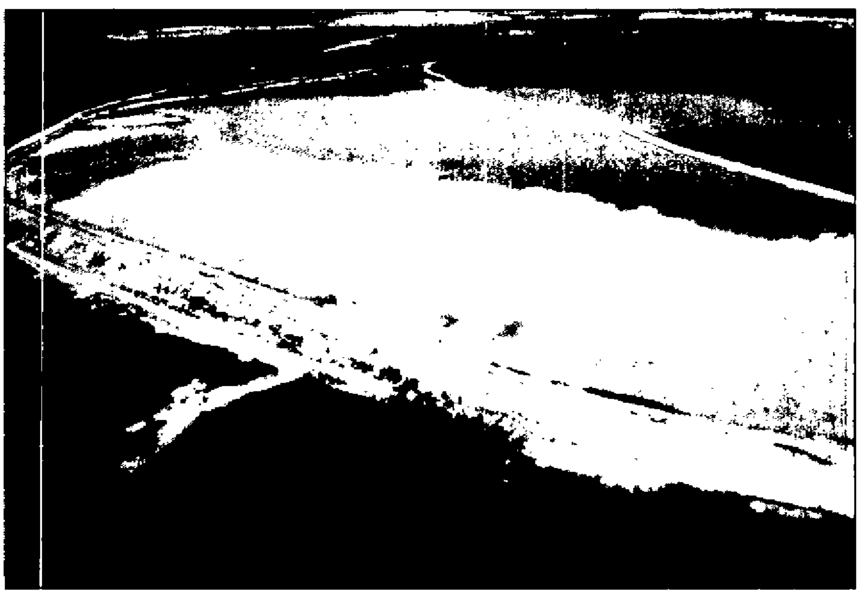


Photo 2.5: Pokrovskiy Tailings Dam

2.6.4 Water Supply

Water for plant is supplied from the Mine Pit dewatering boreholes and from the tailings dam return. Approximately 80m^3/h of water is supplied from the boreholes and between 280 and 320m^3/h is returned from the tailings dam.

2.6.5 *Power Supply*

Power is supplied to site *via* two 35kV power lines. The power is transformed down via three transformer stations to 6.6kV ahead of reticulation.

The consumption of electrical power in RIP processing is approximately 31kWh/t (see Table 2.10 for detail).

2.6.6 *Plant Sampling and Process Control*

The plant is sampled every one hour to produce a 12 hour composite sample for analysis and for shift reporting.

The process information systems in the central control room give real time read outs of plant feed rates, pulp densities, pulp flow rates, power consumptions, pH and I/O status every 2.5 minutes. This information is stored automatically in XL spreadsheets to produce a 12 hour shift report. The plant information system is also used for stock and cost control.

2.6.7 *Plant Management and Labour*

The plant is operated on a 2 x 12 hour shift basis, with four crews, using a 15 day on – 15 day off rota system. The plant availability was reported to be 92% in 2007.

The Povrokskiy site is managed by the General Director, assisted by the Chief Engineer. A Chief Technologist reports to the Chief Engineer and Shift Foremen (one for each of the four shifts) for the Grinding and Leaching Sections report to the Chief Technologist.

The RIP plant manning levels are summarised in Table 2.10.

Table 2.10: Plant Labour Levels	
Area	**No**
Plant General	34
Technical Control Department	18
Grinding	51
Sorption and Reclamation	54
Assay Lab	6
Tailings	31
Mechanical and Electrical	34
Heap Leach	73
Safety	4
TOTAL	**305**

2.6.7.1 Plant Consumables

The RIP plant consumables are given in Table 2.11.

Table 2.11: Pokrovskiy RIP Plant Consumables			
Consumption kg/t	**2006**	**2007**	**2008 (H1)**
NaCN	0.42	0.42	0.50
NaOH	0.33	0.34	0.38
Lime	1.38	1.81	1.54
Sulphuric Acid	0.56	0.61	0.68
Thiourea	0.15	0.12	0.14
Resin	0.03	0.03	0.03
Grinding Media	2.08	2.14	2.12
Mill liners	0.19	0.20	0.20
Filter cloth (m^2)	1.16	1.64	2.00
Electrical Power (kWh/tonne)	31.78	30.01	31.5

The levels of consumables are consistent with the treatment of a non-refractory oxide ore. The consumption of grinding media is relatively high, which reflects both a moderately hard ore and poor quality steel balls. Cyanide consumption is generally low at 0.42-0.50kg/t.

2.6.7.2 RIP Process Operating Costs

A summary of the RIP plant operating costs for 2006 and 2007 and for the first 6 months of 2008 are given in Table 2.12.

Table 2.12: Pokrovskiy RIP Plant Costs			
	Roubles per Tonne		
Area	**2006**	**2007**	**2008 (H1)**
Chemicals	44.3	48.7	57.7
Consumables	44	53.0	65.9
Electrical power	33.8	36.9	44.2
Fuel	0.2	0.3	0.2
Salaries	9.9	15.7	19.4
Salary on costs	2.6	4.3	5.0
Repair costs	12.1	12.8	12.6
Admin	17.12	16.4	22.3
Heating	13.8	15.3	24.7
Tailings	4.7	6.5	12.3
Total Cash	***182.5***	***209.9***	***264.3***
Depreciation and lease	51.3	40.0	24.5
Total	**233.8**	**249.9**	**288.9**

Total process operating cash costs for 2007 were R209.9 per tonne of ore treated. The first half year operating costs of R264.3 for 2008 appear higher than the yearly operating costs, as these include the traditionally higher cost winter months of January and February.

2.6.8 Future Ore Sources

The oxide ores from the open pits are nearly exhausted and a significant proportion of primary ores will be treated in the future. Pokrovskiy metallurgical staff report that the primary ores are more refractory.

Currently, the plant processes a mixture of ore consisting of 40% oxide ore, 20% heap leach tailings and 40% of primary ore at a grind size of 82-85% passing -0.074mm, with overall recoveries of approximately 87%. Heap leach tails give recoveries of 90% and the oxide ores recoveries of approximately 93%.

Processing of this blend of ores will continue in 2008-2009. However, starting from 2010, the plant will process 100% primary ore.

Plant trials undertaken on a 48kt bulk sample of primary ore in September 2007 gave gold recoveries of only 83-84%. The plant gold recovery when processing primary ore, at a grind size of 82-85% passing -0.074mm, decreases by some 5-7%.

It was reported that, at a grind size of 95% passing -0.074mm, the recovery from the primary ores can be maintained at 86.6-90.0%, however this leads to a significant decline in grinding throughput of some 35%.

The trial results suggested that the major factor influencing the leach recovery is residence time, whilst the concentration of sodium cyanide is of less significance. However, the number of pachucas at the plant is limited and extended leach times, which would potentially allow recoveries of 88-90%, are not possible.

Thus, the following circuit modifications are to be implemented:

- Installation of an additional thickener (24m diameter) and the preparation and improvements in flocculation and an upgrade of the two 50m thickeners. This will result in:
  - an increase in the pulp density, increasing the leach residence by 1.5 - 2.0 hours; and
  - clean thickener overflows and exclude additional pressure of slime circulation for grinding circuit.

The installation of the additional thickener is ongoing and commissioning is expected for 01 October 2008 and will result in:

- optimisation of the grinding and classification circuits to obtain grind size 84-85% passing -0.074mm by increasing ball milling efficiency, better scrap withdrawal and the installation of automation systems on classification and thickening; and
- adding sodium cyanide to the SAG mill instead of the ball mill and increasing the concentration in the cyclone overflow from 0.15 to 0.3g/l NaCN.

Throughout 2008, PHM has installed gravity gold recovery units within each of the three grinding lines. The gravity concentrates are subjected to intense cyanidation

These activities have resulted in gold recoveries increasing by approximately 6% when treating primary ore, to give a recovery of approximately 90%.

2.7 Heap Leaching

2.7.1 Introduction

The heap leach plant was commissioned in 1999 to treat relatively high grade oxide ores. Since that time, the grade of material treated through the plant has fallen significantly and the grade of material treated through the plant in 2007 was 0.8g/t Au.

Leaching takes place only during the summer months, with a target throughput of some 0.7Mtpa. The plant uses a "fixed pad" method of leaching, in which material is placed on a pad, leached and then removed to a waste disposal area after washing.

2.7.2 Flowsheet

2.7.2.1 Crushing

The ore is crushed to pass 20mm, using up to four separate stages of crushing. There are two feed lines, consisting of feed hoppers and 600x400mm jaw crushers, which crush the feed material to pass 150mm. The crushed ore is screened at 40mm and the oversize passes to a CMD75 crusher. Cement is added to the 40mm screen undersize, at a rate of 10-12kg per tonne of feed. The product is screened at 20mm and the -20mm reports to the final 10mm product screen.

The +20mm material passes to a 1,200mm cone crusher in series with a Barmac VSI crusher. The crusher product is screened at 10mm and the oversize returned to the cone crusher.

2.7.2.2 Agglomeration and Stacking

Ore is agglomerated using a standard drum agglomerator.

The pads have been constructed using 450mm of clay with a 1mm plastic liner, on to which is placed 100mm of sand. Material is conveyed to the pad area using 'grasshopper conveyors' and a stacker that forms lifts of between 5.0 to 5.5m in height.

2.7.2.3 Leaching

The heaps are irrigated with 250ppm cyanide solution, at a rate of 150l/m^2 per day. The leach time is typically 40 days, with a further 5 days used for heap washing.

In 2006, a double lift system was used, resulting in higher recoveries due to the extended leach period.

After washing, the leached ore is removed from the heap and transported to Waste Stockpile Area No.6.

The Pokrovskiy heap leach operation is shown in Photo 2.6.

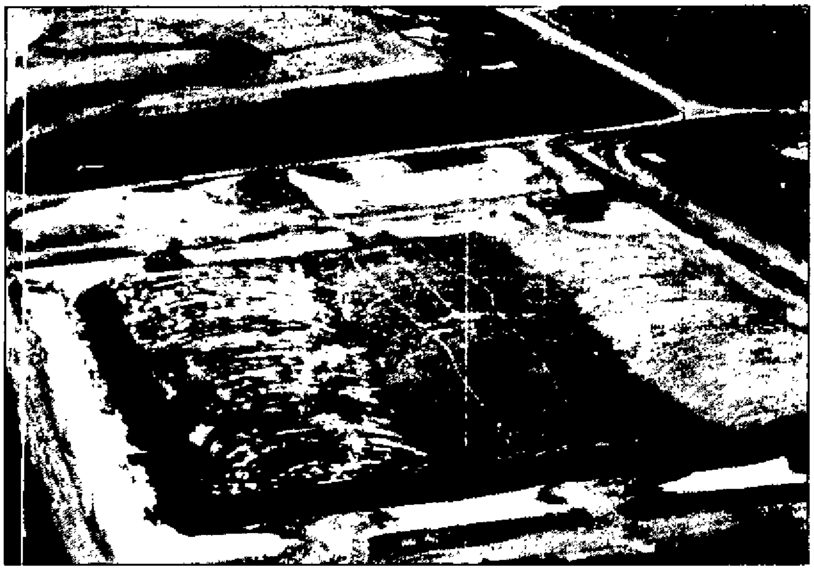


Photo 2.6: Pokrovskiy Heap Leach

The pregnant liquors are pumped to resin columns. The barren solutions are returned to the heap after adjustment of pH and cyanide levels. The loaded resins are stripped in the RIP plant.

Approximately 700kt of low grade ores are treated every year using this method.

2.7.2.4 Heap Leach Plant Consumables

The consumables for the Pokrovskiy heap leach are given in Table 2.13.

Table 2.13: Pokrovskiy Heap Leach Consumables

Consumption (kg/t)	2006	2007	2008 (H1)
NaCN	0.18	0.13	0.1
Cement	10.17	8.2	9.8
Electrical Power (kWh/t)	4.28	4.92	4.8

Historically, cement addition in agglomeration has been high, in excess of 10kg/t, although the 2007 consumption has fallen to 8.2kg/t. Cyanide consumption is low at 0.1kg/t (2008).

2.7.3 Heap Leach Operating Costs

The cash operating costs for the heap leach operation are given in Table 2.14.

Table 2.14: Pokrovskiy Heap Leach Operating Costs			
	Roubles per Tonne		
Area	**2006**	**2007**	**2008 (H1)**
Chemicals	28.8	26.2	32.0
Consumables	3.1	0.2	0.3
Electrical power	4.6	6.1	6.7
Fuel	2.9	1.8	0.9
Salaries	16.8	15.2	16.3
Salary on costs	4.0	3.6	4.0
Repair costs	15.8	12.3	13.5
Admin	6.3	10.4	10.2
Total Cash	***82.3***	***76.0***	***84.0***
Depreciation and lease	36.9	23.1	16.1
Total	**119.2**	**99.0**	**100.1**

2.7.4 Production Records

2.7.4.1 General

The historical production records up to the end of the first half of 2008 for the RIP, the heap leach plant and the alluvial operations are summarised in Table 2.15 below.

Table 2.15: Pokrovskiy Historical Production Data

	Unit	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008 (H1)	Total
Resin in Pulp Plant												
Ore Treatment	,000t				150	930	1,266	1,468	1,695	1,726	840.6	5,509
Grade	g/t				5.7	3.9	3.6	3.9	3.8	4.4	5.2	3.9
Recovery	%				84	91	89	92	91	90	87	90%
Gold	kg				859	3,630	4,544	5,704	6,485	7,642	4,399	21,222
Heap Leach												
Ore Treatment	,000t	81	396	574	696	502	620	816	750	784	409.5	4,435
Grade	g/t	7.5	7.5	7.9	5.3	2.1	1.8	1.4	0.9	0.8	0.8	3.6
Gold	kg	608	2967	4557	3673	1061	1097	1170	713	648	347.8	15,846
Recovery	%	33	52	61	41	45	60	43	73	66	38	52%
Recovered Gold - Heap Leach	kg	200	1,549	2,775	1,514	479	662	506	518	427	131	8,202
Recovered Gold - RIP Plant	kg				725	3,292	4,044	5,242	5,884	6,870	3,847	19,186
Total Hard Rock Gold	kg	200	1,549	2,775	2,239	3,771	4,706	5,748	6,402	7,297	3,978	27,388
Alluvial Operation - Koboldo	kg							130	165	231.9	62	295
Alluvial Operation - Amur-Dore	kg								161	281.3	77	161
Total Alluvial Gold	kg	0	0	0	0	0	0	130	327	513.2	139	457
TOTAL GOLD PRODUCTION	kg	200	1,549	2,775	2,239	3,771	4,706	5,878	6,729	7,810	4,117	27,845

2.7.4.2 Povrovskiy RIP Plant

The tonnage of ore treated in the RIP plant increased from 150kt in 2002 to 1.7Mtpa in 2007. Over the same period, the grade of material treated through the plant has ranged from 5.7g/t to 3.8g/t Au. Plant recovery has ranged from 84% in 2002 to 91% in 2006. The RIP plant recoveries fell in the first half of 2008 to 87%, due to the treatment of a higher proportion of primary ore.

The RIP plant production is summarised in Figure 2.11 and Figure 2.12.

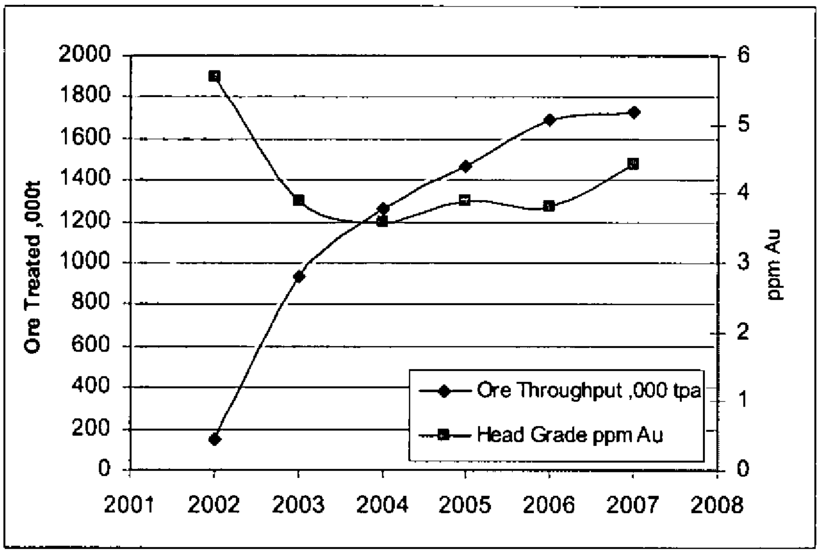


Figure 2.11: Pokrovskiy RIP Plant Tonnes Treated and Head Grade

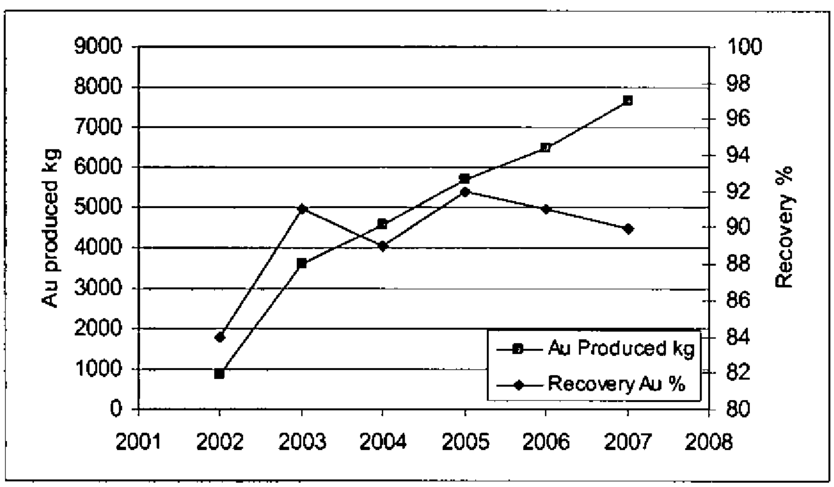


Figure 2.12: Pokrovskiy RIP Plant Recovery and Au production

2.7.4.3 Pokrovskiy Heap Leach

The tonnage of ore treated though the heap leach plant increased from 81kt in 2002 to 816kt in 2005, but had fallen slightly to 784kt in 2007. The grade of material treated through the plant has fallen from 7.5g/t in 1999 to 0.8g/t Au in 2007. The heap leach plant recovery has varied significantly over the period, ranging from 33% in 1999 to 73% in 2006. The heap leach plant production is summarised in Figure 2.13 and Figure 2.14.

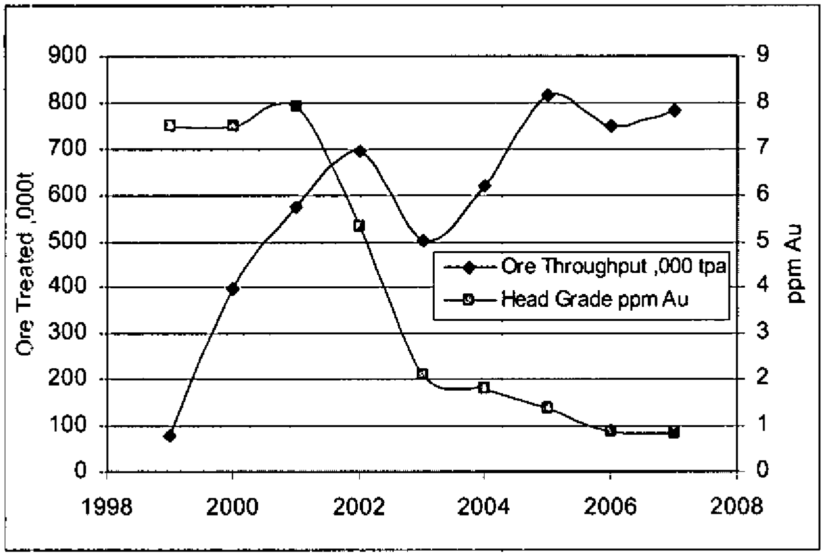


Figure 2.13: Pokrovskiy RIP Plant Tonnes Treated and Head Grade

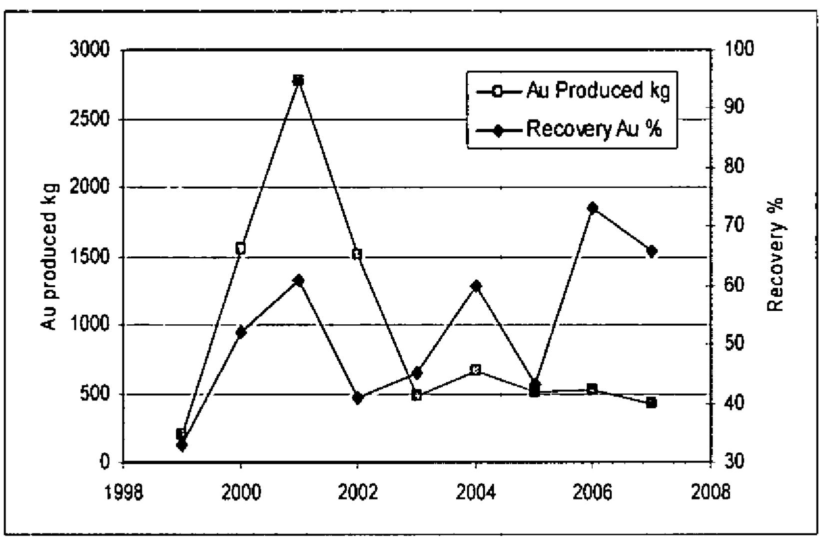


Figure 2.14: Pokrovskiy Heap Leach Plant Recovery and Au Production

2.7.4.4 Alluvial Production

Alluvial production from Koboldo was 130kg in 2005, 165kg in 2006 and 232kg in 2007. Alluvial production from Amur-Dore was 161kg in 2006 and 282kg in 2007.

2.7.5 Assay Laboratories

There are two laboratories on the Pokrovskiy Site – a plant assay laboratory and a larger analytical laboratory for mining and exploration samples. Both laboratories are well equipped with modern sample preparation equipment, balances, fire assay and atomic adsorption spectrophotometers (AAS).

The mining and exploration laboratory uses "state-of-the-art" continuous bulk sample preparation equipment, consisting of a jaw crusher and two stages of grinding to give a product grading 100% passing 74 microns.

The laboratory uses a standard 50g fire assay method and is equipped with two muffle furnaces, two cupellation furnaces and one Perkin Elmer AAS. The laboratory follows strict QA/QC procedures, which are the same as those described for the PHM Blagoveschensk Assay Laboratory.

2.8 Blagoveschensk Analytical Laboratory

2.8.1 Introduction

PHM operates a major assay laboratory at Blagoveschenk, together with a sample preparation and storage facility at Belogorie, some 20km from the laboratory. The throughput of the assay laboratory was stated to be typically 5,000 samples per month.

Samples from the Belogorie sample preparation facility are transported to the assay laboratory at Blagoveschenk and logged into a computer database. Regular checks are made on the samples to ensure that the samples have been ground to 100% passing 74 microns.

The laboratory works 11 hours using a split shift system, five days a week. The laboratory was undergoing refurbishment and reconstruction during the WAI site visit (2007), but it was apparent that the facility was exceptionally well organised and managed.

2.8.2 Fire Assay

The laboratory uses a standard 50g fire assay method, with either a gravimetric or AAS finish depending on the grade of sample. The fluxes are prepared in-house, using mixtures of sodium carbonate, borax, lead oxide, sodium nitrate and carbon, depending on the sample to be analysed.

The laboratory is equipped with one cupellation furnace and one muffle furnace, for roasting samples before AAS analysis.

Each furnace has 2 compartments, each capable of taking 12 crucibles. The smelting time ranges from 40 minutes to one hour. The crucibles are used 6-8 times before being discarded.

The fire assay bead is subjected to a standard "parting" procedure using nitric acid to dissolve silver. The resultant gold bead is weighed using a microbalance, if the grade of the sample is >0.2g/t Au. If the grade is between 0.2 and 0.05g/t Au, the bead is subjected to an aqua regia digest and the solution measured by AAS.

The laboratory operates two Perkin Elmer AAS machines fitted with multi turret lamps for simultaneous analysis. A graphite furnace can be used to reduce the detection limit from 0.05g/t Au to 0.005g/t Au.

2.8.3 Other Analytical Equipment

Multi-element analysis can also be undertaken using ICP, with a capacity of up to 15,000 samples per month. A Perkin Elmer spectrophotometer is also used for elements such as Ti, Si, Al and Fe.

It is also planned to install X-Ray Fluoresence (XRF) equipment, predominantly for Fe analysis.

A spectral laboratory has been developed in a newly constructed facility on the site of the Regis Offices. This site will also undertake the majority of the ICP analysis, with the Blagoveschensk analytical facility being mainly used for gold fire assay analysis.

2.8.4 Quality Control

A system of adding 10% control samples as blanks and reference standards and 10% as repeats, is used in the quality control process for Fire Assay. Any sample assaying over 10g/t Au is repeated.

The reagents used in the analysis are also subjected to rigorous daily checks by the shift supervisors, to ensure their quality.

The balances are also checked on a daily basis against standard certified weights, which are in turn checked by the State Standards Institute in Moscow.

A range of standard reference samples are used including materials from Rocklabs, Irgiredmet and in-house standards. Standard reference solutions are also used to check the calibration of the AAS equipment.

The analyses of all control samples are carefully monitored and recorded.

Sample batches that contain duplicate analyses, which are found to be outside strictly defined limits, are repeated. Batches of samples that contain standard reference samples, which also fail to give a satisfactory analysis, are also repeated.

WAI Comment: WAI briefly reviewed the laboratory's control sample records and found them to be satisfactory.

2.8.5 Pilot Plant

PHM are constructing a 1t/h pilot plant on a site near the Regis Offices in Blagoveschensk. This will be equipped with crushing, grinding, gravity, flotation, hydrometallurgical and dewatering equipment. The plant will be used initially to develop the metallurgy of the Malomir deposit, but will also be able to test a range of gold ores from the PHM Project portfolio, as well as iron ores for Aricom plc.

Construction of the plant building is completed and currently the installation of equipment is on going with commissioning expected on 15 December 2008.

2.8.6 Geological Exploration Laboratory

An impressive mineral exploration laboratory has recently been built and equipped on the site of the Regis Offices. It is used essentially for geological exploration purposes and will service both PHM and an iron ore project from Aricom plc. It is equipped with:

- Thermo XRF (fused bead and pressed powders);
- ICP (water and soils analysis);
- AAS;
- Spectrophotometry; and
- Spectrographic (semi quantitative, multi-element) analysis.

The laboratory is also capable of undertaking mineralogical studies and can prepare polished thin sections and polished blocks for optical mineralogy studies. The laboratory can also undertake hardness testing.

The laboratory also undertakes low level gold analysis down to a limit of detection of 0.003g/t Au, using a combination of aqua regia digest, carbon adsorption and spectrographic analysis.

2.9 Environmental Issues

2.9.1 Review of Environmental/Social Studies

It was initially reported to WAI in September 2007 that an OVOS (Russian equivalent to an EIA) was already in place for the Pokrovskiy mine, since it had been operational for the past 13 years and owned by PHM since 1999. It was reported by Vera Usova (PHM Chief Ecologist) that a draft Ecological Passport had been obtained for operations at Pokrovskiy (subject to Ecological Expertise comment and the submission of OVOS addendum updates to reflect changes in the mine design or processing route). This Passport has not yet been obtained, since in the interim, the regulatory bodies who will assess this passport have been undergoing reform. This has no adverse consequence for the Company and the Company is not at risk of being penalised or restricted in the absence of this passport, since this is due to Governmental reform and is not a fault on the part of PHM. Similarly, the methodologies for calculating Maximum Permissible Discharges (MPDs) and Maximum Permissible Emissions (MPEs) have been changed. Therefore the PHM environmental team is currently recalculating all of these levels and it is likely that this will take at least six months more.

Furthermore, there has been an internal governmental restructuring and the previously separate Environmental, Technical and Atomic Assessment bodies will now be part of the Ministry of Natural Resources. PHM does not envisage any problems with their Ecological Passport submission, but expects that the format will change and that, due to the restructuring, there may be a time delay in granting the final passport. Since the delay is due to government restructuring it is not expected to have a material impact on the Company receiving their final passport.

Environmental monitoring is currently being undertaken at the site, which is controlled by the Sanitary Protection Service and Roztechnadzor and results are also sent to Irgiridmet, the 99.9% PHM owned former State University facility at Irkutsk, for analysis. There is also an ecological laboratory on site, which is concerned with water testing for the tailings. Other samples are sent to the PHM labs in Blagoveschensk and to Irgiridmet.

The IFC also conducts bi-annual reviews of operations at Pokrovskiy. The 2004 IFC review summary indicated that operations at the mine were considered to be receiving adequate environmental management. It was also reported to WAI that none of the State set standards (Maximum Permissible Concentrations – MPCs) had been exceeded by the results of environmental monitoring at the mine. Monitoring results for air, water, groundwater and tailings are presented in the 2007 IFC half year report. The most recent IFC report was provided to the Company for review, and PHM has not reported any issues to WAI.

No formal social studies have been carried out, although questionnaires to assess areas of community interest, regular community meetings and open and transparent dialogue with community groups and employees are all carried out. Priority areas for action are also identified in an informal needs assessment.

WAI Comment: The environmental studies carried out at the site are well organised and appropriate. The environmental monitoring scheme is comprehensive, testing for a range of determinands and compliance with MPCs is a clear indication of PHM's commitment to environmental protection. Weak Acid Dissociable (WAD) cyanide has not yet been included in the determinands tested for in groundwater boreholes in the vicinity of the heap leach pads (HLPs) and the tailings management facility (TMF). This was recommended during the last visit by WAI, since WAD is generally considered to be the best indication of cyanide toxicity in humans and animal, although this is not a Russian State requirement, however, this usually relates to ferrosulphate destruction and may not be representative with formaldehyde destruction, as used at PHM operations. PHM are reviewing their monitoring programme to bring it in line with international best practice and will comment on progress in their annual sustainability report as part of a three year plan.

With regard to social studies, WAI recommends that social findings are incorporated into a more formal 'Needs Assessment', detailing current social status in the local communities and identifying areas for priority action. It is understood that a Social Management Plan (SMP) has been drafted to direct social spending and that two Social budgets have been developed.

2.9.2 Environmental and Social Management

The Environmental teams have grown significantly since the last WAI visit in September 2007. Vera Usova, PHM's Chief Ecologist, is in charge of environmental teams for all sites and is based at the head office at Blagoveschensk. An environmental services team is based full time at the Pokrovskiy site. This team is headed by Mikhail Lepanov, who has been Chief Environmental Engineer for 4 years and is supported in his role by another environmental engineer and two technical ecologists, in addition to some students. Mikhail also heads the Pioneer team, but another environmental engineer is based full-time at the Pioneer site with another student and was supported in their role by a new team member in August 2008. At Malomir, a PHM environmental engineer is based on site is working in parallel with another environmental engineer from Regis, PHM's exploration company. Another PHM environmental engineer is responsible for Albyn environmental issues. Tokur has one engineer, and one student on the team. The Yamal assets are managed by one environmental engineer. Team members are expected to be generalists with regard to environmental management, but also have their own specialisations, e.g water management.

Environmental data are collected at each site and this is communicated to the central office in Blagoveschensk. There is an internal server system, so that the central office can review information collected at the sites. Staff at Pokrovskiy are tasked with collecting environmental monitoring data and ensuring that the project is compliant with State standards.

With regard to environmental spending, there is not a formal environmental budget, but at year end an estimated environmental budget for the following year is compiled by the environmental manager and sufficient monies are provided by PHM. It was reported that sufficient funds are always available, since management realise the importance of environmental compliance.

The welfare and local relations officer, Uliana Levanova, is in charge of the social welfare of employees and is responsible for the social development aspects of PHM. A number of excellent incentive schemes for employees have been implemented, including the social insurance policy, a bonus scheme, a gold and silver medal scheme to encourage long service and a housing scheme for longer serving staff. Since the last visit, social initiatives have included buying 27 apartments for company employees and a house for one family in Tygda, plus sending the Amur swimming team to London to compete. The BBC have also visited the Pokrovskiy mine and made a documentary about the mine and its contribution to the region. Facilities at the mine include good accommodation and a good canteen, plus sporting facilities and a well-equipped medical centre.

There is a good, open-door policy to community dialogue. A mine newspaper, considering issues regarding mine performance and topical issues such as environmental protection, is published on a bi-annual basis and circulated to all the settlements in the vicinity of the mine. Visits to the mine are encouraged. In addition, there is a grievance mechanism in place for employees. An excellent training programme is also in place and from 1st September 2008, the Group's training centre in Zeya, 90km from the Pokrovskiy site, will become a recognised college, aiming to produce specialists in all aspects of mining operations.

WAI Comment: WAI considers that the proposed environmental monitoring plans are comprehensive, but are concerned by the division of responsibilities, e.g. cyanide management, between departments. Whilst the environmental management of the sites is considered to be very good, there is potential for issues to be overlooked, given the division of responsibility between departments. Previous recommendations made regarding the implementation of overarching environmental management systems, have not yet been implemented. It is therefore reiterated that such systems would ensure that clear lines of communication are established between departments and that all areas of environmental concern are addressed by the environmental team. PHM has reported to WAI that they are currently integrating management systems such that these issues are managed centrally.

It is recommended that a separate environmental budget is included on the balance sheet, with clear provision for all environmental spending. This would not only include costs for permitting and licensing, but also, for example, equipment purchase and a contingency fund for unplanned expenditure.

WAI considers that the social management at Pokrovskiy is excellent and that this would meet guidance outlined in the IFC performance standards on Social Assessment and Labour and Working conditions. It is reported to WAI that since the last site visit, two Social Development Budgets have been developed. In 2007, spending on social development was 20m roubles and proposed spending for 2008 is 25m roubles. PHM pledges a minimum of US$1M per year for social development. In recent years social contributions have significantly exceeded this. Social contributions to date is estimated to have totalled 50-60m roubles and PHM intends to formalise this investment.

2.9.2.1 Key Performance Indicators (KPIs)

PHM is currently implementing a strategy to align its sustainability reporting with the requirements of the Global Reporting Initiative (GRI). Consequently, a system of quantitative KPIs has been introduced, to be used for the reporting of environmental performance across company operations.

These KPIs cover Economic Indicators, the Health and Safety sector, Social KPIs and Environmental KPIs. The Environmental KPIs are listed below, with more detail available in the PHM 2007 Sustainability Report.

- Water Use;
- Land Disturbance and Rehabilitation;
- Raw Materials Used;
- Reagents Used;
- Energy Use;
- Greenhouse Gas Emissions; and
- Environmental Incidents.

The environmental team at Blagoveschensk send detailed statistics on the above sectors to the PHM offices in London every three months. In the Sustainability report, these KPIs are then given a status:

- Meets or exceeds performance targets and regulatory requirements;
- Meets targets and/or regulatory requirements, but further action required; or
- Priority action needs to meet targets and/or regulatory requirements.

WAI Comment: WAI commends PHM on the introduction of these KPIs to give a more targeted and measurable approach to environmental management and performance, particularly with regard to natural resource use. This is a proactive step, exceeding regulatory requirements and PHM should be congratulated. However, it is not clear from the report, or discussions with the environmental team, how judgements have been made regarding the environmental status of these KPIs. For example, with regard to water use and recycled water, the status indicates that this has met, or exceeded requirements or performance targets, but it is not clear what these targets are.

A further, recommended step would be to publish the Company's performance targets, so that progress against these can be measured. If this has not already been done, it is recommended to draft annual objectives and targets, in order to make tangible pledges towards improving environmental performance. A Company objective may be, for example, to reduce greenhouse gas emissions, with a target of a 10% reduction of carbon dioxide emissions from diesel fuel by 2009. This would add a further layer of accountability and would further demonstrate PHM's commitment to environmental improvement.

2.9.3 International Cyanide Management Code Compliance

In addition to the original scope of works, WAI was requested by PHM to review cyanide (CN) management at the Pokrovskiy mine during the September 2007 site visit, in relation to principles and standards of practice outlined in the International Cyanide Management Code (ICMC). PHM intend to become certified for this voluntary accreditation, which is over and above the State requirements for operation. WAI is not an 'approved' auditor in line with the ICMC guidelines, but WAI inspected PHM's operations in the spirit of the ICMC and made professional judgements about potential areas of compliance or non-compliance. These detailed findings were reported to PHM in a separate report and are summarised below.

WAI Comment: WAI acknowledges that PHM protocols exceed State requirements and the Company is also working towards bringing operations in line with ICMC guidelines. WAI notes that whilst the corporate teams are pledging a commitment to implementation of the ICMC (notwithstanding the fact that compliance with this code is not a State requirement), this message does not appear to have been communicated to the environmental team on site. The team was unaware of the nature of the ICMC and its requirements and had not been requested to make any changes to the current management of cyanide at the Pokrovskiy site.

WAI would again recommend that an independent specialist be contracted to inspect operations in detail and help PHM to identify measures that could be implemented to ensure compliance with the ICMC. WAI would also reiterate the recommendation that an action plan to address aspects of cyanide management be compiled, to identify priority areas and outline a timeframe within which actions will be taken. PHM are reviewing their monitoring programme to bring it in line with international best practice and will comment on progress in their annual sustainability report as part of a three year plan. PHM has communicated to WAI that they hope to bring operations in line with the code as part of their 3 year plan.

WAI also previously noted that there was a lack of overarching communication and management with regard to cyanide, with different aspects of its management being undertaken by different divisions. Direct lines of communication between all parties dealing with cyanide management should be established, with the aim of implementing an overarching cyanide management plan with which all divisions are familiar. A commitment by PHM to achieving these actions within an agreed timeframe has been made. Progress in this regard will be reflected in the KPIs, described at section 2.9.2.1 above.

2.9.4 Review and Comment on Key Environmental and Social Issues

2.9.4.1 Environmental Status

The Pokrovskiy mine has been operational for the past 13 years and run by PHM for 8 years, thus the area has already been disturbed.

2.9.4.2 Health and Safety

Whilst comprehensive health and safety plans and procedures are in evidence and it was reported to WAI that all employees receive appropriate training, it was noted that some employees working with hazardous substances were not wearing appropriate Personal Protective Equipment (PPE). It is recommended that PHM carry out refresher courses for health and safety training and ensure that regular inspections are made to check employee compliance with health and safety regulations. These same checks on principles and practice will also need to extend to the other PHM sites. Unannounced spot checks and drills are often a good way of assessing actual performance and understanding of response requirements.

2.9.4.3 Closure and Rehabilitation

Progressive rehabilitation is being undertaken, via backfilling of redundant open pits. It was reported that, at closure, all infrastructure will be dismantled and removed. The waste dumps will be reprofiled and re-seeded with trees by the State Forestry Commission. The TMF will be covered with a layer of topsoil and revegetated. A detailed closure plan will be elaborated 3 years prior to closure and currently a conceptual plan has been drafted. Under Russian legislation, there is a requirement for reclamation at 3 stages of development: 1. during construction, 2. progressive rehabilitation in parallel with exploitation and 3. at closure, for final reclamation. It was reported to WAI that under the Russian Standard Classification System, there is no formal requirement for a closure fund, as in the event of unplanned closure the liability reverts to the State. However, it was also reported that the PHM central accounts office have made some provision for annual contributions to a closure fund. A closure estimate of US$2M has been set aside for current Pokrovskiy operations and this will be used as a model for other operations, once more data is available. For Pioneer and Malomir, this is expected imminently. It was reported to WAI that post-closure environmental monitoring will generally continue for 5 years, but that for Pokrovskiy, a 20 year post-closure monitoring programme will be required.

WAI Comment: It is possible that changes in the regulations will change the closure requirements and planning process during operations, given the longevity of the mine. Changes in water use, water quality standards, expectations with respect to vegetation type and distribution, may affect closure plans. It is currently common practice to develop a final closure plan for a facility (such as a waste rock disposal facility or spent ore facility), or for a whole project closer to the time of closure implementation. The mine closure process also includes progressive or concurrent rehabilitation. By closing facilities as they are completed, the total area of disturbance remains smaller and the impacts are reduced. It would also be recommended to ensure that the requirement for an on-going monitoring plan is factored into plans for closure.

Mine closure planning must integrate a number of concepts on a site wide basis, e.g. social aspects, physical and chemical stability including surface water management, the management of remaining process solutions, the selection and implementation of covers and the post-mine use of the infrastructure. At the present time, decisions on closure are solely based on the post mining land use (forestry) and regulatory criteria. A Framework Mine Closure and Rehabilitation Plan, including cost estimates, has been commissioned by PHM for current Pokrovskiy operations.

Closure cost estimates must be based on an actual closure design using site-specific requirements, not on per area or mining rate basis. Any financial model used for the project evaluation should allow for full accounting of the cash needs for closure in the future. WAI considers that it is essential that financial surety is in place during the total life of the mine, which can be released (in part or in total) after the regulatory agencies have established that progressive rehabilitation of individual facilities have been completed to their satisfaction.

It should also be noted that the financial surety may not be a fixed amount throughout the life of the mine, but may vary as environmental issues develop at a mine, as regulatory changes occur and community expectations change.

The method of closure cost estimation used to provide funds for closure is an important consideration. Closure cost estimates must be based on an actual closure design using site-specific requirements. Those cost estimates are refined during the mine life, as the final decisions about closure implementation detailed land use issues, are revealed. Closure costs are divided in two parts: employee costs such as special retrenchment pay and additional costs such as retirement funds or pensions, and environmental costs including rehabilitation and environmental liabilities. WAI understands that progressive rehabilitation costs for Pokrovskiy are included in the final closure figure of US$2M. As such, progressive rehabilitation cost estimates seem reasonable.

However, the final closure budget only includes costs for revegetation and reproofing of slopes. In the breakdown provided no financial provision is made for site decontamination, e.g of heap leach pads. Similarly, it was reported to WAI that given the size of the Porkrovskiy mine, 20 years post closure monitoring would be required.

Since the majority of closure costs are included in the progressive rehabilitation stage, the US$2M estimate for final rehabilitation seems reasonable. However, a more detailed breakdown of these costs, including monitoring requirements over the 20 year period should be given, to demonstrate the adequacy of these figures.

The same breakdown of cost estimates should also be given for Pioneer, Malomir, Tokur, Albyn, Yamal and the placer deposits.

2.9.4.4 Water Management

The use of cyanide in operations enhances the need for effective water management, to prevent pollution of local water supplies and subsequent environmental damage. It was reported to WAI that the TMF is situated in an area of permafrost, with a natural base layer of clay. The facility is therefore considered to be 'zero discharge'. Whilst monitoring results do not indicate any water pollution from the TMF, it will be important to carefully monitor seasonal changes and also to look at WAD cyanide levels, to assess the potential for any percolation in melted summer conditions.

Current monitoring programmes are comprehensive and executed regularly. Water is recycled from the TMF. Abstraction and discharge volumes for water have been viewed, but no overall water balance flow sheet was presented. Water quality in and around the HLPs and TMF is regularly monitored. PHM is also currently conducting research into using a cyanide and gold accumulating water plant in the TMF. The plant is able to reduce cyanide levels in the water and also to potentially absorb gold. Trials are on-going and it is thought that there may be potential to ultimately recover the gold by processing the plant. This technique is known as phytomining.

WAI Comment: Generally it is considered that water management at the site is good. It would be recommended to chemically analyse tailings solids in the TMF. If there are concentrated levels of metals or complex cyanides, WAI recommends that water and acid leaching test procedures (Toxic Leaching Characterisation Procedure, Acid Base

Accounting, Synthetic Precipitation Leaching Procedure) should be performed on the sample, to give an indication of potential toxicity in the event of an unplanned release. The same control measures and test procedures will also be required at the Pioneer site.

2.9.5 Corporate Environmental Management

At the corporate level, PHM management is split into Environmental, Social and Health & Safety management. There are general directors and directors (mainly London based) for each area, with a team of directors based in Moscow, Blagoveschensk and Irkutsk. This tier of directors supervises the on-site teams in each department, as described in the Environmental and Social Management section of this report.

A good environmental policy has been formulated and a sustainability committee has been established, which is committed to producing annual sustainability reports on the Company's performance. These reports are intended to demonstrate to shareholders and stakeholders how the Company operates and how it aspires to improving environmental and social performance. A sustainability strategy has been formulated to improve environmental, social and health & safety performance *via* ongoing implementation of good practice. Key elements include full compliance with Russian regulatory requirements, whilst striving to achieve international good practice. PHM also intends to continue to implement the IFC guidelines and performance standards, to move towards fulfilment of the Sustainability Reporting Guidelines of the Global Reporting Initiative and to bring operations into compliance with the ICMM Sustainable Development Principles.

WAI Comment: WAI considers the intention to promote international standards for environmental and social management to be a positive and proactive step towards enabling environmental compliance and this should form the basis for ensuring environmental improvement over time. The environmental and social management structure within the Company is emerging, following the appointment of environmental specialists at project sites. The structure is being formalised and the appropriate corporate management structures are considered to be in place. PHM is undertaking wide ranging social improvement schemes, with focus on community development, education, training and sponsorship, employee health and well-being and incentive schemes. There is clearly a good relationship in place between the mines and local communities and appropriate consultation and reporting procedures are in place. The Company newspaper is considered to be a particularly good development, as is the development of a specialist training college at Zeya.

WAI would recommend that with regard to environmental management, better lines of communication be established between corporate management and in-country staff, with clearer communications of agenda for international environmental and social compliance, to ensure that both parties are working towards the same goals. Day-to-day operational practices will be pivotal to ensuring international compliance and may need modification to achieve this. Therefore clear communication of Company objectives at all levels is critical, to ensure that pledges are translated into actions.

WAI would recommend that PHM makes a commitment to being accredited by the International Cyanide Management code in the next 12 months, as the first proactive step to achieve this overall management structure. Similarly, progress should be continued in aiming to meet the Global Reporting Initiative guidelines for sustainable development. WAI would also recommend that PHM aims for accreditation under the ISO14001 scheme for Environmental Management. In addition to being another step towards demonstrating International Best Practice, implementing this kind of management system would address some of the communication issues highlighted in this report. WAI considers that support will be necessary from qualified professionals in order to meet these aims.

3.0 PIONEER

3.1 Introduction

The Pioneer deposit lies some 35km northeast of Pokrovskiy and is accessed off the main sealed road from Khabarovsk to Chita, locally running from Tygda to the south. Driving time from Pokrovskiy is around 40 minutes. Administratively, Pioneer is located on the border between the Zeya and Magdagachi areas of the Amur region, some 430km to the north of Blagoveshchensk.

The landscape around the deposit is gently undulating, with wide valleys and generally low hills. Absolute elevations in the region vary from 300-500m, although around the deposit the terrain is generally flat (Photo 3.1).

The meteorological station at Tygda records an annual precipitation of around 500mm.

The Pioneer trial pit was started in June 2004, with ore taken from the Bakhmut pit and delivered for processing to the Pokrovskiy resin-in-pulp plant at the end of 2004.

During the initial WAI site visit (2007), the Pioneer project was officially commissioned and has since sequentially increased production. The site comprises a primary crushing unit, a SAG mill, 2 spiral classifiers, a cyanide leaching circuit, a heap leach, a tailings dam and all necessary auxiliary divisions. Further infrastructure construction is being carried out at the time of this MER.

This commissioning was preceded by pre-stripping over six areas of the various orebodies (Photo 3.1) that make up the Pioneer deposit (Bakhmut, Promezhutochnaya, Yuzhnaya and Andreevskaya), in order to complete geological exploration works and to prepare the deposit for operations.

3.2 Mineral Rights and Permitting

The Pioneer Licence No.BLG01181BR for prospecting, exploration and mining of gold covers an area of 52km^2, and is valid from 15.01.2001 to 31.12.2013. The licence co-ordinates for the Pioneer area are given in Table 3.1 below.

Table 3.1: Pioneer Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	53°31'40"	126°30'00"
2	53°31'40"	126°34'40"
3	53°27'50"	126°34'40"
4	53°27'50"	126°28'00"

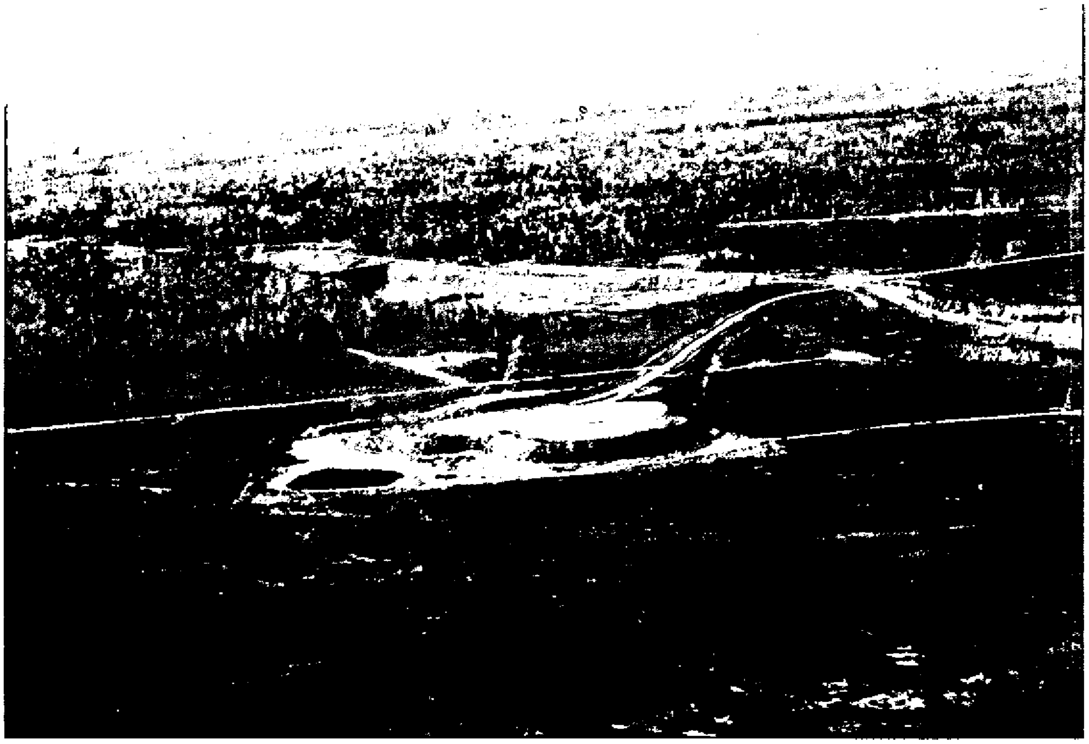


Photo 3.1: Early Production at Promezhutochnaya Orebody

3.3 Geology and Mineralisation

3.3.1 General

The Pioneer ore field, which occupies some $35km^2$, is located at the northwestern edge of the Ushumun (Osezhiskiy) block faulted depression, comprising Jurassic terrigenous lithologies, underlain by Pre-cambrian formations of the Gonzha nappe, part of the Bureya unit. The depression is further complicated by plutonic rocks of the Umlekan-Ogodzha volcanic belt.

The host rocks for the mineralisation are sedimentary deposits of the upper Malm, as well as intrusive and subvolcanic rocks of upper Jurassic-Cretaceous age. Gold mineralisation is present in all of the various rock types.

The deposit comprises the three ore zones – Yuzhnaya (Southern), Promezhutochnaya (Intermediate) and Bakhmut, that form the Pioneer structure. In addition, the higher grade Andreevskaya zone is located 1.3km to the southeast of the Pioneer structure, whilst there are also a number of other small ore structures nearby, including Zvezdochka, Eastern, Western, Nikolayevskaya and Babayevskaya.

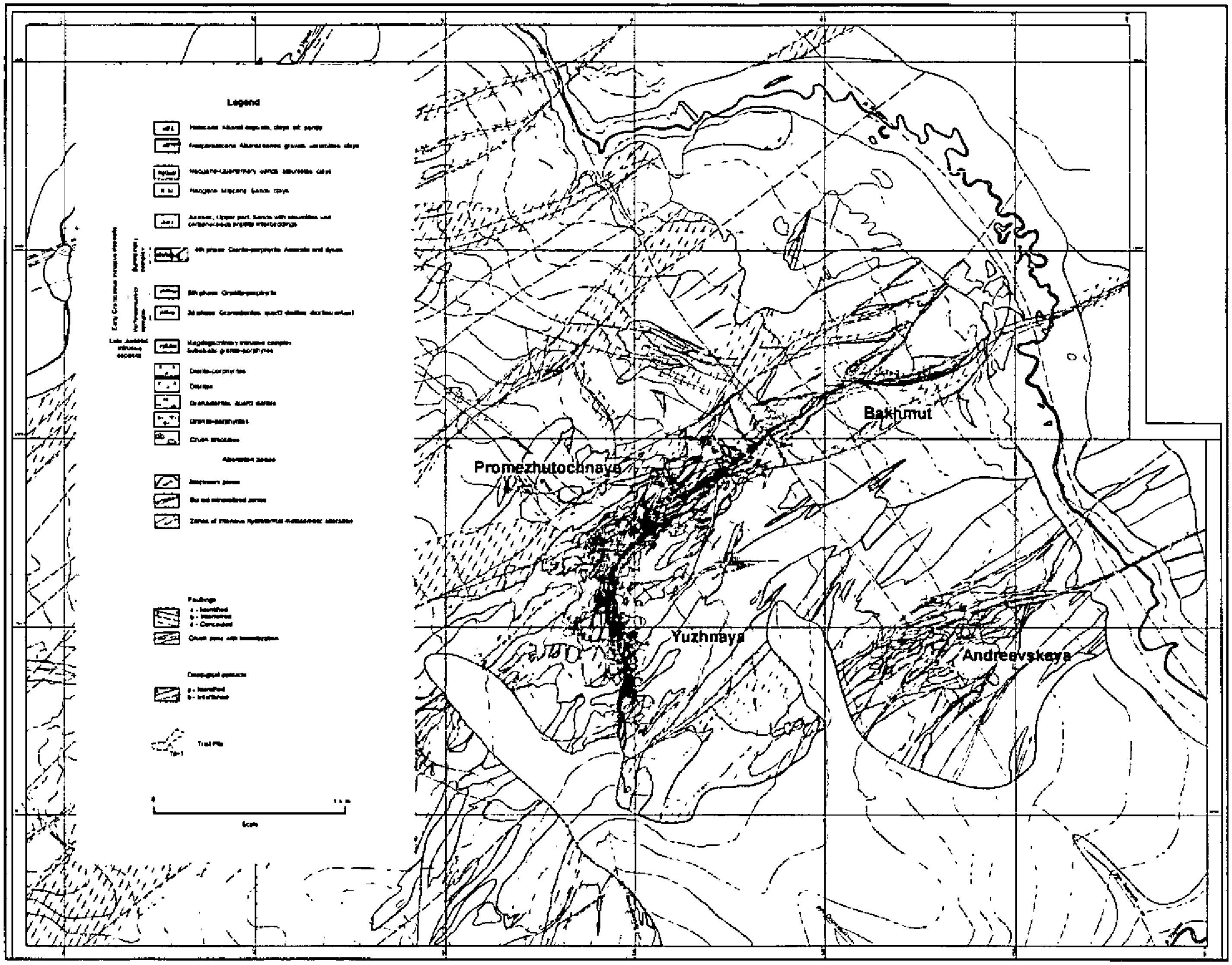


Figure 3.1: Geology and Mineralisation at Pioneer

3.3.2 Yuzhnaya

The Yuzhnaya zone has been traced along strike in a northwesterly and northerly direction for 1,500m by trenching, drilling and recently by pre-stripping (Photo 3.2).

Photo 3.2: Yuzhnaya Pre-Strip

The zone is composed of variably silicified diorite porphyries, granite-porphyries and sandstones. Silicification is both metasomatic and as stockwork veinlets with thickness varying from a few millimetres to 20-40cm. The number of quartz veinlets also varies from single ones to areas of brecciated silicified rock.

There appears to be a correlation between the presence of metasomatic and vein quartz and gold grade. Often quartz breccias are barren, with mineralisation located in the areas of moderate or even weak vein silicification in various rocks.

At Yuzhnaya, an altered rock assemblage has been outlined in a north-south direction, with a thickness of 50-150m, although in the north the strike changes to northeasterly. The assemblage appears to dip to the west at 55-65°.

The concentration of sulphides in the mineralisation varies from a part of a percent to 4-5%, although on average it is around 1.5-2%. Sulphides are represented mostly by pyrite. The oxidation zone is represented by the decomposition of pyrite, forming a limonitic zone (Photo 3.3) which reaches a depth of 20-50m and sometimes 100-120m along fracture zones.

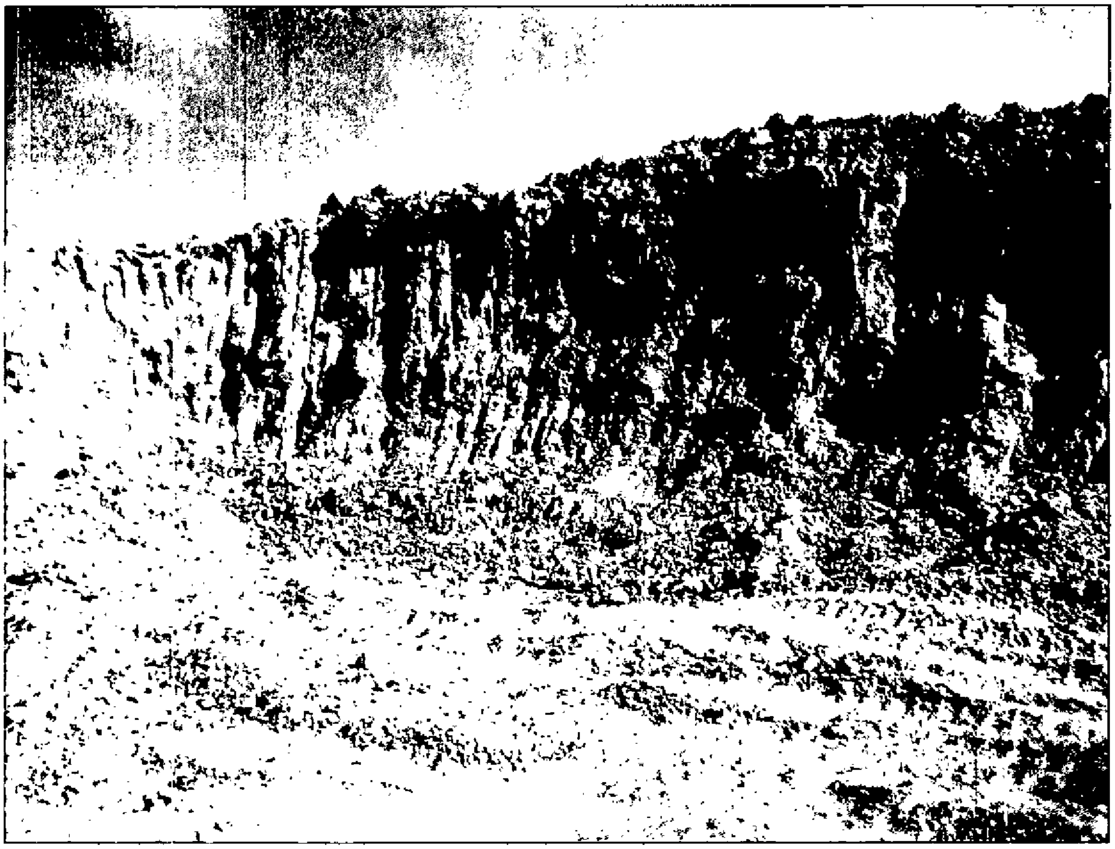


Photo 3.3: Kaolinised Stockwork in Yuzhnaya Pit

Within the alteration zone, there are mineralised zones with a thickness of 10-80m. The largest zone (#1) contains 91% of all estimated resources. Two high grade areas between cross-sections 94-98 and 156-172, with gold grades of 20-30g/t Au, thickness of 2-3m and strike extent of 10-40m, have been identified and locally termed "ore columns".

The Yuzhnaya zone was explored by trenches and drillholes on grid spacings of 40-90m x 10-80m, which allows resource estimation in Russian categories C_1 and C_2. Calculation of the resources is based on the data obtained from 88 continuous trenching lines and 118 drillholes (of 146 made). This work has traced mineralisation to a depth of 350m.

3.3.3 Promezhutochnaya

This mineralised zone has been traced in a northwesterly direction for some 590m. It is separated from the Yuzhnaya zone by a 150m barren zone. The geology is similar to Yuzhnaya, although the thickness of the alteration zone is between 40-100m and dips to the northwest at 55-65°.

The oxidation zone is less developed here compared to Yuzhnaya, usually around 10-30m deep, but up to 70-80m along fracture zones. The mineralisation has been tested down to 300m and contains several discrete zones varying from 5-50m thick. The largest mineralisation zone (#1) contains 98% of all resources.

The zone was explored by trenches and drillholes at 80-40-20 x 20-40-60m spacing. This corresponds with resource categories of C_1 and C_2. Two significant rich areas (ore columns / payshoots) were found between the cross-sections 234-238 and 252-258, with gold grades up to 10-25g/t Au, thickness 2-3m and strike extent 10-60m. Calculation of the reserves is based on the data obtained from 42 continuous trenching lines and 106 drillholes (of 123 made).

3.3.4 Bakhmut

Bakhmut is located at the eastern end of the system and joins the Promezhutochnaya mineralised zone at cross-section 263. It has been traced in an easterly direction for 970m.

Photo 3.4: Bakhmut Open Pit

The zone is composed of quartzitic and argillised rocks, having a thickness of 50-150m with areas of folding, branching and merging of the generally mylonitised zones. Hydrothermal and metasomatic alteration is similar to that seen at Yuzhnaya and Promezhutochnaya, although the alteration tends to be associated with diorites and the dykes of diorite porphyries. This zone includes previously delineated ore bodies "Ore column", "Apophysis 1" and "Apophysis 8" associated with areas of merging dislocations. The oxidation zone extends to 30-100m depth, whilst the mineralisation has been tested to 290m.

The zone was explored by trenches and drillholes at 80-40-20 x 20-40-80m. In the central part of the zone, a pilot open-pit (Photo 3.4) was developed, where high grade ore of the Ore Column was stripped to the level of 260m. Calculation of the resources is based on the data obtained from 32 continuous trenching lines and 86 drillholes (of 105 made).

3.3.5 Andreevskaya

The Andreevskaya ore zone lies to the southeast of the main area, has an east-northeast strike and dips to the southeast at between 60-70°. The zone is represented by sub-parallel and branching zones of mylonitisation and silicification of sandstones, diorite porphyries and granite-porphyry, with impregnations and sometimes accumulations of pyrite (no more than 3-5%). Oxidation reaches a depth of 40-100m.

Morphology of the zone is complex and is characterised by pinch-and-swell structures. The thickness of the zone at surface varies from 4m to 16.3m, averaging 9.2m (visible thickness) and from drill hole data at depth, 6.4m (main zone thickness). Average grades of gold from trench data vary from 0.92g/t to 55.81g/t Au and from holes drilled in 2006 (total 36 holes) from 0.58 to 45.51g/t Au.

An extension of the zone has been established to the north-east on the left bank of the Ulunga River, where drill holes have intersected intensively silicified rocks.

The central, 500m long, part of the zone was explored by trenches and drillholes at a grid of 40-80 x 40-80m, to allow detailed resource assessment.

Channel samples taken every 4.0m, report high grade intersections which include 11.0m at 109.0g/t Au and 12.0m at 60.0g/t Au across the 150m long Main Zone that is proven down to 160m depth though becoming narrower. Additional infill drilling on the C_2 areas (60 x 30m) has improved the classification to C_1. Furthermore the most recent laboratory duplicates show good repeatability, as the Au tends to be fine with lesser amount of coarse Au.

3.3.6 Other Zones

There are a number of other mineralised zones in the Pioneer area which WAI has not been able to examine. These include Western, Nikolayevskaya, Babayevskaya, Apophysis-3, Geofizicheskaya, Listvennichnaya and Vostochnaya. Exploration on these is believed to be at an early stage.

For the current resource statement, resources are restricted to Yuzhnaya, Promezhutochnaya, Bakhmut and Andreevskaya, whilst exploration on other zones continues.

3.3.7 Importance of High Grade Payshoots

The Pioneer deposit is characterised by the presence of numerous high grade payshoots (colloquially known as "ore columns"). Seven payshoots have been identified at Yuzhnaya, two at Promezhutochnaya and several at Bakhmut.

The geometry of these structures is highly variable, as are the grades, but as a general rule they are relatively small (a few metres wide) with high gold grades (tens-hundreds of g/t Au).

As an example, at Promezhutochnaya, Ore Column 8 was identified through drilling on the exploration grid of 40x40m and gave 3.9m width at a grade of 7.9g/t Au and 1.4m at a grade of 36.3g/t Au using a higher cut-off.

In addition, although silver grades are generally low throughout the Pioneer orebody, within the ore columns, silver levels can reach >100g/t Ag and appear to be good indicators of high grade gold zones, even though absolute high gold assays tend to have low silver. This phenomenon is clearly a reflection of metal zonation within the ore columns.

WAI has examined many of the drill and trench intersections through these ore columns and concur that they are real, although understanding the ore controls on such "ore shoots" appears difficult. This, coupled with the relatively small size of such targets but high gold content, presents issues with regard to resource estimation. Moreover, continued exploration work by PHM is likely to discover further high grade zones.

As such, it is evident that it is not possible from an economic standpoint to drill on a tight enough grid spacing to properly define these narrow ore columns. This is likely to have the result that the ultimate pit ROM grade will be above that predicted from the resource model.

3.4 Mineral Resources

3.4.1 Resources Estimated in accordance with the Guidelines of the JORC Code (2004) - Micromine® Resource Estimate

3.4.1.1 Structural Interpretation and Cut-Off Grade Philosophy

The Pioneer deposit comprises four ore zones, Andreevskaya, Promezhutochnaya, Yuzhnaya, and Bakhmut. The Andreevskaya resource model exercise was carried out separately from the other three ore zones and is reported in Section 3.4.2.

Geological modelling of Promezhutochnaya, Yuzhnaya and Bakhmut was based on natural cut off grades (COG's), lithological and historical cross sections. The natural COG's used in constructing the mineralised envelope were:

- Promezhutochnaya at 0.30 g/t Au;
- Yuzhnaya at 0.32 g/t Au; and
- Bakhmut at 0.37 g/t Au.

The maximum waste interval and largest unsampled interval permitted within the geological interpretation was set at 5m.

Geological interpretation for each ore zone was produced using mineralised envelope strings both in vertical section (Figure 3.2) and in horizontal plan. Data used for geological interpretation included drill holes, trenches and pit data, where there is evidence of waste intercalations within the ore bodies, waste lense wireframes have been constructed. The mineralised envelope wireframes are extrapolated to half the drill hole spacing, where the mineralisation discontinues along strike, the mineralisation is pinched out by extrapolating to half the drill hole spacing and reducing the cross sectional area by 50-80% of the previous sections area.

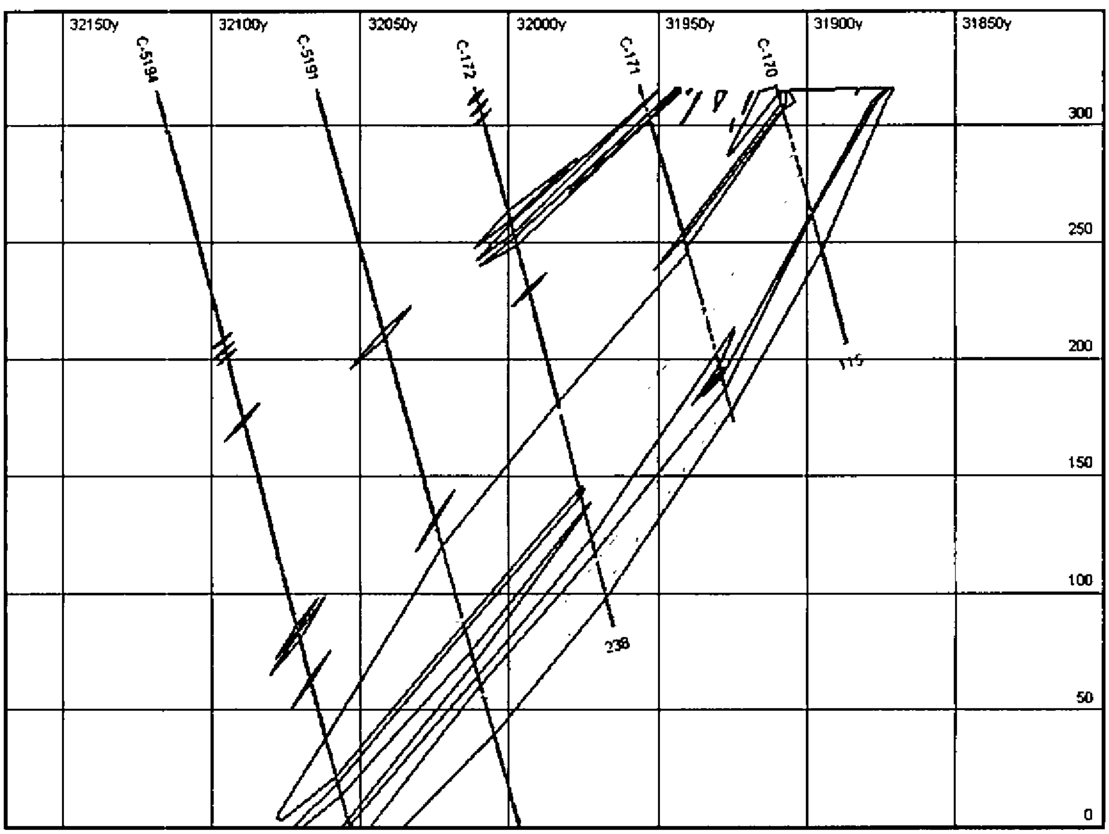


Figure 3.2: Example of String Generation at Pioneer

To ensure all mineralised trench and channel samples were included in the wireframes, strings were extended above the relevant samples.

Following string generation, wireframes were constructed for each of the ore zones (Figure 3.3).

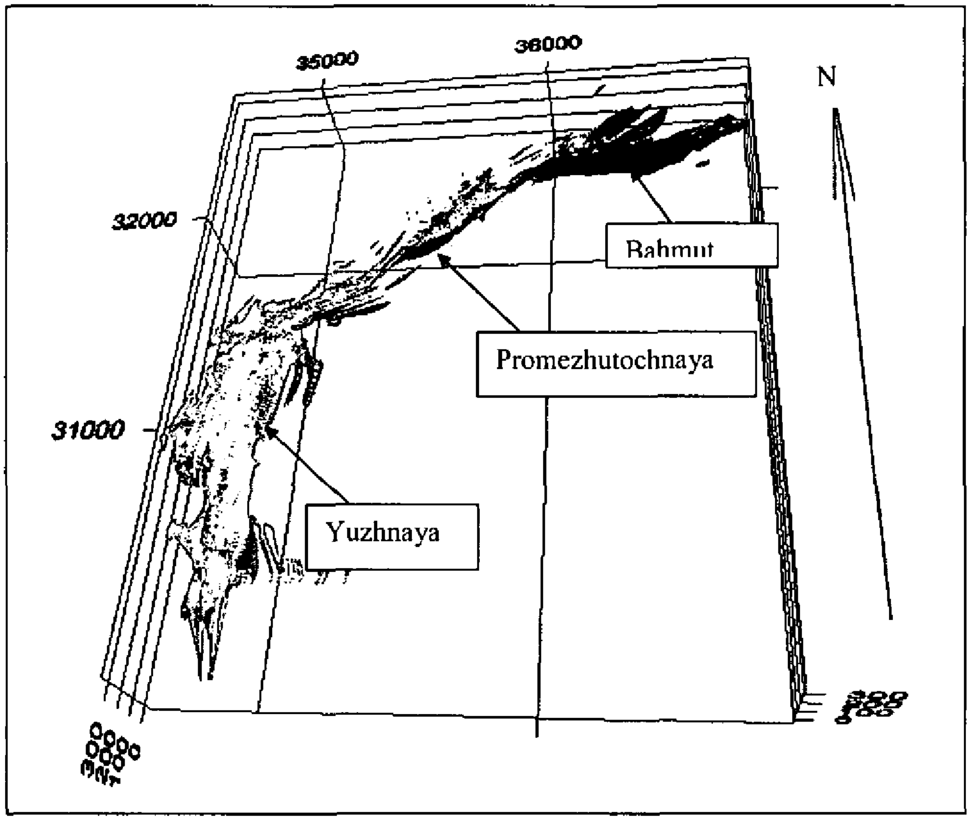


Figure 3.3: Pioneer Ore Zone Wireframes

3.4.1.2 Statistics

Drill hole and channel samples which intercept the mineralised envelope wireframes were selected for statistical analysis and for the subsequent geostatistics and resource estimation works. Upon being selected, samples were coded according to the ore zone in which they are located. Some samples were identified as having been incorrectly coded and others were identified as having not been selected, all errors were subsequently corrected. The basic statistics for Pioneer are given in Table 3.2 below and an Au Log Histogram and Cumulative Plot given in Figure 3.4 and Figure 3.5 below.

Table 3.2: Pioneer Data Set Statistics		
Parameter	Parameter Value	
	All Au Grades	Au (excl 0.1g/t Au)
Number of Samples	113314	68388
Minimum	0.001	0.001
Maximum	919	919
Mean	0.665	1.036
Dispersion (Coefficient of Variance)	35.36	58.24
Relative Standard Deviation	8.94	7.37
Median	0.22	0.44
Standard Deviation	5.95	7.63

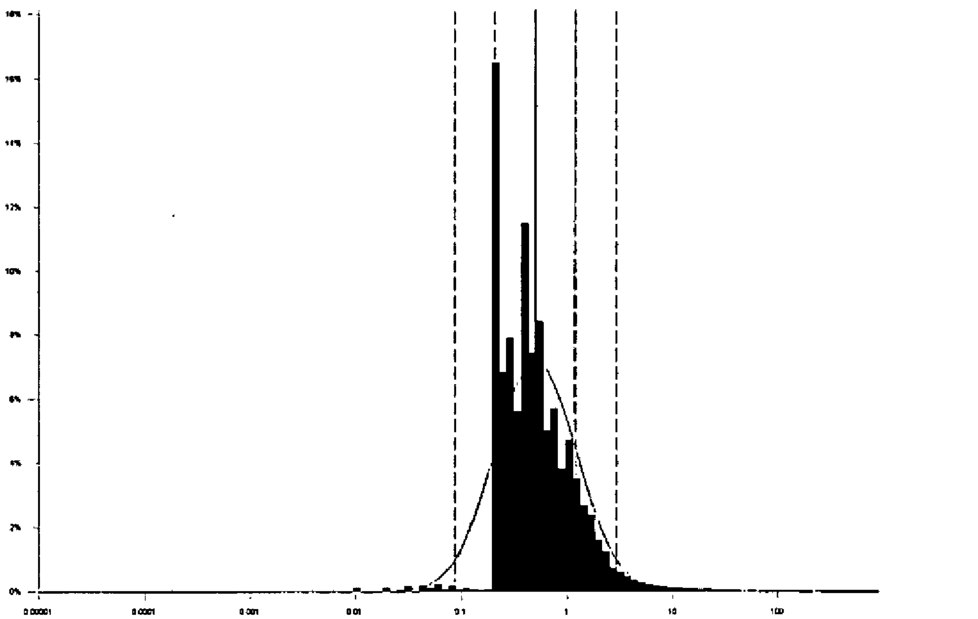


Figure 3.4: Pioneer Au Log Histogram (All Samples)

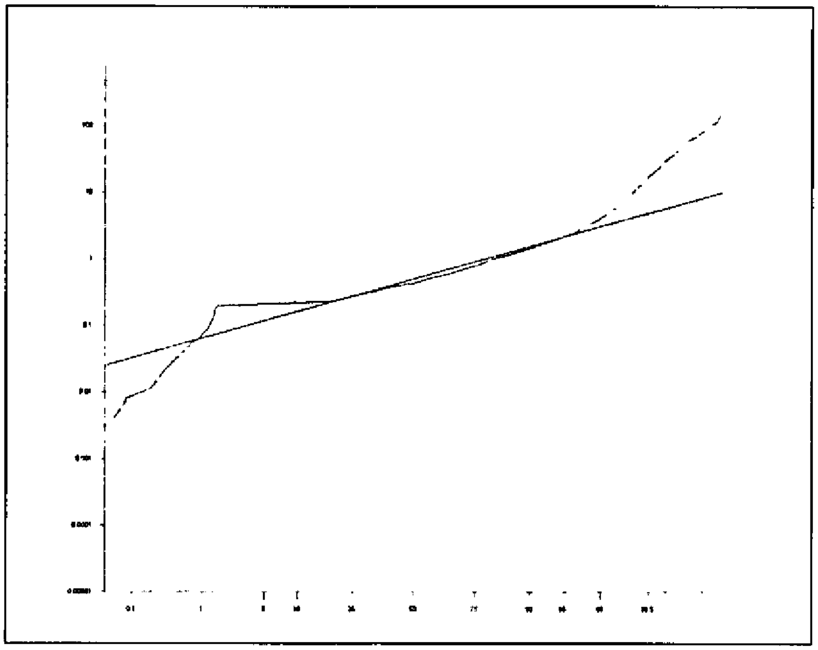


Figure 3.5: Au Log Cumulative Plot (All Samples)

Statistical analysis from the entire sample dataset shows a log normal population with a potential natural COG for mineralisation at 0.27-0.37g/t Au.

Samples were selected for each of the Pioneer Ore Zones (Yuzhnaya, Promezhutochnaya and Bakhmut) and statistical analysis was carried out for each individual ore zone, examples of the graphical plots produced are shown in Figure 3.6 and Figure 3.7 below.

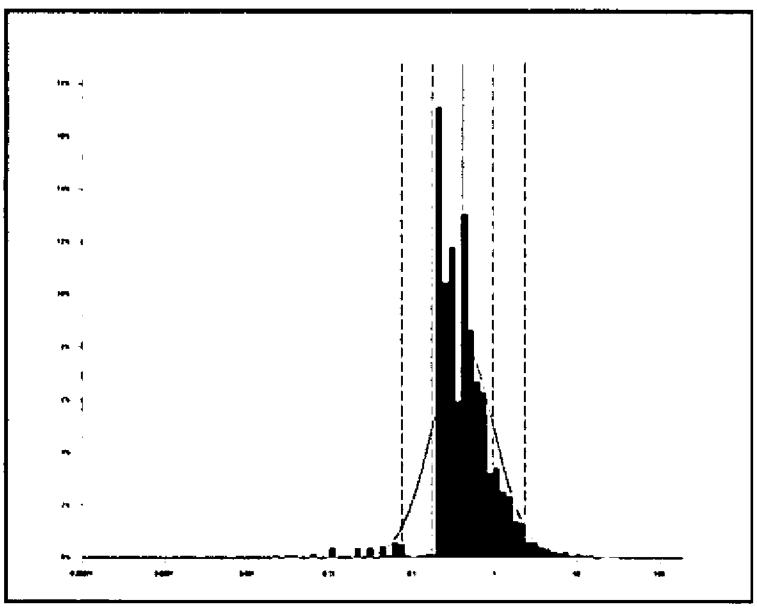


Figure 3.6: Au Histogram for Yuzhnaya North

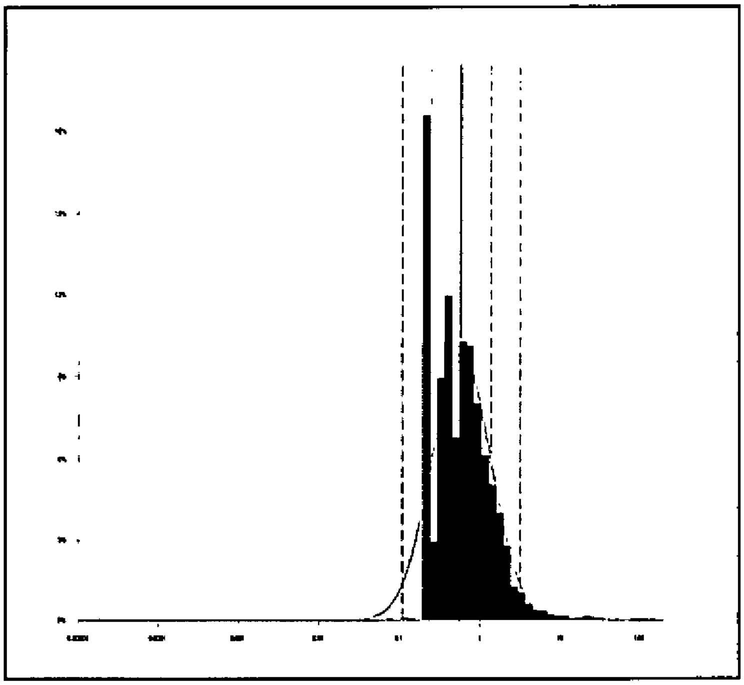


Figure 3.7: Au Histogram Promezhutochnaya

3.4.1.3 Top Cutting

To assess for the presence of any high grade samples which could potentially bias the resource estimations, cumulative frequency plots were produced for each ore zone. Examples of the plots produced are shown in Figure 3.8 to Figure 3.11 (inclusive) below.

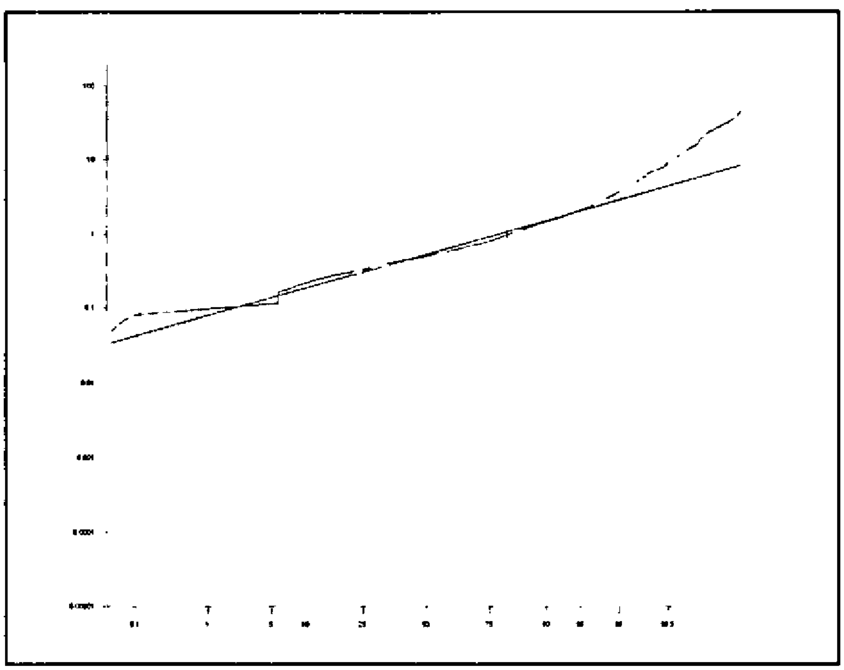


Figure 3.8: Au Cumulative Frequency Plot: Southern Yuznaya Ore Zone

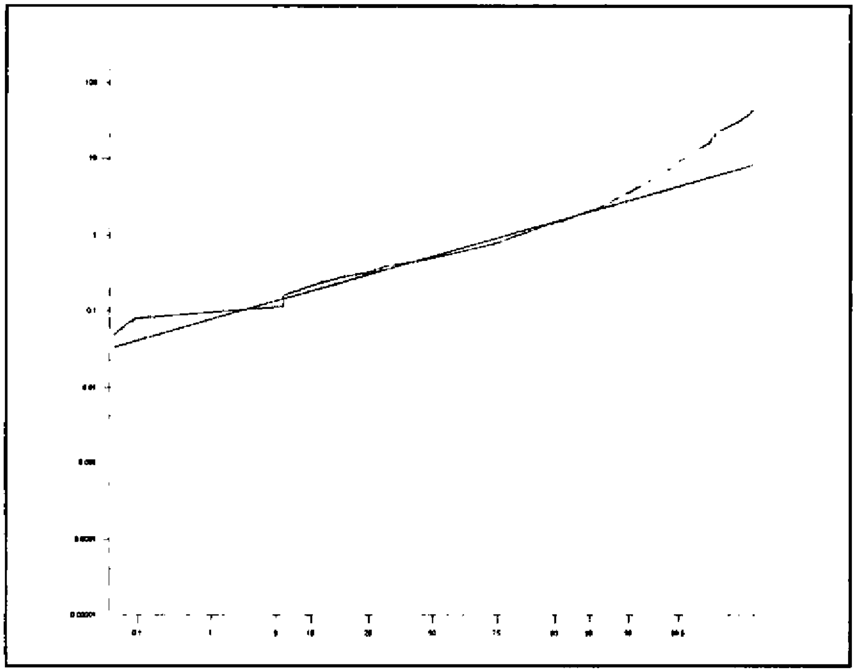


Figure 3.9: Au Cumulative Frequency Plot: Northern Yuznaya Ore Zone

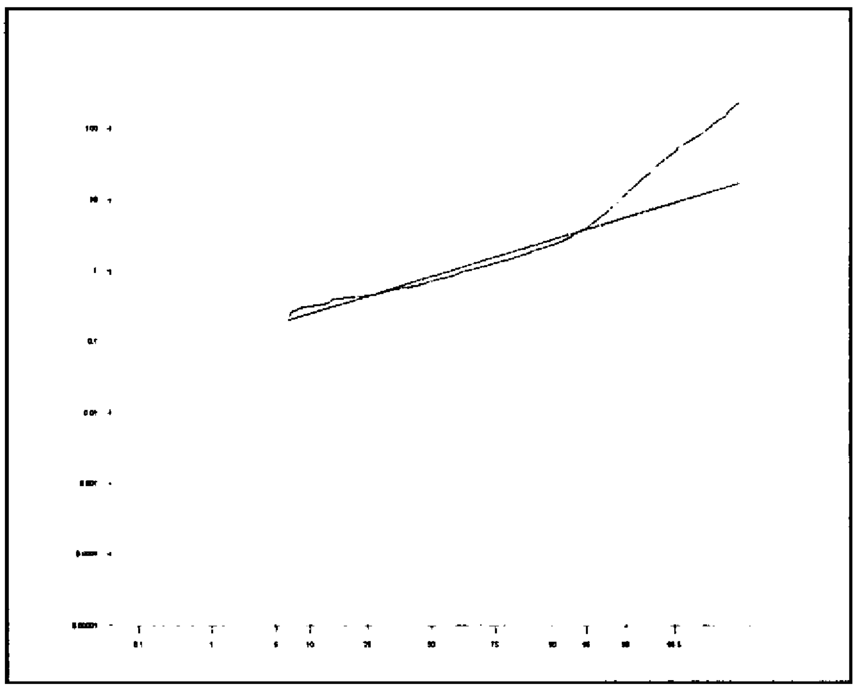


Figure 3.10: Au Cumulative Frequency Plot: Bakhmut-Promezhutochnaya Ore Zone

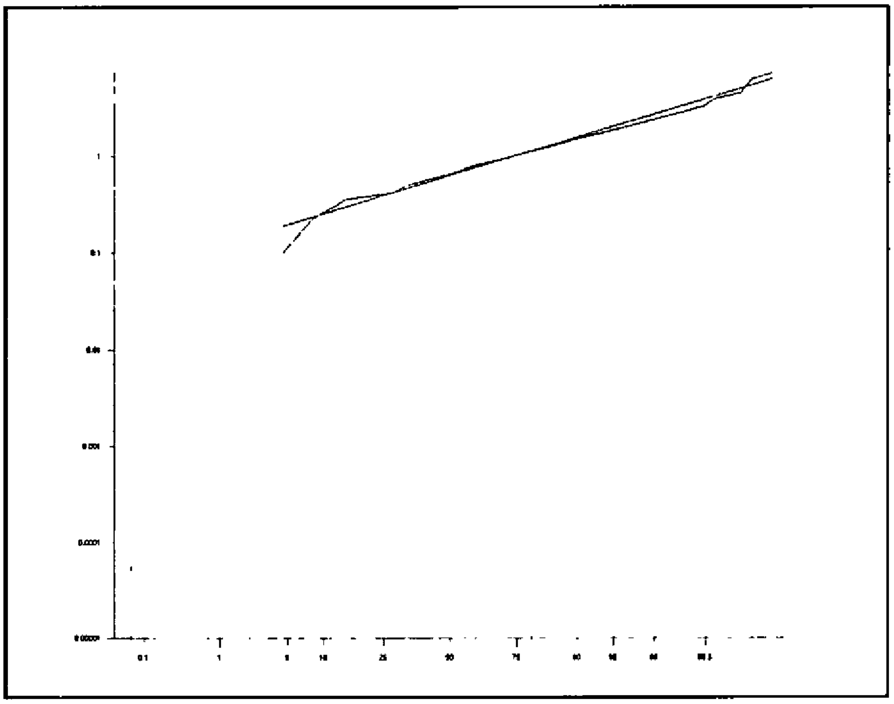


Figure 3.11: Au Cumulative Frequency Plot: Bakhmut Main Ore Zone

The cumulative frequency plots were reviewed to check for inflection points that could signify top cut thresholds. Two top cuts were analysed, the first was taken at two standard deviations above the mean grade, a second top cut was carried out at three standard deviations above the mean grade. Within the drill hole databases, two additional grade columns were added corresponding with the lower and high top cuts. Top cuts that were applied to each deposit are presented in Table 3.3 below.

Table 3.3: Pioneer Ore Zone Top Cuts

Ore Zone	Yuzhnaya North	Yuzhnaya South	Bakhmut (Main)	Bakhmut-Promezhutochnaya
High Au Top Cut (g/t)	16.07	13.45	4.55	47.65
Low Au Top Cut (g/t)	7.94	5.59	3.31	-

Resource estimates were carried out at both top cut thresholds, as well as the un-cut Au grades.

3.4.1.4 Variography

Geostatistical analysis was conducted for each ore zone with the aim of highlighting anisotropy and defining grade continuity within each ore zone. Initially omni directional semi-variograms were produced to ascertain the potential of generating anisotropic semi-variograms and to derive suitable lag intervals. The omni directional semi-variograms exhibited a high nugget effect which is typical of gold deposits demonstrating the high variability that is found over very short distances within such a deposit. PHM upon reviewing the statistical data decided that it may be more prudent to use indicator semi-variogams in the majority of ore zones, with the exception of Bakhmut Main Zone.

The gold distributions for each ore zone were reviewed looking at anisotropy directions with the aid of semi-variogram contour plots for each ore zone (Figure 3.12 and Figure 3.13). Three anisotropic semi-variograms were produced corresponding with three perpendicular directions of anisotropy. Examples of the Semi-variograms are shown in Figure 3.14 tand Figure 3.15 below.

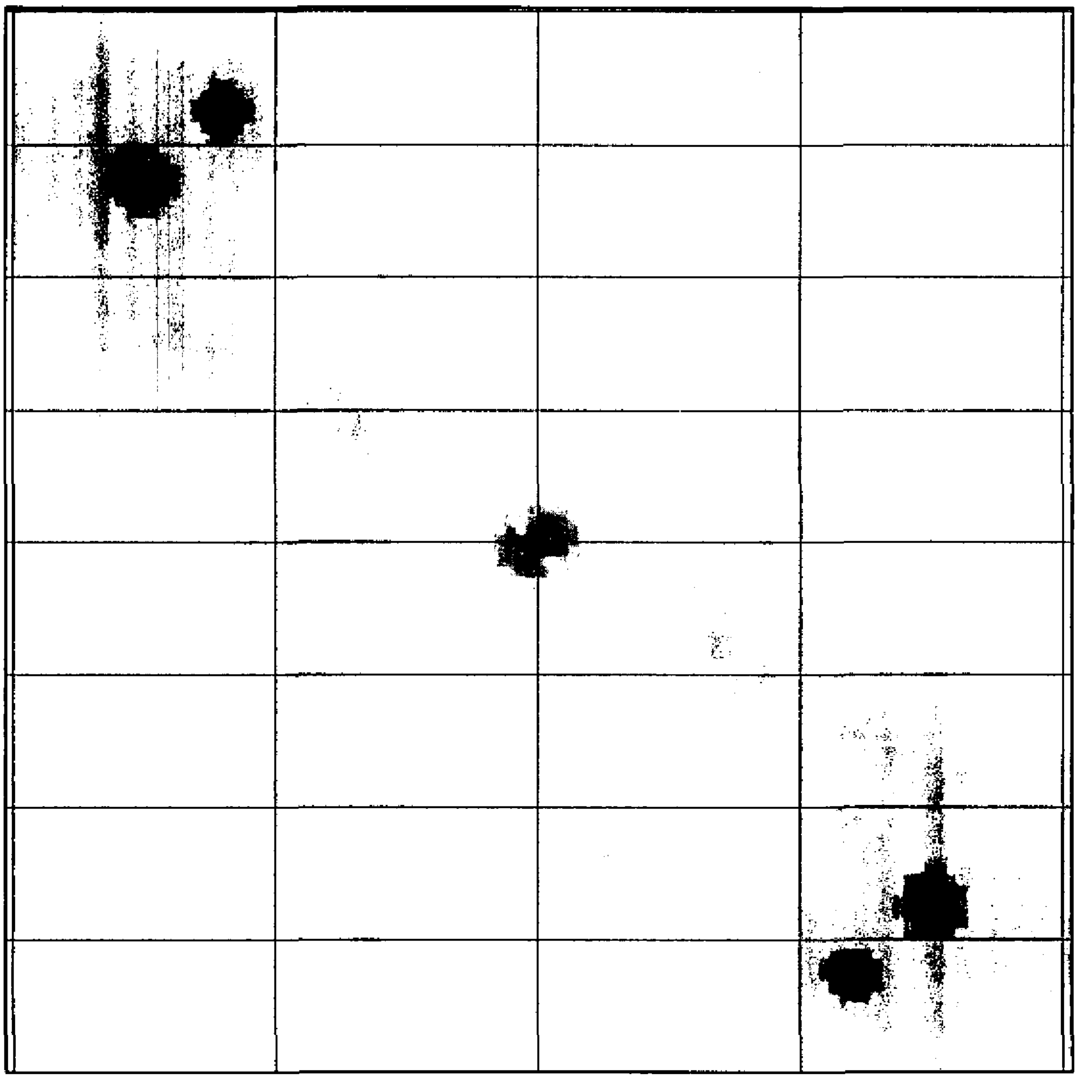


Figure 3.12: Semi-Variogram Surface Contour Plot for Yuzhnaya North

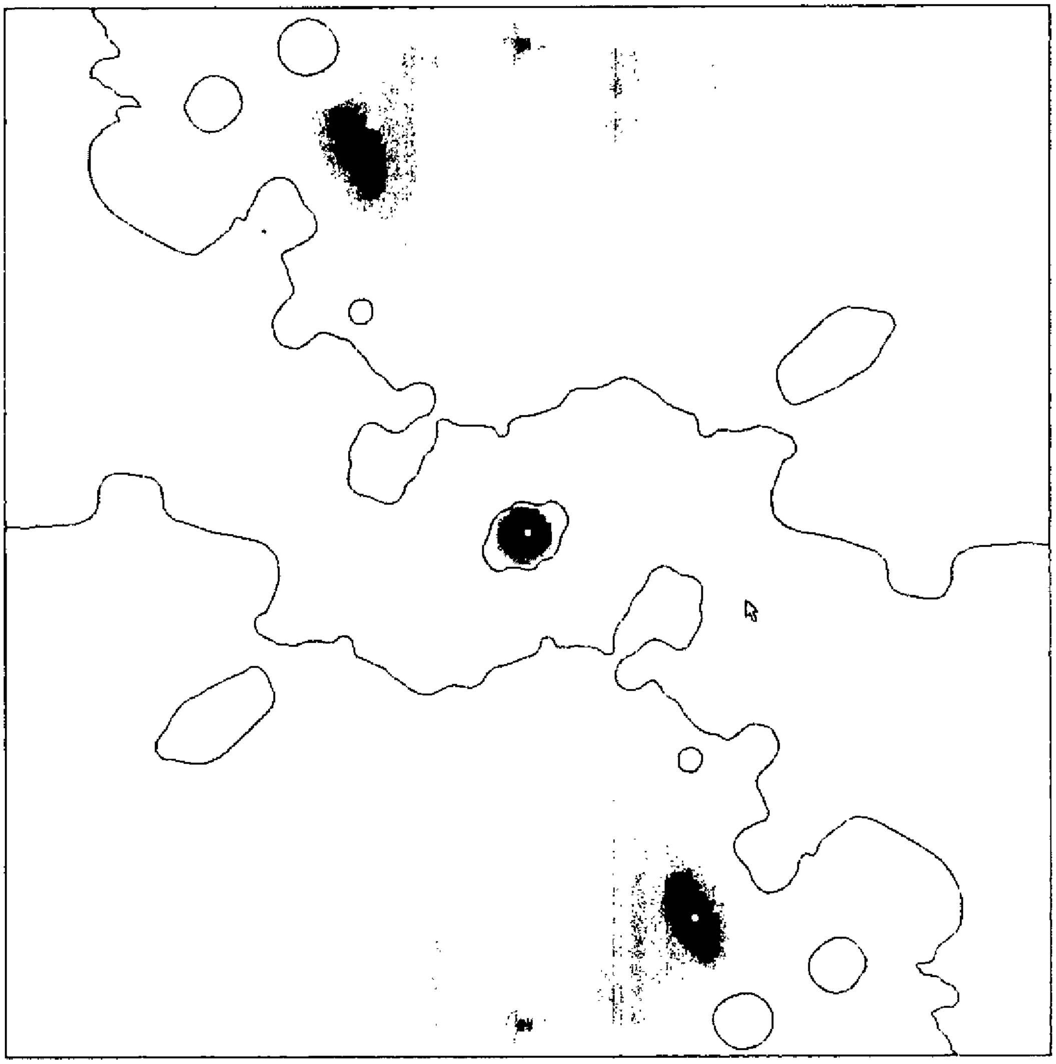


Figure 3.13: Semi-Variogram Surface Contour Plot for Bakhmut-Promezhutochnaya

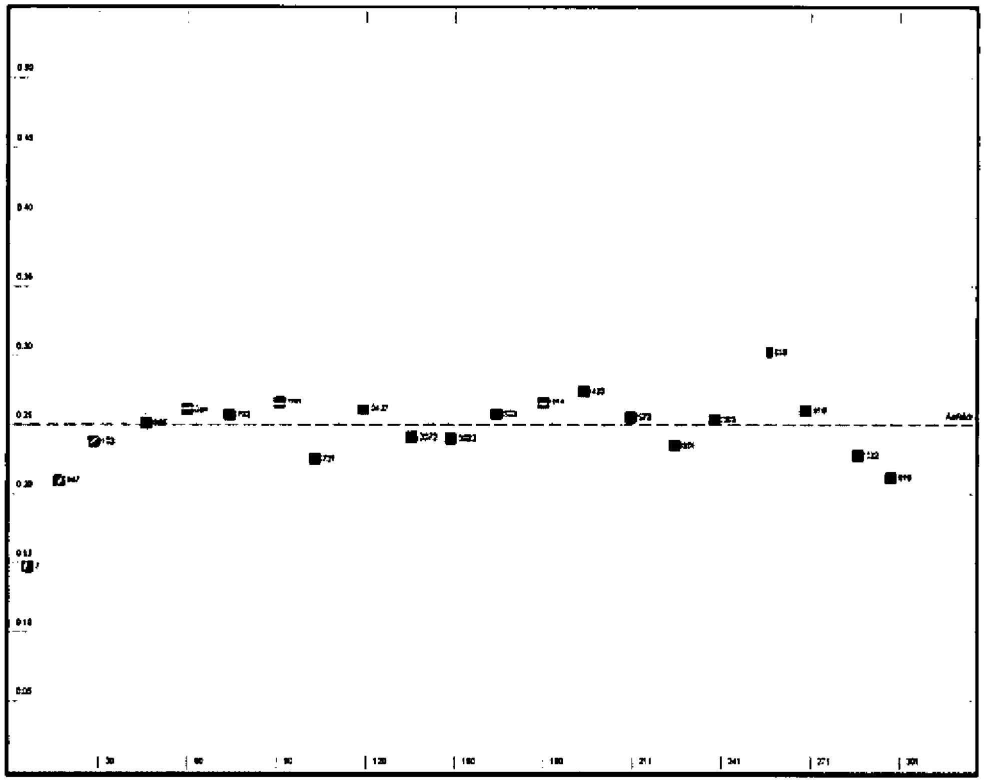


Figure 3.14: Relative Semi-Variogram: Yuzhnaya North (060°/18°)

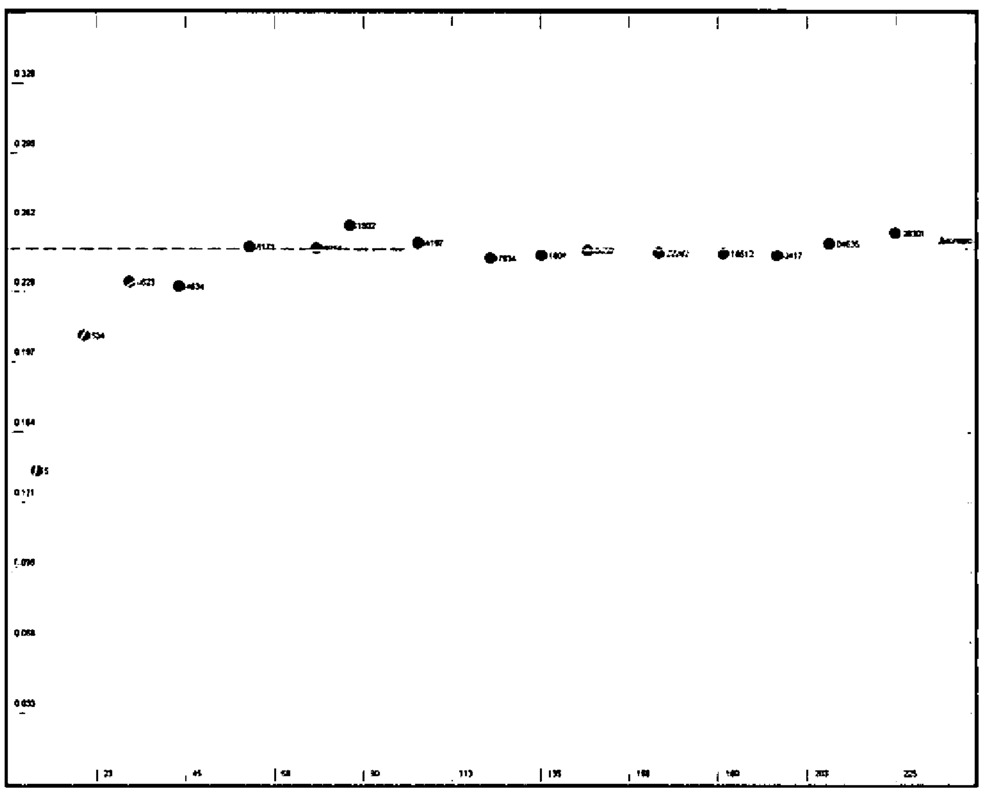


Figure 3.15: Relative Semi-Variogram: Yuzhnaya North (164°/66°)

WAI Comment: WAI notes that the grade anisotropy identified by Miramine for Pioneer does not conform to the ore zone morphology. WAI is of the opinion that grade anisotropy derived from variography should always be supported by geological and structural observations, although WAI does not believe that changing the shape and range of the current experimental directional semi-variograms will significantly alter the resource estimate.

3.4.1.5 Volumetric Model

A non-rotated volumetric block model was constructed for each of the ore zones, the block model incorporated a parent cell size of 20x30x5m in the X, Y and Z directions respectively. The parent cell size was derived based upon open pit bench heights, average sample spacing, and geological constraints. The block model was coded according to ore zone and according to the base of oxidation, and any waste lenses were removed from the block model.

The oxide/sulphide boundary was defined by PHM staff using a "cyanide soluble gold" recovery value obtained from direct cyanidation tests. A recovery of >60% was considered to be indicative of the oxide zone, a DTM was constructed to correspond with the boundary. Sub blocking was incorporated into the model with a subcell size of 10x10x5m (X, Y and Z axis respectively).

3.4.1.6 Bulk Density

For the resource model two density values were applied; for material above the base of oxidation a density of 1.84t/m^3 was applied, for material below the base of oxidation a density of 2.57t/m^3 was applied.

3.4.1.7 Resource Estimation

Two resource estimation methods were carried out for the Pioneer ore zones, Ordinary Kriging (OK) and Inverse Power Distance Cubed (IPD^3). The final resource estimate is reported using OK, the OK estimate was checked against the IPD^3 estimate, with both estimation methods using the same estimation and search parameters, the difference between both estimates was marginal.

Other cross checks on the suitability of OK incorporated visual checks and statistical checks. The visual checks comprised reviewing drill hole sections against the block model and comparing the grades of both, the visual checks exhibited some smoothing of grades within the block model. Statistical checks compared the average grades of samples located within each ore zone against the average grades within the block model. The comparison results show that the block model average grades are lower than the average sample grades. PHM has put the variation down to sampling density, whereby areas with less dense sample spacing, and which exhibit relatively lower average grades tend to produce lower average grades over the whole block model when compared to the average sample grades.

As part of the audit of Pioneer model by WAI, the average block grades were compared against the average sample grades occurring within the same block. Correlation plots were drawn up which show that for Yuzhnaya there is a good correlation between the average block grades and the average sample grades (Figure 3.16). The Yuzhnaya correlation plots were carried out for North, South and for the whole of Yuzhnaya, the correlation plots show that there is smoothing which is usual for OK whereby, low grades are overestimated and high grades are underestimated, from the plots it was demonstrated that grades at Yuzhnaya are typically underestimated.

Promezhutochnaya exhibited a poor correlation (Figure 3.17) between average block grades and average sample grades demonstrating that like Yuzhnaya there had been smoothing of the grades, and underestimation of grades above samples with grades >1g/t Au, the impact of this excessive smoothing and underestimation is that globally the resources at Promezhutochnaya are underestimated.

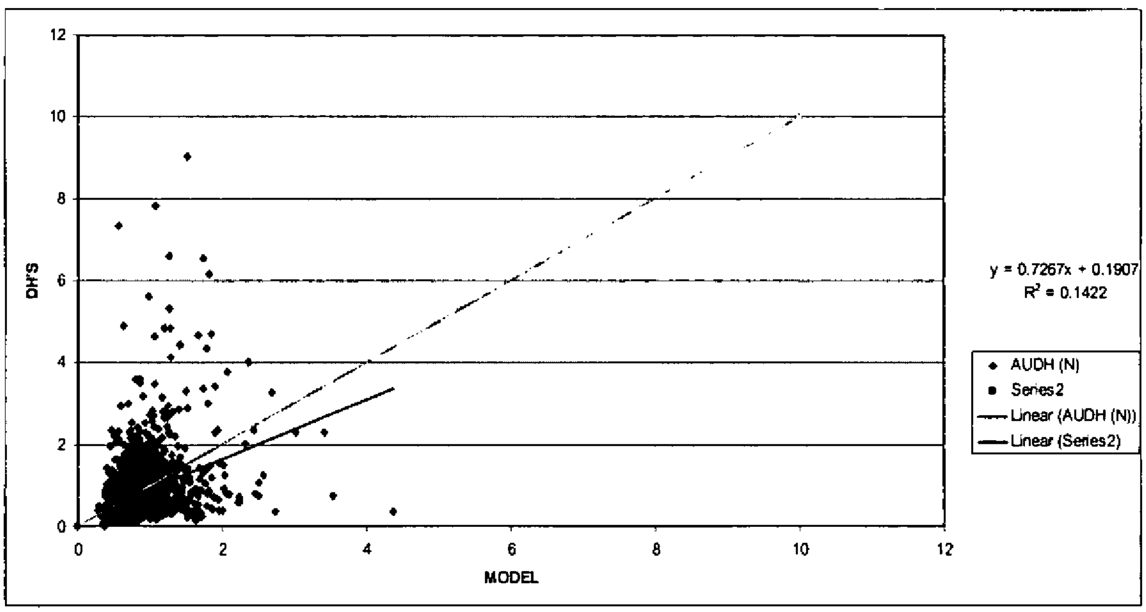


Figure 3.16: Yuzhnaya, Correlation between Block Grades of Miramine 2008 Model and Sample Grades (WAI 2008; red line indicates ideal theoretical correlation)

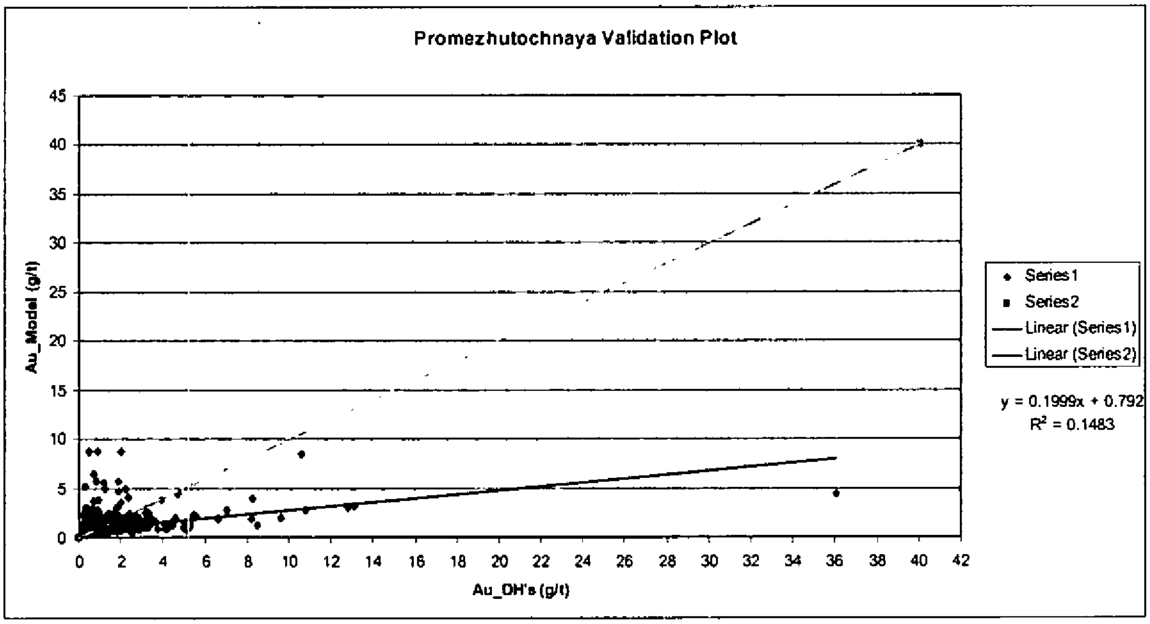


Figure 3.17: Promezhutochnaya, Correlation between Block Grades of Miramine 2008 Model and Sample Grades (WAI 2008; Red line shows ideal theoretical correlation)

The correlation plots show that the estimated grades at Yuzhnaya are closer to the theoretical correlation that is aimed for. Yuzhnaya shows some conditional bias with low grades being overestimated and high grades underestimated. Promezhutochnaya correlation plot shows stronger conditional bias with more excessive underestimation of high grades and overestimation of low grades.

These discrepancies may arise due to the conditional bias, as well as bias between exploration and grade control sampling results. Inappropriate anisotropy will have a negative impact on the local grade estimation, making conditional bias worse.

WAI has not been provided with the complete sample data base for Bakhmut and therefore has not been able to produce correlation plots for this deposit.

3.4.1.8 Resource Classification

Resources have been classified according to the following requirements:

***Measured* Resources**

Measured resources were reported for cells which were interpolated using search radii not exceeding 2/3 of the semi-variogram model ranges, and which used a minimum of 3 samples.

***Indicated* Resources**

Cells could be assigned an Indicated classification if they were interpolated using search radii which did not exceed the range of the omni directional semi-variograms and which incorporated a minimum of 3 samples.

***Inferred* Resources**

Cells which were estimated with radii exceeding semi-variogram ranges or which used less than 3 drill hole samples were classified as Inferred.

3.4.1.9 Resources

Mineral resources for Pioneer are reported in Table 3.4 below, at a 0.4g/t Au COG and have been split according to oxide (Table 3.5) and sulphide (Table 3.6). WAI has cross checked the resources reported by PHM against the Micromine® model, the results of the cross check shows that the resources from the WAI model yields up to 3% more tonnage. WAI believes this is likely to have occurred when WAI combined the Micromine® model with a waste model clipped by the pits and topographic surfaces. When the models were combined there was some overlap of cells which were resolved, but which potentially introduced the deviation.

Table 3.4: Yuzhnaya, Promezhutochnaya and Bakhmut Mineral Resources (Miramine, 2008)

Oxide + Sulphide (0.4g/t Au COG)					
Zone	**Resource Category**	**Tonnage (kt)**	**Grade (g/t Au)**	**Metal (kg)**	**Metal (koz)**
Yuzhnaya	*Measured*	5,356	0.84	4,503	145
	Indicated	7,518	0.80	5,988	193
	Measured+ Indicated	12,874	0.81	10,491	337
	Inferred	45,229	0.71	32,058	1,031
Promezh-utochnaya	*Measured*	4,201	1.10	4,624	149
	Indicated	4,428	0.98	4,349	140
	Measured+ Indicated	8,629	1.04	8,973	288
	Inferred	9,255	0.98	9,080	292
Bakhmut	*Measured*	6,075	1.13	6,846	220
	Indicated	5,619	1.13	6,366	205
	Measured+ Indicated	11,694	1.13	13,212	425
	Inferred	8,751	0.94	8,191	263
Total	*Measured*	15,632	1.02	15,973	514
	Indicated	17,565	0.95	16,703	537
	Measured+ Indicated	**33,197**	**0.98**	**32,676**	**1,051**
	Inferred	63,235	0.78	49,329	1,586

Table 3.5: Yuzhnaya, Promezhutochnaya and Bakhmut Mineral Resources (Miramine, 2008)					
Oxide (0.4g/t Au COG)					
Zone	**Resource Category**	**Tonnage (kt)**	**Grade (g/t Au)**	**Metal (kg)**	**Metal (koz)**
Yuzhnaya	*Measured*	3,472	0.84	2,902	93
	Indicated	2,902	0.80	2,308	74
	Measured+ Indicated	6,374	0.82	5,210	168
	Inferred	9,693	0.71	6,888	221
Promezh-utochnaya	*Measured*	651	1.41	917	29
	Indicated	164	1.25	205	7
	Measured+ Indicated	815	1.38	1122	36
	Inferred	515	0.93	478	15
Bakhmut	*Measured*	1,087	1.01	1,102	35
	Indicated	776	0.82	634	20
	Measured+ Indicated	1,863	0.93	1,736	56
	Inferred	1,480	0.83	1,222	39
Total	*Measured*	5,210	0.94	4,921	158
	Indicated	3,842	0.82	3,147	101
	Measured+ Indicated	**9,052**	**0.89**	**8,068**	**259**
	Inferred	11,688	0.73	8,588	276

Table 3.6: Yuzhnaya, Promezhutochnaya and Bakhmut Mineral Resources (Miramine, 2008)					
Oxide + Sulphide (0.6g/t Au COG)					
Zone	**Resource Category**	**Tonnage (kt)**	**Grade (g/t Au)**	**Metal (kg)**	**Metal (koz)**
Yuzhnaya	*Measured*	3,815	1.34	5,101	164
	Indicated	3,741	1.38	5,149	165
	Measured+ Indicated	7,557	1.36	10,250	329
	Inferred	5,409	1.11	6,021	193
Promezh-utochnaya	*Measured*	2,842	1.19	3,372	108
	Indicated	3,153	1.14	3,601	116
	Measured+ Indicated	5,996	1.16	6,973	224
	Inferred	6,452	1.15	7,427	238
Bakhmut	*Measured*	3,092	1.02	3,165	102
	Indicated	4,118	0.96	3,965	127
	Measured+ Indicated	7,210	0.99	7,130	229
	Inferred	14,814	0.90	13,319	428
Total	*Measured*	9,750	1.19	11,638	374
	Indicated	11,012	1.15	12,715	408
	Measured+ Indicated	**20,762**	**1.17**	**24,353**	**782**
	Inferred	26,676	1.00	26,767	859

3.4.1.10 WAI Audit

WAI has cut the block models with the most current topography and pits and has removed all material located above the pits and topographic surfaces. WAI has attempted to reconcile the resources contained in the model provided against the resources disclosed by PHM. A breakdown of the resources estimated by WAI from the Micromine® model is presented in Table 3.7, Table 3.8 and Table 3.9 below. Yuzhnaya and Promezhutochnaya resources (Table 3.7) show no material difference in tonnages, but Bakhmut exhibits a 3% discrepancy with the resources ascertained by WAI from the model being higher. WAI believes this is likely to have occurred when WAI combined the Micromine® model with a waste model clipped by the pits and topographic surfaces. When the models were combined there was some overlap of cells which were resolved but which potentially introduced the deviation.

WAI produced a model for pit optimisation using NPV Scheduler® software, the model was produced as outlined above by combining a waste model clipped by topography and pits with the latest Micromine® model. Although there is a small discrepancy in the resources as outlined previously, such deviation is largely constrained to Inferred resources on a global scale and will therefore have no effect on classified reserve estimates. Globally *Measured* and *Indicated* resources exhibit little deviation from the resources reported by PHM, as such WAI is of the opinion the NPV model is suitable on which to estimate reserves.

Table 3.7: Yuzhnaya, Promezhutochnaya and Bakhmut Mineral Resources (Miramine, 2008, WAI Model Evaluation)									
Zone	Resource Category	Top Cut Level 1				Top Cut Level 2			
		Tonnage (kt)	Grade (g/t Au)	Metal (kg)	Metal (koz)	Tonnage (kt)	Grade (g/t Au)	Metal (kg)	Metal (koz)
Oxide + Sulphide (0.4g/t Au COG)									
Yuzhnaya	*Measured*	5,429	0.81	4,370.9	141	5,429	0.83	4,516.5	145
	Indicated	7,565	0.77	5,829.3	187	7,565	0.79	6,000.2	193
	Measured+ Indicated	12,994	0.79	10,200.2	328	12,994	0.81	10,516.7	338
	Inferred	45,438	0.70	31,880.1	1,025	45,438	0.71	32,119.9	1,033
Promezh-utochnaya	*Measured*	4,201	1.10	4,628.3	149	4,201	1.10	4,628.3	149
	Indicated	4,427	0.98	4,348.1	140	4,427	0.98	4,348.1	140
	Measured+ Indicated	8,628	1.04	8,976.4	289	8,628	1.04	8,976.4	289
	Inferred	9,262	0.98	9,080.2	292	9,262	0.98	9,080.2	292
Bakhmut	*Measured*	6,274	1.10	6871.5	221	6,274	1.10	6,893.7	222
	Indicated	5,773	1.11	6400.7	206	5,773	1.11	6,406.1	206
	Measured+ Indicated	12,047	1.10	13,272.2	427	12,047	1.10	13,299.8	428
	Inferred	8,976	0.92	8239.7	265	8,976	0.92	8,240.8	265
Grand Total	*Measured*	15,904	1.00	15,870.7	510	15,904	1.01	16,038.5	516
	Indicated	17,765	0.93	16,578.1	533	17,765	0.94	16,754.0	539
	Measured+ Indicated	**33,669**	**0.96**	**32,448.8**	**1,043**	**33,669**	**0.97**	**32,792.5**	**1,054**
	Inferred	63,676	0.77	49,200.0	1,582	63,676	0.78	49,440.9	1,590

Table 3.8: Yuzhnaya, Promezhutochnaya and Bakhmut Mineral Resources (Miramine, 2008, WAI Model Evaluation)									
Zone	Resource Category	Top Cut Level 1				Top Cut Level 2			
		Tonnage (kt)	Grade (g/t Au)	Metal (kg)	Metal (koz)	Tonnage (kt)	Grade (g/t Au)	Metal (kg)	Metal (koz)
Oxide (0.4g/t Au COG)									
Yuzhnaya	*Measured*	3,521	0.81	2,837.9	91	3,521	0.83	2,921.9	94
	Indicated	2,952	0.77	2,273.6	73	2,952	0.79	2,334.0	75
	Measured+ Indicated	6,474	0.79	5,111.4	164	6,474	0.81	5,255.9	169
	Inferred	9,784	0.70	6,833.1	220	9,784	0.71	6,910.6	222
Promezh-utochnaya	*Measured*	620	1.41	877.2	28	620	1.41	877.2	28
	Indicated	156	1.17	183.1	6	156	1.17	183.1	6
	Measured+ Indicated	776	1.37	1,060.2	34	776	1.37	1,060.2	34
	Inferred	526	0.92	485.0	16	526	0.92	485.0	16
Bakhmut	*Measured*	1,140	0.99	1,130.0	36	1,140	0.99	1,131.4	36
	Indicated	831	0.79	657.5	21	831	0.79	659.4	21
	Measured+ Indicated	1,971	0.91	1,787.5	57	1,971	0.91	1,790.8	58
	Inferred	1,481	0.81	1,206.4	39	1,481	0.81	1,206.6	39
Total Sulphide	*Measured*	5,281	0.92	4,845.1	156	5,281	0.93	4,930.5	159
	Indicated	3,939	0.79	3,114.2	100	3,939	0.81	3,176.5	102
	Measured+ Indicated	**9,221**	**0.86**	**7,959.1**	256	**9,221**	**0.88**	**8,106.9**	261
	Inferred	11,791	0.72	8,524.5	274	11,791	0.73	8,602.2	277

Table 3.9: Yuzhnaya, Promezhutochnaya and Bakhmut Mineral Resources (Miramine, 2008, WAI Model Evaluation)									
Zone	Resource Category	Lower Top Cut				Upper Top Cut			
		Tonnage (kt)	Grade (g/t Au)	Metal (kg)	Metal (koz)	Tonnage (kt)	Grade (g/t Au)	Metal (kg)	Metal (koz)
Sulphide (0.6g/t Au COG)									
Yuzhnaya	*Measured*	1,136	1.02	1,153	37	1,136	1.07	1,215	39
	Indicated	2,588	0.99	2,557	82	2,588	1.03	2,667	86
	Measured+ Indicated	3,724	1.00	3,710	119	3,724	1.04	3,882	125
	Inferred	17,769	0.91	16,246	522	17,769	0.92	16,408	528
Promezh-utochnaya	*Measured*	2,853	1.18	3,374	108	2,853	1.18	3,374	108
	Indicated	3,154	1.14	3,601	116	3,154	1.14	3,601	116
	Measured+ Indicated	6,007	1.16	6,975	224	6,007	1.16	6,975	224
	Inferred	6,505	1.15	7,453	240	6,505	1.15	7,453	240
Bakhmut	*Measured*	3,822	1.33	5,081	163	3,822	1.33	5,081	163
	Indicated	3,740	1.38	5,145	165	3,740	1.38	5,145	165
	Measured+ Indicated	7,562	1.35	10,225	329	7,562	1.35	10,225	329
	Inferred	5,407	1.11	6,017	193	5,407	1.11	6,017	193
Total Sulphide	*Measured*	7,810	1.23	9,608	309	7,810	1.24	9,670	311
	Indicated	9,482	1.19	11,303	363	9,482	1.20	11,413	367
	Measured+ Indicated	17,293	1.21	20,911	672	17,293	1.22	21,083	678
	Inferred	29,681	1.00	29,716	655	29,681	1.01	29,878	961

Top-cuts refer to Table 3.4

Identification of the natural cut-off grades purely from the statistical grade distribution is common practice. However, in well explored deposits at the trial mining stage, like Pioneer, WAI would expect resource envelopes to be defined and supported by field observations, which would include the identification of discrete lithological units in core, together with exposures in the open pit. WAI recommends that principal faults and lithological boundaries are modelled to support the current structural interpretation.

Statistical analysis suggests that for grades below 1g/t Au, assays suffer decreased precision. Care should be taken in evaluation of low grade resources, due to assay precision which will be insufficient to provide a robust estimate. The shape of the log probability plots, in conjunction with a very high variation coefficient, suggests that a high grade subpopulation exists in the dataset. Grade interpolation run on unsplit subpopulations can result in strong conditional bias, whereby high grade is underestimated and low grade is overestimated. To prevent bias in the estimation, a significant number of the high grade samples have to be capped, leading to even greater underestimation of the high grade areas. In future WAI recommends that high grade and low grade subpopulations be treated separately.

3.4.2 Resources Estimated in accordance with the Guidelines of the JORC Code (2004) - Andreevskaya Micromine® Resource Model

PHM has prepared an in-house computer block model for the Andreevskaya Zones using Micromine® mining software. WAI has been provided with a source database, wireframe interpretation and resultant block model for audit. This section provides a brief description of the modelling methodology employed by PHM and the findings of WAI.

3.4.2.1 Geological Interpretation

Mineralised envelopes were constructed for the deposit based on a statistical review of the sample data which identified potential natural cut off grades (COGs) on which the geological model is based. Grade distribution curves were used to derive the natural COG's, and identified a natural COG of 0.2g/t Au. However, this value was deemed too low as it equates to the analytical test limit. A higher COG of 0.25g/t Au was employed to represent the low grade mineralisation, whilst a high grade mineralised envelope was constructed at a COG of 5.73g/t Au, this COG was derived from reviewing log probability histograms.

Strings representing the high (5.73g/t Au) and low (0.25g/t Au) grade mineralisation were constructed in vertical sections along drill hole profiles (Figure 3.18) with drill profile sections ranging from 60m to 300m spacing. As well as using drill holes to construct the wireframes, excavation trenches on surface were also included in the geological interpretation. Where sample data ceased the mineralisation was extrapolated to half the average drill hole spacing. Upon completion of the section strings 3-dimensional wireframes were constructed representing the mineralisation at 0.25g/t Au and at 5.73g/t Au.

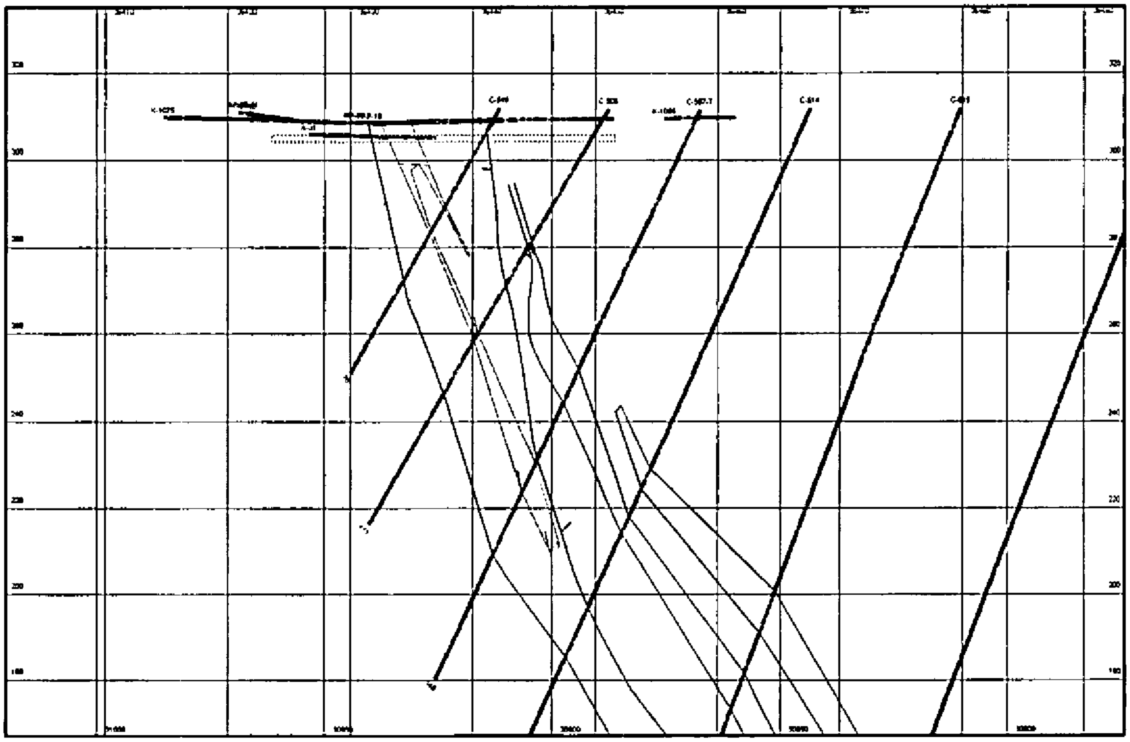


Figure 3.18: High (Green) and Low (Blue) Grade Section Strings

WAI has reviewed the geological interpretation and has some reservations. The southwest extent of the mineralisation has been less extensively explored, as shown in the resource model and drillhole profiles, than the central and north-eastern parts of the mineralisation and drilling has only been completed on 300m spaced sections. WAI is of the opinion that drill holes on such a spacing within a "nuggety" gold deposit, which is said to be complex and characterised by pinch and swell structures, is too great to make a robust interpretation. The central and north-eastern extents of the deposit have a greater density of drilling (≈60m section spacing) from which it is shown that a number of the mineralised lenses and structures are discontinuous, with the exception of several structures that are interpreted to exhibit greater continuity (up to 2km length). The south western extension has been wireframed as a number of continuous envelopes which WAI considers an optimistic approach to the geological interpretation.

Where drill hole profiles are on the closer spacing (≈60m) the PHM wireframes have shown that mineralisation is not always continuous and therefore where drill hole spacing is wider, as is the case in the southwest, an assumption to extend mineralisation so far cannot be valid. However, PHM is of the opinion that the southwest area more closely resembles the more continuous mineralised structures observed in the northeast though the drill hole profiles in this area are down to ≈60m, and not the 300m observed in the southwest. PHM geologists believe that geological and geophysical data further supports the interpreted continuity, as modelled in the southwest area. Notwithstanding these comments WAI has accepted the volumes and grades estimated for the southwest area, but has reclassified these resources as *Inferred* resources in accordance with the guidelines of the JORC Code (2004).

During the WAI site visit it was not possible to identify the mineralisation visually and WAI is reliant on assay values to distinguish the mineralised zones, therefore it is even more difficult to distinguish geological continuity.

However, infill drilling is currently underway in the southwest of Andreevskaya which is essential in providing support for this geological interpretation. Infill drilling could substantiate this model and potentially increase or decrease the resources contained within the southwest zone.

Typical characteristics of sheer zone hosted gold deposits are that they can exhibit quite variable dips and highly variable widths; furthermore there can be extensive structural variability with splitting and branching of mineralised structures.

WAI accepts the Miramine interpretation and agrees that the resources contained within the southwest can only be considered *Inferred* at best. The poor confidence often attributed to "nuggety" gold deposit grade estimates mean that a denser drill spacing is more appropriate in order to achieve a robust geological interpretation and subsequent resource estimate.

3.4.2.2 Statistics

Samples were selected within the mineralised envelopes and coded according to whether they fell within the high grade (>5.73g/t Au) mineralised envelope or within low grade mineralisation (>0.25g/t Au). From the selection, 4,193 samples fell within the low grade zones and 405 samples within the high grade zones.

A breakdown of high grade and low grade statistics is shown in Table 3.10 and Table 3.11 below.

Table 3.10: Low Grade Mineralisation Statistics (>0.25g/t Au)

Normal Statistics		**Logarithmic Statistics**	
Field		Field	
Minimum	0.022	No Samples	4193
Maximum	5.7	Avg of Natural Logarithms	-0.76042
No Samples	4193	Geometrical Average	0.467
Sum	2867.252	Natural Log Dispersion	0.68101
Average	0.684	Natural Log Std. Deviation	0.82523
Dispersion	0.60373	V Sichel	0.68084
Std. Deviation	0.77700	γSichel	1.40554
Relative Std. Deviation	1.136	T Sichel	0.65705

Table 3.11: High Grade Mineralisation Statistics (>5.73g/t Au)			
Normal Statistics		**Logarithmic Statistics**	
Field		Field	
Minimum	0.36	No Samples	405
Maximum	1913	Avg of Natural Logarithms	3.05854
No Samples	405	Geometrical Average	21.297
Sum	26780.56	Natural Log Dispersion	1.94777
Average	66.125	Natural Log Std. Deviation	1.39563
Dispersion	32069.08651	V Sichel	1.94296
Std. Deviation	179.07844	γSichel	2.62602
Relative Std. Deviation	2.708	T Sichel	55.92509

The statistics clearly demonstrate that the "nuggety" gold grades may have a significant impact on the resource estimate. Modelling high and low grade zones separately may reduce the impact of high variability in grades; however, this does not resolve the nuggety gold grades and as such two top cut scenarios were applied. Two top cut scenarios were run, one used a top cut of 125.7g/t Au and a second using a significantly higher top cut of 395.7g/t Au.

To give the samples equal support prior to undertaking variography and resource estimations the samples were composited to 1m sample lengths, which corresponds to the mean sample length.

There is always an issue of getting a representative sample in deposits such as Andreevskaya. The results of the statistical review clearly show that there is a low average Au grade and high Au variance giving a highly skewed grade distribution with a large grade range as demonstrated in Figure 3.19 below. It should be noted that only 3% of the sample grades lie above 15.0g/t Au and that the global mean is 2.94g/t Au.

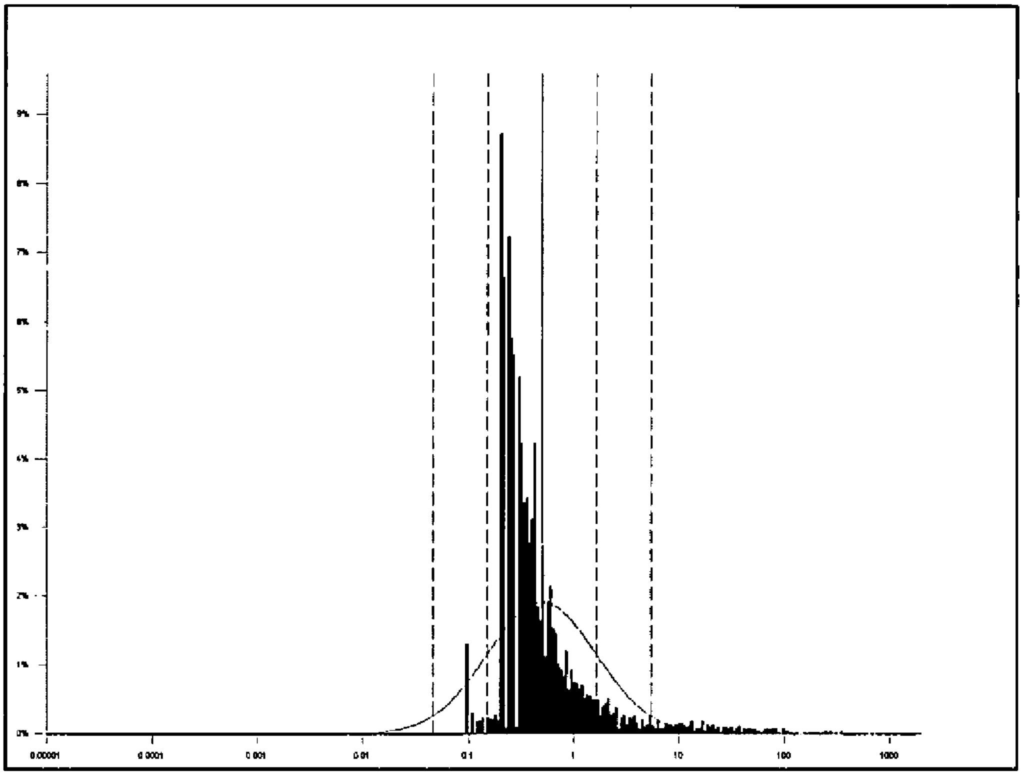


Figure 3.19: Andreevskaya Au Log Probability Plot (Miramine 2008)

3.4.2.3 Geostatistical Analysis

A geostatistical review of the deposit was undertaken with the following aims:

- to estimate the presence of anisotropy within the deposit;
- to derive the spatial continuity of mineralisation along the principal main anisotropic orientations;
- to produce a suitable variogram model and determine the principal variogram model parameters; and
- to generate suitable search parameters for the resource estimation.

Following the surface anisotropy plot anisotropic semi-variograms were produced for along strike, down dip and across strike:

- Along Strike; 070°/00°;
- Down Dip; 160°/72° SE; and
- Across Strike; 340°/18° NW.

Reasonable semi-variograms were generated, but showed high nugget values due to the large amount of small scale variance associated with the deposit. An example of the semi-variograms is shown in Figure 3.20.

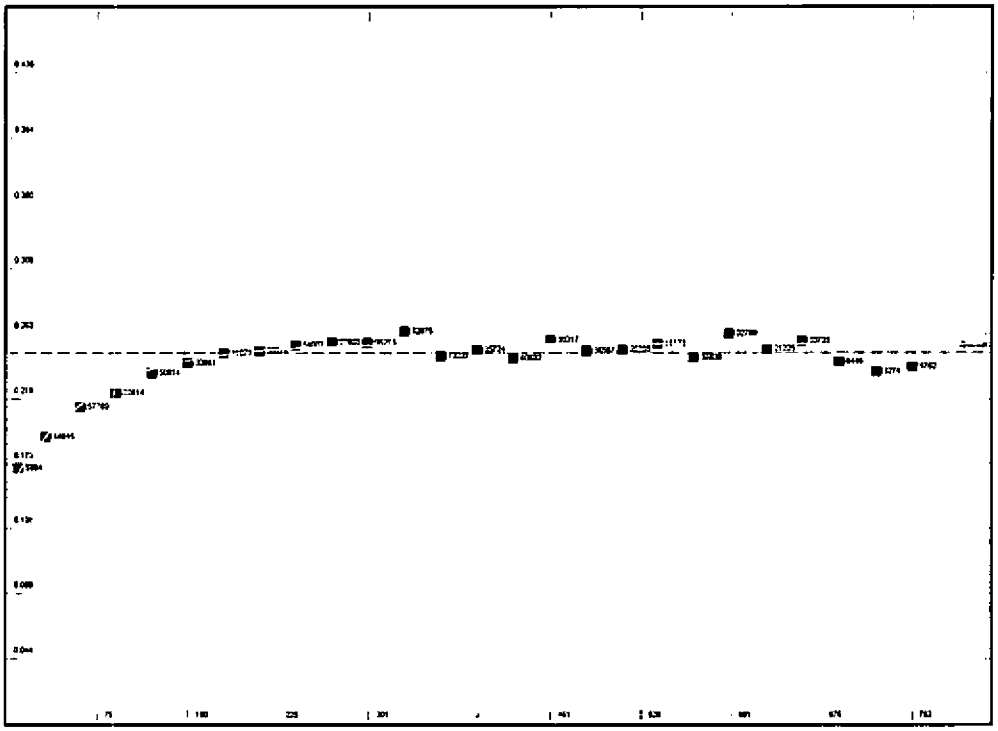


Figure 3.20: Andreevskaya along Strike Semi Variogram (Miramine 2008)

The difficulties associated with undertaking resource estimation on a "nuggety" gold deposit are well known. Gold grade distributions within veins are often strongly positively skewed due to a high proportion of erratic high grades, Andreevskaya proving to be no exception. Nugget effect has two components, the geological/natural effect and the sampling/human effect. The geological effect is that natural grade distribution can be influential at a number of scales, both small scale in terms of grain size and on larger scales whereby the nugget effect is due to patchy areas of high and low grade. Nugget effect generated through sampling is a common issue and it is the opinion of WAI that PHM constantly evaluates how the sampling at Andreevskaya can be improved to reduce this.

3.4.2.4 Block Modelling

A parent cell size of 15x15x10m in the X, Y and Z axis respectively were used with subcells of 3x3x5m permitted. Blocks were generated within each zone (high and low grade) and by that part of the mineralisation that is located above the base of oxidation, and the un-oxidised mineralisation. The block model was optimised within the confines of the separate high and low grade zones and by oxidised and un-oxidised material.

WAI Comment: WAI has reviewed the block sizes applied to the model and is of the opinion that whilst there is a need to have cell sizes that take into account the sample spacing and mining block dimensions there is an issue with how well these blocks honour the mineralised envelope volumes.

The issue with the cell size is that where the veins become narrow the cells can no longer honour the vein dimensions and as such voids appear within the block model. Globally the block model and wireframe volumes may show good correlation but for the narrow envelopes there is a distinct localised issue that impacts on the grade tonnage distribution. The choice of cell size depends upon several factors such as the geostatistical requirements, drill hole spacing, mining constraints, geology and topography. At this stage WAI believes that with the sample spacing such as it is, and due to the nature of mineralisation, there is a restriction on what size cells can be appropriately applied. However, future study should look at addressing this issue. The minimum subcell size of 3x3x5 is simply too large to allow an accurate representation of the volumetric model for the narrow mineralised envelopes, some of which can be <0.5m wide.

However, given the comments above and the level of data currently available, WAI is satisfied with the total gold content of the current model, but notes that having too large a block size will overstate tonnage and understate grade.

3.4.2.5 Bulk Density

For the resource model two density values were applied; for material above the base of oxidation a density of 2.31t/m^3 was used, for material below the base of oxidation a density of 2.5t/m^3 was applied.

3.4.2.6 Resource Estimation

Resources were estimated using Ordinary Kriging (OK) and inverse power distance (IPD), the OK estimate was deemed to yield the most robust results. Estimations were carried out for top cuts at 395.75g/t Au, 125.71g/t Au and with no top cut applied. The final resource estimate used OK and a top cut of 395.75g/t Au, the final top cut was decided upon as it yielded results which correlated best with production data from the pit.

3.4.2.7 Resource Classification

Resources have been classified according to the following requirements:

***Measured* Resources:**

Cells were interpolated using search radii which did not exceed 2/3 of the variogram model ranges, and which used a minimum of 2 drill core samples and a minimum of 2 trench samples. Where variograms have several structures *Measured* resources equated to the short structures of the variograms used.

***Indicated* Resources:**

Cells could be assigned an *Indicated* classification if they were interpolated using search radii which did not exceed the range of the variograms and which incorporated a minimum of 2 drill hole and 2 trench samples. Where variograms have several structures *Indicated* resources were equal to the longest structures.

***Inferred* Resources:**

All cells which were estimated with radii exceeding variogram ranges or which used less than 3 drill hole samples were classified as *Inferred*.

WAI Comment: Given the nuggety nature of the Andreevskaya mineralisation, resource classification is always problematic, restricting the amount of mineralisation that can be classified as *Measured*. Typically for this type of 'nuggety' gold deposit bulk sampling, underground development and trial mining is required to delineate *Measured* and *Indicated* resources.

3.4.2.8 Miramine Resource Estimate

The Andreevskaya resources, according to Miramine and reported at a 0g/t Au COG, are detailed in Table 3.12 below.

Table 3.12: Andreevskaya Resources for Different Top-cuts at 0g/t Au COG (Miramine 2008)										
		No Top-cut Applied			395.75g/t Au Top-cut			125.71g/t Au Top-cut		
Classification	Tonnage (kt)	Au (g/t)	Au (kg)	Au (koz)	Au (g/t)	Au (kg)	Au (koz)	Au (g/t)	Au (kg)	Au (koz)
Measured	3,735	3.47	12,959	417	2.68	10,009	322	1.93	7,208	232
Indicated	1,731	2.09	3,617	116	1.91	3,306	106	1.57	2,717	87
Inferred	7,037	1.05	7,389	238	1.05	7,389	238	0.98	6,896	222
Total	**12,503**	**1.92**	**23,965**	**771**	**1.65**	**20,704**	**666**	**1.34**	**16,822**	**541**

Grade tonnage curves showing the application of top-cut's at 125.71g/t Au, 395.75g/t Au and with no top-cut applied are shown in Figure 3.21, Figure 3.22 and Figure 3.23 below (Blue=Tonnage, Pink=Metal, Yellow= Average Au Grade).

Since the Miramine resource model and estimation in 2007 mining has continued at Andreevskaya. WAI was provided with the latest open pit wireframe that shows that approximately 351kt of ore has been extracted since the resource model was produced.

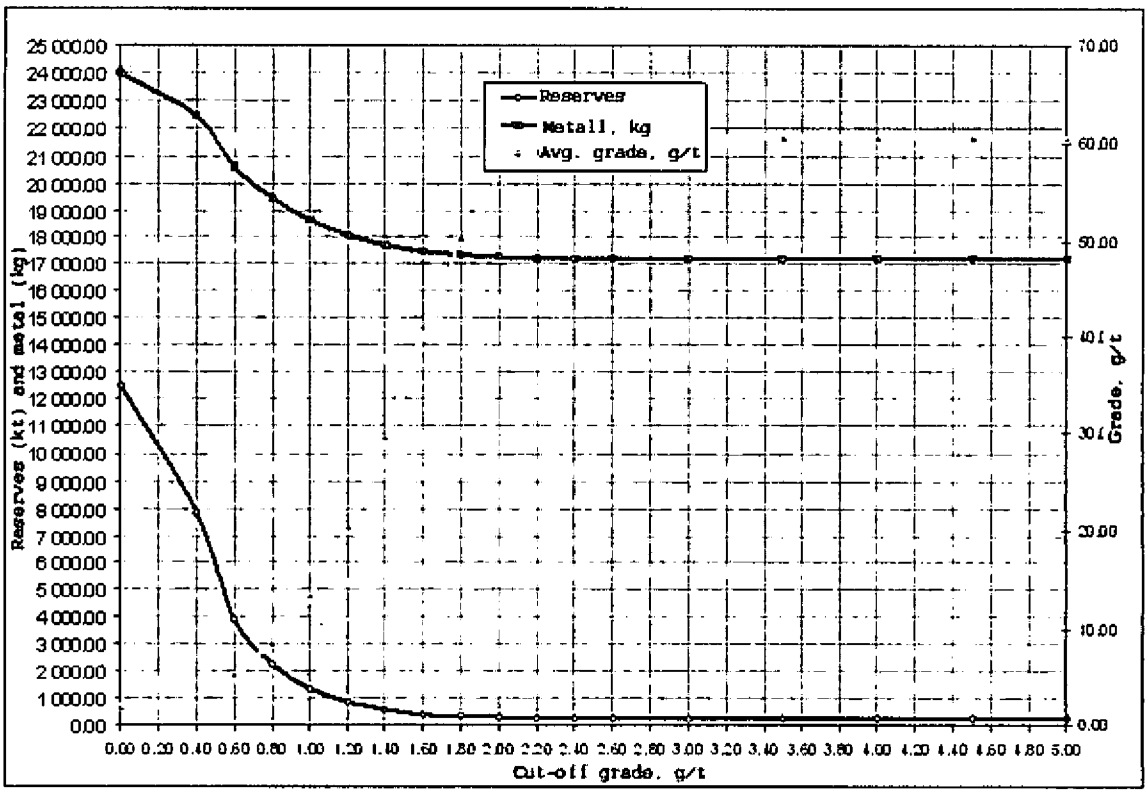


Figure 3.21: Andreevskaya Grade Tonnage Curve No Top-cut Applied (Miramine 2008)

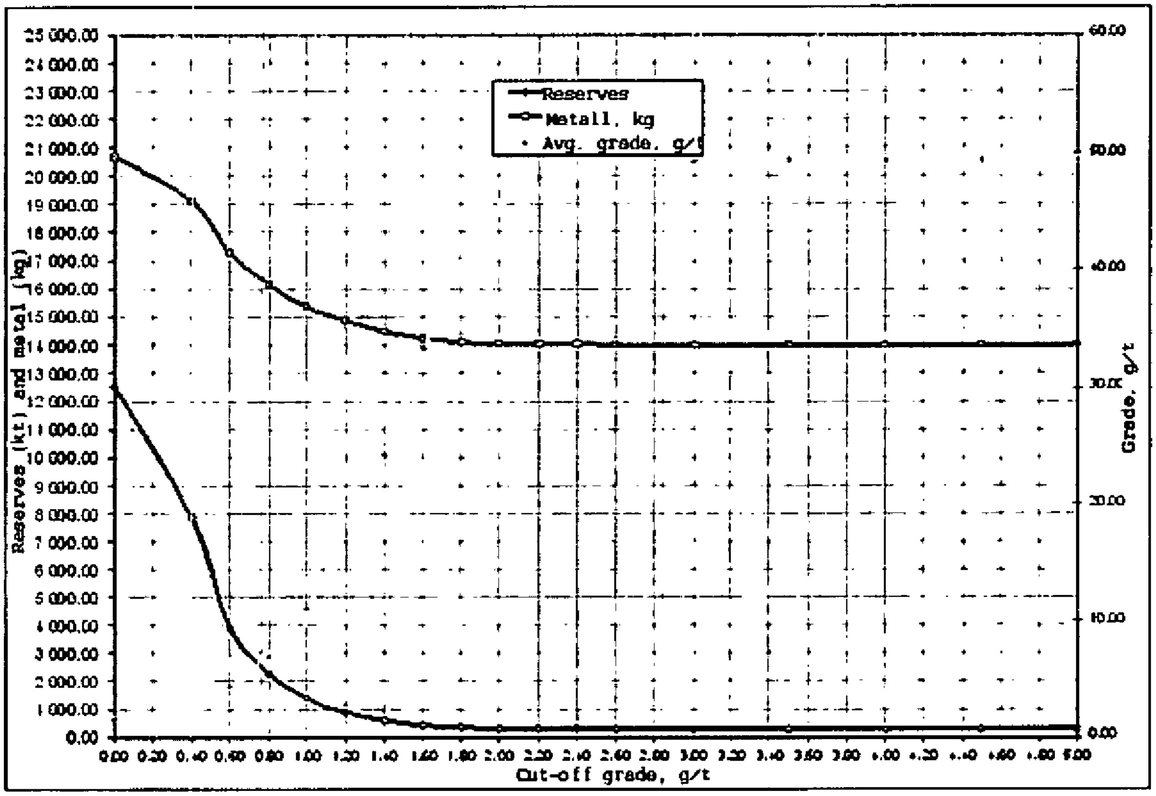


Figure 3.22: Andreevskaya Grade Tonnage Curve at 395g/t Au Top-cut (Miramine 2008)

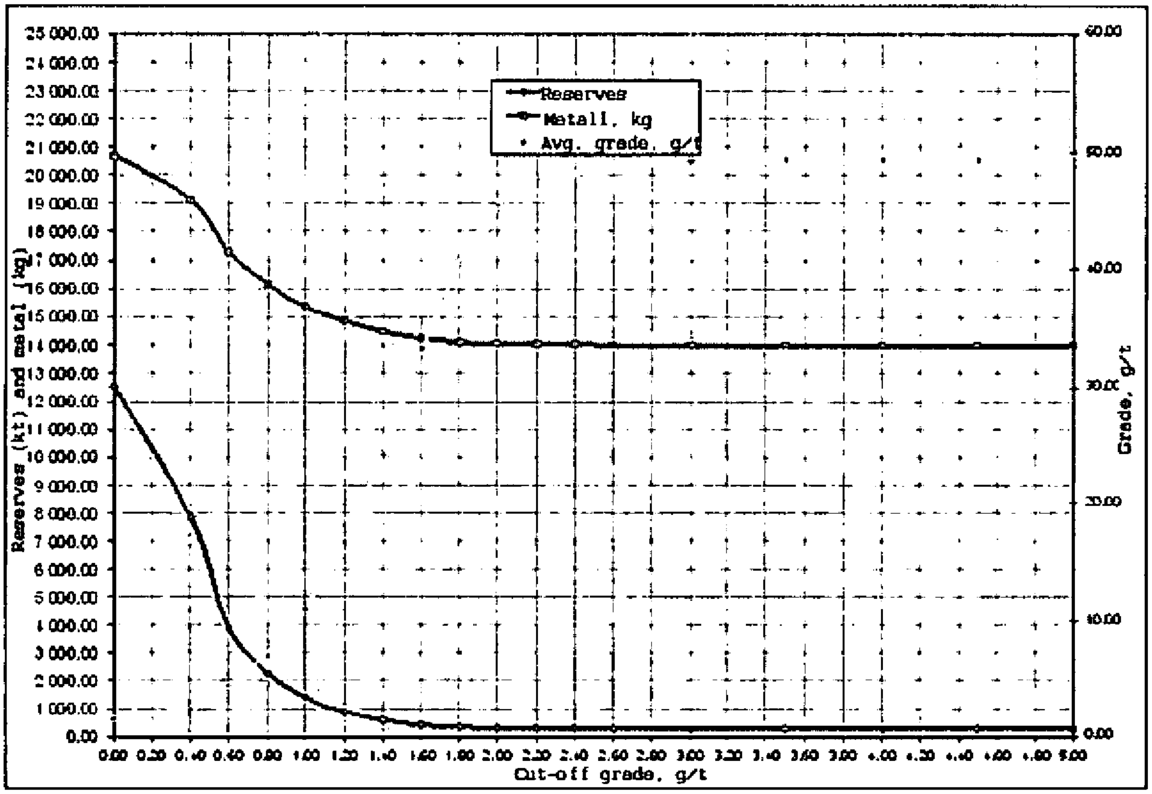


Figure 3.23: Andreevskaya Grade Tonnage Curve at 125g/t Au Top-cut (Miramine 2008)

WAI Comment: WAI is of the opinion that the Andreevskaya deposit presents problems with regard to resource classification in that the nuggety grade distribution in combination with pay shoot morphology restricts the confidence in the ore body, which here is reflected by the relatively small amount of *Measured* resource.

3.4.3 Pioneer Russian Standard Resource and Reserve Estimate

Russian standard classified resources have been estimated for Pioneer by PHM and are presented in Table 3.13 below.

Table 3.13: Pioneer Russian Standard Resources (PHM as at 01.01.2008)								
Ore zone	C_2				P_1			
	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)
Bakhmut	16,608	1.30	22,297	716	6 860	1.50	10,300	331
including ore column	1,170	5.40	6,315	203	1,160	5.4	6,300	202
Promezhutochnaya	9,305	1.35	12,577	404	1,460	1.40	2,050	66
including 2 ore columns	363	5.20	1,882	61	96	5.20	500	16
Yuzhnaya	45,480	1.40	62,300	2,003	6,000	1.20	7,250	233
including 2 ore columns	314	8.40	2,650	85	100	8.40	880	28
Andreevskaya	1,265	15.70	19,870	639	440	15.00	6,540	210
Zvezdochka					3,000	1.20	3,600	116
Other ore zones					4,000	1.40	5,755	185
TOTAL	**72,658**	**1.60**	**117,044**	**3,762**	**21,760**	**1.60**	**35,495**	**1,141**
Including Stockpiles	369	1.80	673	22				

There are also additional resources in stockpiles resulting from test mining. It is estimated from the PHM production records that approximately 347.2kt of ore containing 1,383.6kg of gold grading 4.05g/t Au has been mined (01.01.2007). It was understood from the discussion with PHM local technical staff that a 1g/t Au COG was used to establish resources for trial mining. Some of this material has been processed through the Pokrovskiy plant, whereas approximately 200kt of low grade material remains in stockpiles at Pioneer.

PHM also estimated tonnages and grades for prognostic resources of P_2 and P_3 categories for Pioneer as 44,200kt at 1.30g/t Au and 90,500kt at 1.30g/t Au respectively.

3.5 Mining

The Pioneer project is in the early production stage. On the mining side, production has commenced and overburden stripping is continuing. A number of small pits have been opened up along the strike of the deposit. Initially this was to provide ore for test work and plant commissioning; however, since commencement of production, these pits have been expanded to provide production ore and resource/reserve validation.

Much of the mining equipment for the project has already been purchased and is on site, although more equipment is due to be delivered late 2008 and early 2009. The majority of the mining infrastructure, including roads, crushing facilities and power supplies are in place and operational.

Pre-production mining at Pioneer started during summer 2007, with full scale mining commencing in early 2008 at a rate of 1.1Mtpa of ore. Production is planned to ramp up to 3.7Mtpa during 2009 and will reach a maximum rate of 6.1Mtpa by 2012.

Open pit mining will utilise conventional truck & shovel techniques, with drilling and blasting of the ore and waste where necessary.

3.5.1 Reserve Estimation

The reserves at Pioneer are based on the geological resources. The reserve calculation takes into account mining and economic factors to give an indication of the amount of rock that is economically mineable or can be termed 'ore'. Some of the factors that are considered when calculating reserves are the cost of mining, the cost of processing, the recovery of ore from the pit, dilution of the ore by waste material, the efficiency of the processing method, physical constraints of the mining operation and metal prices.

For orebodies such as those at Pioneer, which are amenable to open pit mining, the calculation of reserves often takes place in conjunction with the mine design, in a process termed pit optimisation.

3.5.2 Mine Design and Optimisation

The Pioneer mine consists of four main open pits; Bakhmut, Yuzhnaya, Promezhutochnaya and Andreevskaya. The design of these pits is based upon geological block models of the resources, modelled by PHM using the geological software programme, Micromine®. Models of the resources are used to create economic pits. The input variables for the Bakhmut, Yuzhnaya and Promezhutochnaya pit optimisation are shown in Table 3.14. The input parameters for the Andreevskaya pit optimisation process are given in Table 3.15.

Table 3.14: Bakhmut, Yuzhnaya and Promezhutochnaya Economic Optimisation Parameters

Parameter	*Unit*	*Value*
Ore Mining Cost	*US$/t*	0.71
Waste Mining Cost	*US$/t*	0.52
Oxide Heap Leach Processing Cost	*US$/t*	1.91
Oxide RIP Processing Cost	*US$/t*	4.89
Sulphide Autoclave Processing Cost	*US$/t*	7.87
G&A Cost	*US$/t*	0.25
Refining & Transport Charge	%	1.0
Royalty Payment	%	6.0
Mining Dilution Factor	%	5
Mining Recovery Factor	%	97
Heap Leach Recovery	%	70
RIP Recovery Factor	%	90
Autoclave Recovery Factor	%	86
Slope Angle	*Degrees*	36
Gold Price	*US$/oz*	650
Environmental	*US$/t*	0.1

Table 3.15: Andreevskaya Economic Optimisation Parameters		
Parameter	***Unit***	***Value***
Ore Mining Cost	*US$/t*	0.96
Waste Mining Cost	*US$/t*	0.70
Processing Cost	*US$/t*	4.89
G&A Cost	*US$/t*	0.25
Refining & Transport Charge	%	1.0
Royalty Payment	%	6.0
Mining Dilution Factor	%	5
Mining Recovery Factor	%	97
Processing Recovery Factor	%	90
Slope Angle	*Degrees*	40
Gold Price	*US$/oz*	650
Environmental	*US$/t*	0.1

The results of the economic WAI optimisation and reserve estimation for Bakhmut, Yuzhnaya and Promezhutochnaya are displayed in Table 3.16. The optimisation results and reserves for Andreevskaya are displayed in Table 3.17.

Table 3.16: Results of the Economic Optimisation of Bakhmut, Yuzhnaya and Promezhutochnaya Open Pits[1]
Classified in accordance with the JORC Code (2004) – WAI (July 2008)

Parameters	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total Rock Mass, kt	142,845	155,664	162,013
Waste, kt	118,174	128,639	133,689
Oxidized Ores			
Ore, kt	9,765	9,783	9,804
Grade, g/t	0.84	0.85	0.85
Total Metal, kg	8,292	8,303	8,314
Total Metal, koz	267	267	267
Economic Cut-Off Grade, g/t	0.2	0.16	0.15
Primary Ores			
Ore, kt	14,902	17,242	18,520
Grade, g/t	1.15	1.09	1.06
Total Metal, kg	17,,175	18,809	19,549
Total Metal, koz	551	605	629
Economic Cut-Off Grade, g/t	0.5	0.45	0.42
Total			
Ore, kt	24,671	27,025	28,324
Grade, g/t	1.03	1.00	0.8
Total Metal, kg	25,437	27,112	27,863
Total Metal, koz	818	872	896
Stripping Ratio (tOre/tWaste)	4.79:1	4.76:1	4.72:1

[1] Numbers may not add up exactly due to rounding

Proven and Probable reserves derived by WAI for the Bakhmut, Yuzhnaya and Promezhutochnaya open pits, based on *Measured* and *Indicated* resources and a gold price of US$650/oz are 25Mt of ore at a grade of 1.03g/t Au. The stripping ratio of the pit is 4.8 tonnes of ore per tonne of waste.

Table 3.17: Results of the Economic Optimisation of the Andreevskaya Open Pit[1] Classified in accordance with the JORC Code (2004) – WAI (July 2008)			
Factors	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total mined material, kt	35,922	37,123	37,038
Waste, kt	33,089	33,985	33,570
Ore, kt	2,833	3,138	3,468
Grade, g/t	3.66	3.36	3.08
Economic Cut-Off Grade, g/t	0.42	0.39	0.36
Total metal, kg	10,360	10,532	10,676
Total metal, koz	333	339	343
Stripping Ratio (tOre/tWaste)	11.7:1	10.8:1	9.7:1

[1] Numbers may not add up exactly due to rounding

Proven and Probable reserves derived by WAI for Andreevskaya, based on *Measured* and *Indicated* resources and a gold price of US$650/oz are 2.8Mt of ore at a grade of 3.66g/t Au. The stripping ratio of the pit is 11.7 tonnes of ore per tonne of waste.

Proven and Probable reserves defined by WAI at Pioneer, including the Andreevskaya zone, are 1,154koz gold (27.5Mt of ore) from *Measured* plus *Indicated* resources of 1,404koz gold (34.1Mt of ore). As at Malomir, there is substantial expansion potential, with 41.7Mt of ore containing a further 1,320koz gold in *Inferred* category resources, and active exploration continuing on Andreevskaya and other ore zones.

Currently, the mining schedule for Pioneer is based on reserves derived by PHM using the Russian Standard Classification System, these are then applied to PHM's financial projects and commitments.

The Pioneer mining schedule is expected to reach a maximum production rate of 6.1Mtpa of ore by 2010, but the production rate is expected to reduce slightly towards the end of the mine life in 2017. The average grade over the life of the mine is expected to be 1.6g/t, Au but this varies between 2.6g/t at the beginning of the operation to 1.7g/t Au in 2017, mainly due to the influence of the Andreevskaya open pit, which has a much higher average grade than Bakhmut, Yuzhnaya and Promezhutochnaya.

The mining schedule proposed for Pioneer is optimised to balance ore mining, waste mining and average grade each year. Mining will take place from four separate open pits and thereafter will be blended in the combined processing facilities. WAI considers the proposed schedule to be both practical and achievable given PHM's experience and management expertise gained through the Pokrovskiy operations. It should be noted, however, that the combined mining schedule includes *Inferred* resources and as such, less reliance can be placed on proposed tonnage and grades in the latter parts of the schedule. WAI believes it is appropriate for these future resources to be included in the long term schedule as a guide only, pending further exploration work.

3.5.3 Mining Equipment

The current mining equipment being utilised at Pioneer consists of 3 x EKG-5A rope shovels being used for waste mining and overburden stripping at Yuzhnaya and Andreevskaya, loading into Belaz 30t and 45t rigid dump trucks. Ore mining is conducted with 3 x Caterpillar 330C hydraulic excavators loading Volvo A40D and Caterpillar 740 articulated dump trucks.

An order has been placed for 13 x Caterpillar 777F rigid dump trucks and 3 x Liebherr R9250 hydraulic face shovels, which will work alongside the existing EKG shovels and Belaz truck fleet allocated to waste mining. The Caterpillar trucks are due to be delivered in November 2008 and the Liebherr shovels in March 2009. Ore mining will continue to be conducted using the Caterpillar 330/Volvo A40D mining fleet. The Caterpillar 777F dump trucks and the Liebherr G950 shovel will be assigned to overburden removal, whilst the EKG shovels and Volvo A40D dump trucks will be utilised on ore extraction.

Drilling operations in waste will be performed using DMLE-HP rotary rigs, with Atlas Copco ROC F6 and L8 DTH percussion rigs being utilised within the ore zones.

In addition to this primary mining equipment, there are a multitude of service and support vehicles required for blasting, servicing and other general duties.

The EKG rope shovels (Photo 3.5) were seen working in the Yuzhnaya and Andreevskaya open pits, along with a fleet of Volvo 40t ADTs and 45t Belaz trucks.

The Liebherr excavators and larger 90t Caterpillar dumpers will be required for expansion of the mining activities from the current 1.1Mtpa to 6Mtpa.

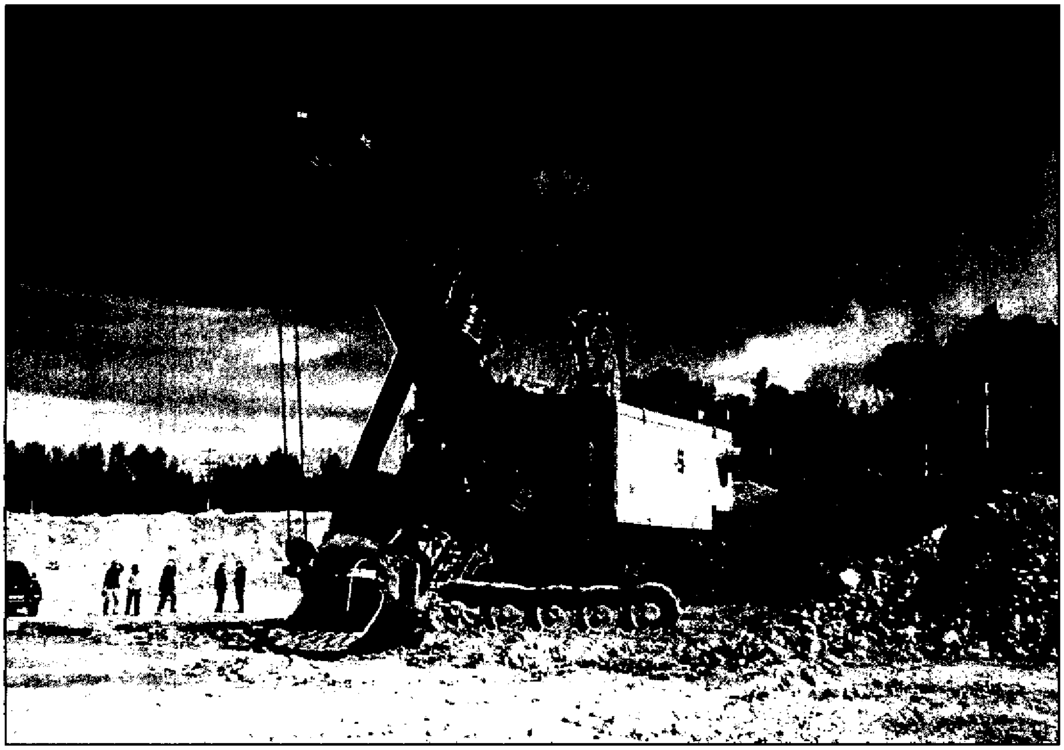


Photo 3.5: EKG-5A Electric Rope Shovel in Yuzhnaya Open Pit

WAI Comment: The mining equipment fleet currently in place and planned for Pioneer is modern and well maintained. The EKG rope shovels are reliable and cost effective, if not the most efficient earth movers, such as the high performance Liebherr hydraulic shovels. The Caterpillar 777F trucks are well suited to this type of operation and are a good match with the Liebherr shovels. A preventative maintenance programme and workshop facilities similar to those in place at Pokrovskiy have been implemented at Pioneer and a GPS dispatch system is due to be installed, meaning the fleet and staff should be capable of delivering a good efficient mining operation.

3.5.4 Mining Infrastructure

The majority of the mining infrastructure at Pioneer, including power lines, haul roads and maintenance facilities, have been completed and are operational. Overburden has been removed and continues to be removed from all four pits. Extensive test mining has taken place at Bakhmut (Photo 3.6) and production has commenced at Andreevskaya (Photo 3.7), Promezhutochnaya and Yuzhnaya.

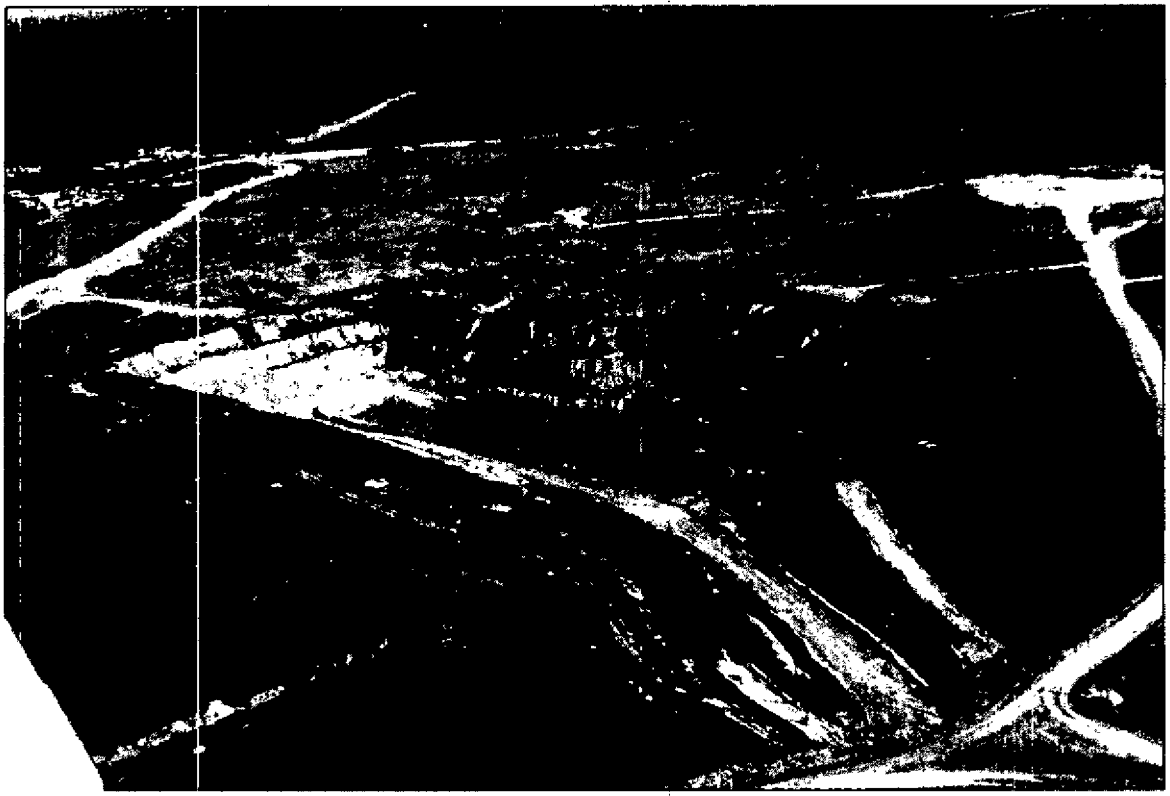


Photo 3.6: Aerial View of Bakhmut Ore Zone Test Mining

Photo 3.7: General View of Mining Operations at Andreevskaya Pit

General infrastructure, including the staff accommodation camps, canteens and mine offices are nearing completion. The mill building, heap leaching facilities and tailings dam are all completed, commissioned and operating in terms of 1.1Mtpa production capacity, but the expansion to handle 3.7Mtpa is underway.

3.6 Mineral Processing

3.6.1 Introduction

The orebodies at Pioneer have been subjected to several detailed metallurgical test programmes. There are three different ore type categories within the deposits, namely Oxide, Transition (Mixed) and Primary.

The majority of the Oxide ores at Pioneer are clay-rich, which renders them difficult to process directly, either by heap leaching or RIP technologies. Heap leaching of these ores would require significant cement additions during agglomeration. The presence of clay would also cause severe handling problems during crushing, ahead of the RIP cyanide leach process.

Consequently, PHM uses a novel processing method which involves disaggregating ores in a SAG mill to break down the clay minerals, followed by a size separation. The coarser material is heap-leached using a disposable pad system and the finer material is subjected to standard RIP processing. This processing method will only be used during the summer months. During the winter months the higher grade ores will be treated only through a RIP plant.

Three processing modules are planned at Pioneer and will be constructed over a three year period. The first module was under construction in the first WAI site visit in September 2007. The plant was operational by the second WAI site visit in July 2008 and the first gold had been produced in June. The first module has a capacity of some 0.8Mt in the summer period using the hybrid heap leach and agitation leach method. In the winter months, the unit will be capable of treating 50ktpm of high grade ore from Andreevskaya, giving a total plant throughput of 1.1Mtpa.

The other two modules will each treat 2.0Mtpa and construction of the second module was underway in July 2008.

The ores treated will be a combination of high grade material from Andreevskaya – which will be treated by grinding and agitation leaching – and low grade ores from Bakmut, Promezhutocheyna and Yuzhnaya, using the combination of heap and agitation leaching.

The second two modules will each treat 2Mt during the summer months, treating the low grade ores using the hybrid heap and agitation RIP leach process and a further 0.5Mt when treating only the higher grade Oxide ores during the winter months.

After five years, the second and third modules will be converted to treat the Transition and Primary ores. This will involve the addition of a second mill in each module, a flotation plant and a pressure oxidation plant.

3.6.2 Laboratory Testwork

3.6.2.1 Introduction

Several programmes of laboratory testwork have been undertaken at various Institutes, including the Tula Scientific Research and Geological Enterprise "TulNIGP", the Federal State Unitary Enterprise "VNIIHT", "Ekonat" Limited Company (Moscow) and Irgiredmet. Detailed programmes of testwork were undertaken on samples representing Oxide ores (low and high grade), Transition Zone ore and Primary ore. The samples tested were derived from both trenching and diamond drilling of the Southern, Bahmut, Andreevska and Apophysis ore bodies.

Between 2002 and 2008, a total of 20 metallurgical samples were studied and two of them (UL-1T and No. 5198T) were evaluated through industrial trials.

In addition, 400 geological samples were studied at Pokrovskiy as part of a "processing mapping exercise" of the deposit, with external quality control analyses undertaken by Irgiredmet.

The samples were subjected to a range of testwork, including cyanidation tests, gravity and flotation testing. Roasting and pressure oxidation tests were also undertaken on flotation concentrates.

The Pioneer metallurgical laboratory test results are summarised in Table 3.18.

Table 3.18: Pioneer Ore Metallurgical Testwork Summary

Ore Types	Oxide									Primary						Mixed	
	Low-Grade						High-Grade					Low-Grade					
Sample Code	**TP-1**	**TP-3**	**R16T**	**5067T**	**R18T**	**UL-1T**	**KR-24T**	**UL-6**	**UL-5**	**507T**	**UL-4**	**TP-2**	**59-T**	**5159T**	**Y UL-3 B P**	**5038T**	**5196T**	**5198T**
Done by	Tula				Ingiredmet		Tula	Ingiredmet				Tula	Ingiredmet			Ingiredmet		
Year	2002		2006		2006		2004	2008		2007	2008	2002	2007		2008	2006	2007	
Sampling Method	CORE	CHANNEL		CORE	CHANNEL					CORE								
Ore Zone	Promezhut	Bakhm	Yuzhnaya		Yuzh	All 3 (Y+B+P)	Apophiza	Andreyevskaya		Andreyevskaya		Prom	Bakh	Prom	All 3 (Y+B+P)	Prom	Yuzh	
Sampling Horizon (m)	10-21			30-77						58-89	52-176	22-40 79-99	22-99	53-104	20-250	36-64	143-226	99-229
Weight (kg)	52	200	381	300	366	5,000 or 400t	725	225	2,000	280	1,216	173	97	184	10,058	270	578	1,300
Oxidation Degree (%)	-	-	97.6	87.5	98.4	98.0	98.0	98.0	97.7	22.0	28.0	-	38	54	17 34 22 55	55	64-65	
Gold Grade (g/t)	**1.0**	**1.4**	**1.5**	**1.8**	**2.0**	**1.04**	**12.9**	**87.0** ±8	**21.6** ±2	**26** ±2	**11** ±1.5	**1.7**	**1.12**	**1.35**	**1.2** ±0.2	**3.7**	**1.0**	**0.9**
Gold Grade (g/t)	**2.8**	**2.2**	**2.8**	**3.32**	**≤5.0**	**2.8**	**11.2**	**65.6** ±6	**11** ±1.5	**65** ±6	**32** ±2.0	**4.0**	**~1.5**	**~1.5**	**2.2**	**9.3**	**<1.0**	**<1.0**
Sulphides (%)	≤ 0.1	≤ 0.1	≤ 0.1	0.7	0.1	≤ 1.0	0.5	0.15	0.13	3.8	4.0	≥ 1.0	2.6	1.8	2.0	2.2	1.7	1.8
Gold Class	700-750	850-870	800	769-879	770-880	820-850	-	903-964		870-915		700-750	-	-	-	769-879	-	-

Table 3.18: Pioneer Ore Metallurgical Testwork Summary (cont'd)
Forms of Gold Occurrence in the Sample (Rational Analysis Results), %

Ore Types	Oxide									Primary						Mixed		
	Low-Grade						High-Grade					Low-Grade						
Sample Code	**TP-1**	**TP-3**	**R16T**	**5067T**	**R18T**	**UL-1T**	**KR-24T**	**UL-6**	**UL-5**	**507T**	**UL-4**	**TP-2**	**59-T**	**5159T**	**UL-3** Y B P	**5038T**	**5196T**	**5198T**
Liberated	14.0	4.3	11.4	33.3	6.8	21.0	72.0	69.7	41.7	58.7	46.4	8.8	14.5	14.7	11.3	40.6	32.3	23.8
Intergrown	66.0	81.4	82.2	56.4	84.1	68.4	23.3	27.8	56.4	36.3	48.2	20.6	12.5	11.8	18.9	31.9	25.7	26.7
Total Leachable	80.0	85.7	93.6	89.7	90.9	89.4	95.3	97.5	98.1	95.0	95.1	29.4	27.0	26.5	30.2	72.5	58.0	50.5
Acid Dissoluble	-	-	-	-	3.6	7.9	1.8	0.9	0.9	2.5	1.6	58.8	22.9	29.4	21.7	5.6	7.7	11.4
In Sulphides	-	-	-	5.2	2.3	0.9	1.5	0.3	0.3	1.8	2.0		32.3	34.6	38.7	20.3	32.0	35.2
Fine Gold in Quartz	20	14.3	6.4	5.1	3.2	1.8	1.4	1.3	0.7	0.7	1.3	11.8	17.8	9.5	9.4	1.6	2.3	2.9
Total Refractory	**20.0**	**14.3**	**6.4**	**10.3**	**9.1**	**10.6**	**4.7**	**2.5**	**1.9**	**5.0**	**4.9**	**70.6**	**73.0**	**73.5**	**69.8**	**27.5**	**42.0**	**49.5**
Average Refractory to Leaching	**11.8**						**3.0**			**4.95**		**71.8**				**39.7**		
Physical Properties of the Samples																		
Density (t/m^3)	2.64	2.45	2.59	2.6	2.53	2.53	2.6	2.55	2.38	2.64	2.5	3.06	2.76	2.61	2.68	2.72	2.67	-
Bulk Weight (t/m^3)	1.44	1.4	1.36	1.2	1.35	1.35	1.2	1.39	1.38	1.74	1.53	1.48	1.25	1.53	1.47	1.48	1.25	-
Porosity	-	-	0.55	0.53	0.47	0.47	-	0.45	0.42	0.40	0.39	-	0.55	0.41	-	0.46	0.50	0.48
Protodyakonov's Scale Hardness	3 – 3.5					4.6	-	3.0	4.0	3.5	9.0	-	-	-	11 7 8 13	6	12	-
Bond Millability (kW – h/t)	10.9 – 13.2					-	-	11.2	14.3	15.0	23.3	-	18.0	18.4	20 14 21 17	19.5	20.8	20.1
Bond Crushability (kW – h/t)	-					-	-	8.1	8.9	-	10.1	-	-	-	8 6 7 9	-	-	-

Table 3.18: Pioneer Ore Metallurgical Testwork Summary (cont'd)

Technological Ore Types	Leachable											Refractory to Leaching						
	Low-Grade Oxide						High-Grade Oxide			High-Grade Primary		Low-Grade Primary				Low-Grade Mixed		
Sample Code	TP-1	TP-3	R16T	5067T	R18T	UL-1T	KR-24T	UL-6	UL-5	507T	UL-4	TP-2	59-T	5159T	UL-3 YBP	5038T	5196T	5198T
Au g/t	1.0	1.4	1.5	1.8	2.0	1.04	12.9	21.6 ±2	87.0 ±8	26 ±2	11 ±1.5	1.7	1.12	1.35	1.2 ±0.2	3.7	1.0	0.9
Sorption Leaching in Standard Conditions (Agitation)																		
Recovery to solution (%)	81.8	86.1	87.5	88.1	93.3	90.0	97.5	94-96	84.0	95.0	90-91	30.0	44.4	23.4	33.6	58.7	-	49.5
Mean Recovery (%)	**87.6**						**95.0**			**93.0**		**32.8**				**54.1**		
Heap Leaching at -20mm (Percolation)																		
Recovery to solution (%)	82.5	82.8	84.4	87.9	82.7	75.7	-	-	-	-	-	21.7	-	-	-	-	-	-
Mean Recovery (%)	**82.7**																	
Gravity																		
Concentrate Yield (%)	0.4	0.9	1.3	0.6	1.0	1.0	3.8	0.9	2.6	1.7	1.4	1.07	2.5	2.41	-	2.7	1.06	0.95
Gold Grade (g/t)	26.8	30.0	23.7	87.0	36.4	20.8	211	848	2341	1024	310	26.5	22.5	32.8	-	95.8	41.4	60.3
Gold Recovery (%)	9.7	18.6	18.4	26.9	19.0	20.0	75.0	40.4	67.7	65.1	50.0	16.5	48.7	57.5	-	70.0	41.9	53.7
Mean Recovery (%)	**18.8**						**61.0**			**57.6**		**40.9**				**55.2**		
Flotation																		
Concentrate Yield (%)	-	-	6.5	7.1	16.4	3.83	10.3	-	-	14.0	-	-	4.1	2.96	3.1	4.75	2.15	2.3
Gold Grade (g/t)	-	-	15.1	17.2	5.0	16.0	105	-	-	164	-	-	23.7	44.2	29.6	68.3	42.5	35.0
Gold Recovery (%)	-	-	60.0	59.4	40.7	59.0	84.0	-	-	86.8	-	-	88.6	95.7	85.2	91.9	91.2	89.7
Mean Recovery (%)	**54.8**						**84.0**			**86.8**		**89.8**				**90.9**		

Table 3.18: Pioneer Ore Metallurgical Testwork Summary (cont'd)
Separate Processing of HL +Sorption Leaching according to the Sand-Pulp Process Flow Chart (-0.3mm size)

Technological Ore Types	Leachable											Refractory to Leaching						
	Low-Grade Oxides						High-Grade Oxides			High-Grade Primaries		Low-Grade Primaries				Low-Grade Mixed		
Sample Code	TP-1	TP-3	R16T	5067T	R18T	UL-1T	KR-24T	UL-6	UL-5	507T	UL-4	TP-2	59-T	5159T	UL-3	5038T	5196T	5198T
Sands (-20+0.3mm)																		
γ %	-	-	54.9	81.4	66.5	40.0												
ε Ore %	-	-	49.8	73.6	61.3	15.0												
ε Circuit %	-	-	82.4	88.7	86.2	70.0												
Pulp (-0.3mm)																		
γ %	-	-	45.1	18.6	33.5	60.0												
ε Ore %	-	-	33.9	15.1	26.3	65.0												
ε Circuit %	-	-	85.7	88.9	91.6	86.7												
Ore																		
γ %	-	-	100	100	100	100												
ε %	-	-	83.7	88.7	87.6	80.0												
Mean Recovery %			85.0				Processing of the Concentrates											
							Leaching of gravity concentrates & gravity tailings					Leaching of the Flotation Concentrates						
Gold Recovery to the Solution %								98.8 96.0	78.2 93.2	98.2 92.0	94.5 77.8	-	22.6	31.8	30.3	58.2	50.8	59.6
Average Gold Recovery %												28.2				56.2		
												Roasting & Leaching of the Flotation Concentrates						
Gold Recovery to the Solution %													82.5 – 85.9				83.3	
												Bio-Oxidation & Leaching of the Fl. Conc.						
Gold Recovery to the Solution %																	70.3	
												Pressure Ox & Leaching of the Fl. Conc.						
Gold Recovery to the Solution %															97		92 - 98	
Total Recovery of the Combined Flow Charts %								97.0	84.3	96.0	88-90				82.6		88.6	86.7

3.6.2.2 Oxide Ore Test Results

(i) Cyanidation Response of the Ore Types

Rational analysis of the Pioneer Oxide ores indicated that they were generally amenable to cyanidation with, on average, 87.7% of the gold being cyanide soluble after fine grinding. The most refractory of the ore types investigated was a core sample from the Intermediate Zone, which gave a leach recovery figure of 81.5%. The highest cyanide recoveries, at 95-97%, were obtained with the high grade samples from the Apopophis and Andreevskaya Zones.

The Transition Zone ores responded poorly to cyanidation, with average cyanide recoveries of 64.8% being achieved. Samples were tested from the Intermediate, Bahmut and Southern Zones.

The Primary Ores also gave low recoveries by cyanidation, with an average recovery of 32.6% being achieved with samples from the Intermediate and Bahmut ore bodies.

At a crush size of 20mm, leach recoveries of 82.6% were achieved for the low grade oxide samples from the Intermediate, Bakhmut, Southern and Apophys ore bodies.

Low Grade samples from the Southern Zone were screened at 0.3mm and the products subjected the cyanidation tests. Gold distributions to the coarse fraction were variable, ranging from 81.4% to 40%. Gold recoveries from the -20+0.3mm fractions ranged from 70.0% to 87.6%.

Overall gold leach recoveries from the two size ranges averaged 85%.

(ii) Gravity Processing

The average gravity gold recoveries obtained from the low-grade and high-grade oxide ores were 18.8% and 72.0% respectively. The concentrates from the high-grade samples assayed between 211 and 1,024g/t Au.

The Transition Zone ores gave a gravity gold recovery of 54.5% and the Primary ores gave a recovery of 40.9%.

With the exception of the high-grade oxide ores, the proportion of gravity recoverable gold was generally low and this method was not considered further.

(iii) Flotation

Flotation tests were conducted at a grind size of 80% passing 71 microns. Flotation recoveries from the oxide ores averaged 64.4%, with the better recoveries being achieved with the high-grade ores.

Flotation recoveries from the Transition Zone material averaged 89.2%, with concentrate grades ranging from 29.0 to 68.3g/t Au.

Primary ores from the Bakhmut and Intermediate ore bodies responded well to flotation, with an average recovery of 92.2% being achieved to a concentrate assaying 23.7 to 44.2g/t Au. Flotation weight recoveries ranged from 3.0% to 4.1%.

3.6.2.3 Pressure Oxidation Tests

A limited number of Pressure Oxidation tests were undertaken on samples of Pioneer flotation concentrates. After the pressure oxidation stage, leach recoveries on the Transition Zone flotation concentrates were 92-98% and leach recoveries on the Primary ore concentrates averaged 97%.

3.6.2.4 Pilot Testing of Pioneer Oxide Ore through the Pokrovskiy Plant

A Plant Trial was conducted on Pioneer Oxide ore sample No UL-1-T, weighing 400t in March of 2007. The sample originated from the Bakhmut, Promejutochnaya and Yuzhanya ore zones (265-347m) and was regarded as being typical of Pioneer oxide ores.

The main objectives of the tests were to define and to clarify the disaggregation performance of oxide ore and to investigate the classification and washing of the products. Leach tests were also undertaken on the plant products.

Metallurgical studies on a duplicate sample weighing 5t were also carried out at Irgiredmet in the first quarter of 2007.

Rational analysis indicated that the major part of gold (89.4%) was recoverable by direct cyanidation. The proportion of free gold (recoverable by amalgamation) was 21.0% and 68.4% was present as locked particles.

The ore disaggregation was carried out using the SAG Mill (5.5×1.8m) in Grinding Line No.3 at Pokrovskiy, operating in open circuit with a spiral classifier. The ball loading consisted of 15t (8% of mill volume) of 100mm and 80mm steel balls.

A modified discharge grate, with 10mm slots, was set up in the mill prior to the test. The area of slots covered is 16% of the total area of grate and is shown in Photo 3.8 below.

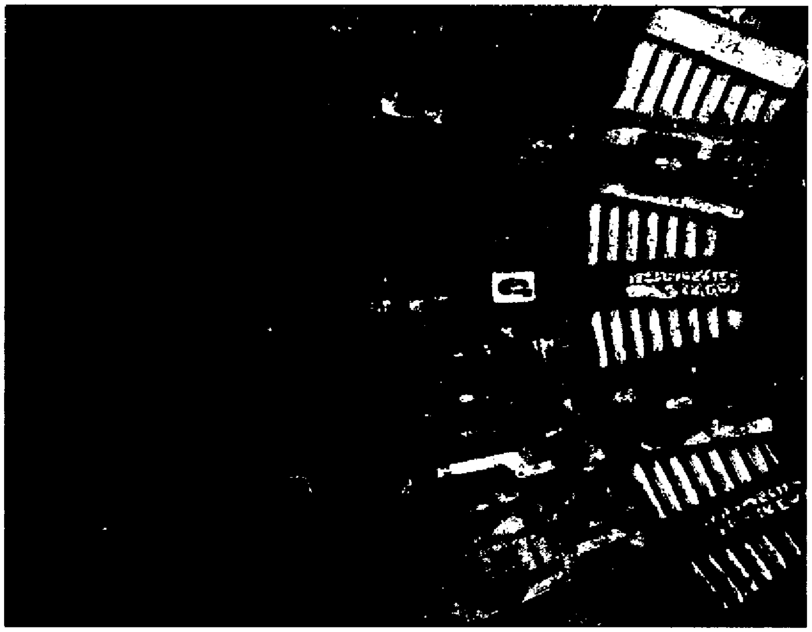


Photo 3.8: Modified SAG Mill Discharge Grate

After disaggregation, the slurry passed to a spiral classifier. The spiral sands were pumped to a second classifier and the first spiral overflow was pumped to a hydrocyclone. The hydrocyclone overflow passed to a thickener and the underflow was pumped to the second spiral. The second spiral sands product was the final deslimed product.

A total of 229t of ore was processed, at an average milling rate of 65t/h. The power consumption of the "Kaskad" mill ranged from 350-400kW.

The following conclusions were drawn from the trial:

- The Pioneer ore could be effectively disaggregated in the "Kaskad" SAG Mill when operating in open circuit;
- The throughput of the MMC 50 x 18 mill was estimated at 200t/h; and
- The yield to the coarse fraction, which goes to heap leach, is 40-50% and can be adjusted by the ball loading and the size of apertures in the discharge grate. The size distribution of the washed sand is suitable for stacking to heights greater than 10m for heap leaching.

Leach tests undertaken on the "sands" and "fines" products gave leach recoveries of 79% and 85% respectively.

In general, the results of the Trial confirmed previous studies undertaken at Irgiredmet and TulNIGP.

3.6.3 Pioneer Flowsheet Description – Module 1

3.6.3.1 Introduction

The first of the Pioneer processing modules had been commissioned during the WAI site visit in July 2008. A photograph of the first Pioneer module is given as Photo 3.9.

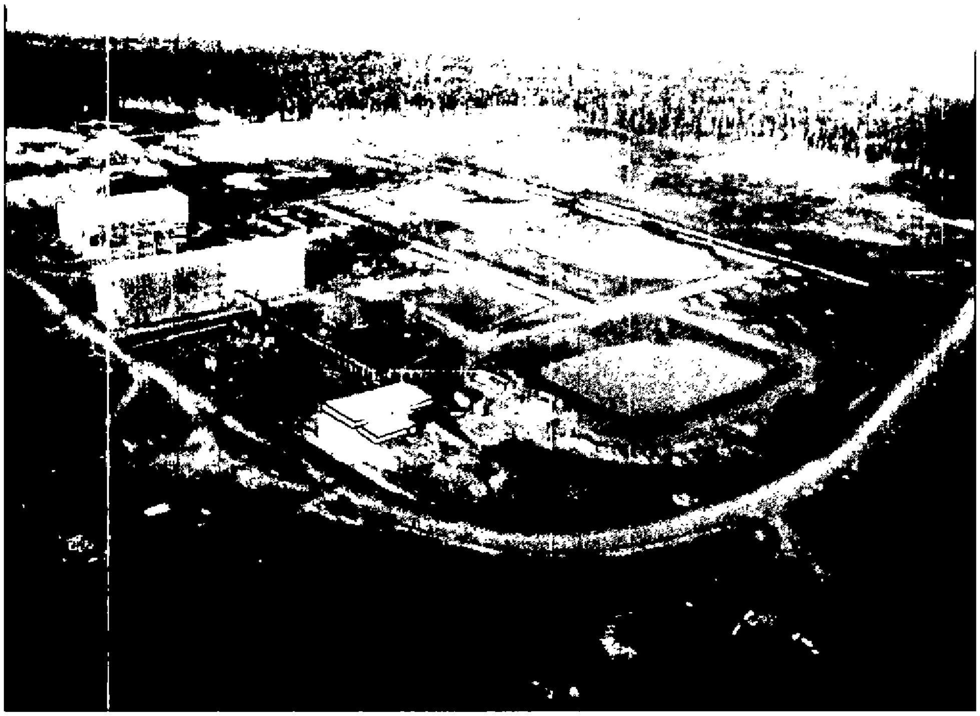


Photo 3.9: Pioneer Plant Module 1 (July 2008)

3.6.3.2 Feed Preparation and Grinding

Ore is trucked to a stockpile area and fed into a feed hopper using a front end loader. Ore is reclaimed via an apron feeder and is fed into a jaw crusher. The crushed material is conveyed to a 5.5 x 1.8m SAG mill fitted with a 16mm grate discharge. In the SAG mill, the ore is disaggregated and the product is pumped to 500mm cyclones. The cyclone overflows pass to a 24m thickener and the thickened underflows are pumped to the RIP plant. Water is returned to the SAG Mill.

Cyanide is added to the SAG mill, so that gold leaching takes place in the grinding and classification circuits.

The cyclone underflow gravitates to a spiral classifier and the classifier sands pass to a second spiral classifier. The sands product from the second classifier is the final deslimed product for heap leaching. This product gravitates via a dewatering screen onto an overland conveyor and is then transported, via a series of "grasshopper" mobile conveyor units and a stacker, to the heap leach area.

During the winter months, when the heap leach is not operational, two 3.2 x 5.4m ball mills will be used for RIP processing of high grade oxide ore.

3.6.3.3 Sorption Modules

Sorption Module No 1 is designed for RIP processing of Oxide and Primary ores. It is housed in a 60x18m building, with two pachucas for preliminary cyanidation and 10 pachucas for cyanidation (6m diameter and 10.8m height). Pulp is delivered from the grinding section via trash screens to the preliminary leach pachucas and then to sorption-cyanidation. Tailings gravitate to two circular screens level where resin is recovered. In the tailings sump, formaldehyde is added to neutralise cyanide and the slurry is pumped to the tailings storage area. The loaded resin is washed and passes over a shaking table to remove sands.

Six 15m^3 columns will be used for stripping resin loaded with gold. One column is used to wash silt, one is used for adsorbing gold from recycle streams, three columns are used for gold desorption and one column is used for cyanide removal.

The stripped solution passes to five 1m^3 electrolytic cells, each housing 24 cathodes and 24 anodes. The total cathode area is 40m^2. The barren solution from electrolysis is pumped to the grinding circuit. The gold concentrate is filtered, dried and smelted at Pokrovskiy.

Two 250kW boilers are installed to heat the stripped solutions.

A second desorption system is planned to treat the POX concentrates from the treatment of the Primary ores and the high grade Andreevskaya ore. The two leach pachucas will be re-equipped as sorption pachucas (sorption cyanidation) and further sorption-leach pachucas added.

3.6.3.4 Control Room

The Pioneer Plant control room is used to monitor the feed rate to the plant, pulp pH and Eh, water flows and cyclone pressures.

3.6.3.5 Compressor Room

Two Shtorm 4200 screw compressors will be used during start up and three oil-free ZA6 screw compressors will be used during full production.

3.6.3.6 Sodium Cyanide Store

There will only be limited storage of sodium cyanide on site. Sea containers will be delivered from Pokrovsky or from Tygda and kept on a concreted area. At full production, the consumption of sodium cyanide will be 7.7t/d and one shipping container of sodium cyanide will last for two days. Four containers will be set up on site to allow for 8-10 days reserves. Cyanide will be added to the process as a 10% solution.

3.6.4 Heap Leaching

The first pad area, measuring 250 x 150m, was being stacked during the WAI site visit in July 2008. A second pad area was also being prepared.

The heap leach area has been built on an area of clay and therefore only a 0.5mm layer of plastic is used as a liner, with 10cm of fine gravel. Liquors from the heap gravitate to a pregnant liquor pond, from where they are pumped via a storage tank to the grinding section in the RIP plant.

The heap is being stacked to a height of 10m for the first lift and two further lifts are planned to give a final height of 30m.

The stacking of the Pioneer Heap Leach Pad is shown in Photo 3.10.

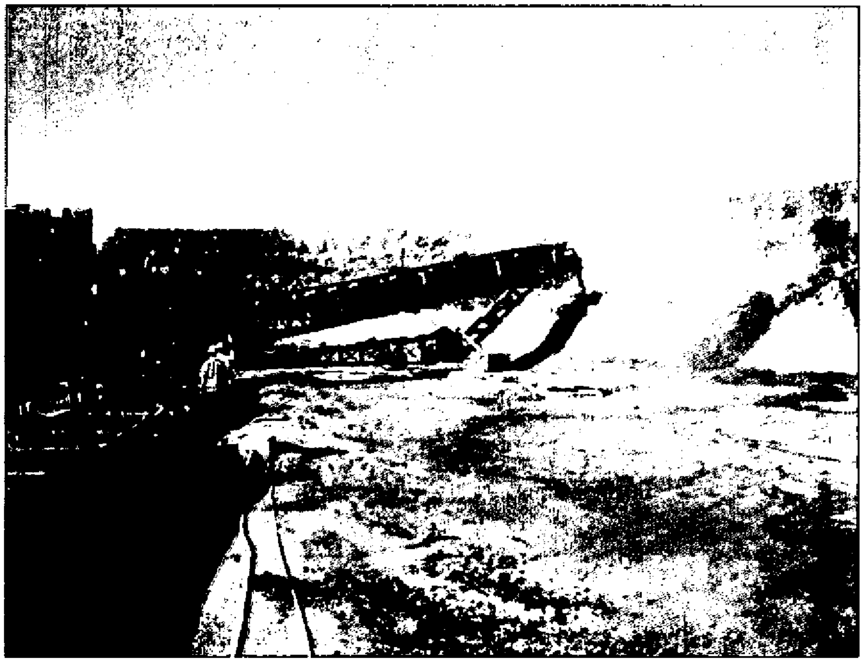


Photo 3.10: Stacking of Pioneer Heap Leach

3.6.4.1 Pioneer Plant Production Data

Production data was available only for the months of May and June 2008 as the plant had only recently been commissioned. The production data is summarised in Table 3.19.

Table 3.19: Pioneer Plant Production Data

	May	June	1H
Total Pioneer Plant			
Ore (tonnes)	35,585	58,158	93,743
Grade (g/t Au)	1.74	3.01	2.53
Including:			
Heap Leach			
Ore (tonnes)	*18,599*	*24,481*	*43,080*
Grade (g/t Au)	*1.64*	*3.91*	*2.93*
RIP Plant			
Ore (Tonnes)	*16,986*	*33,677*	*50,663*
Grade (g/t Au)	*1.84*	*2.36*	*2.19*

Gold production was reported to be 20.18kg for the period. Recovery calculations are not appropriate as the plant is still in the early stages of production.

3.6.5 *Grinding Capacity Expansion – Modules 2 and 3*

3.6.5.1 General

Modules 2 and 3 will be constructed to each treat 2Mtpa of ore in the summer months using the combination of Heap Leach and RIP agitation leaching. During the winter months only, the RIP circuits will be used to treat 100ktpm of high grade oxide ore.

The final design of these modules may be modified, as experience is gained with the operation of Module 1.

3.6.5.2 Crushing and Grinding

It is planned that two 1,200 x 1,500mm jaw crushers will be required to crush the ore to pass 300mm.

Modules 2 and 3 will be housed in a 120 x 24m building. Each module will consist of a 7.2 x 2.5m SAG mill and a 4.0 x 6.0m ball mill, together with classification equipment, sumps and pumps.

In the summer months, Autogenous milling will be used to produce a sands product - which goes to heap leaching – and a hydrocyclone overflow product that will pass to RIP after thickening. Thickener overflows containing gold in solution are pumped to the heap leach plant. The ball mills will not be used.

In winter time, ore processing is undertaken using RIP technology only. After SAG milling, the classifier will be used in close-circuit with the ball mill, with the classifier sands being returned to the mill. Classifier overflows are pumped to cyclones and underflows are returned to the ball mill, which in turn discharges to the classifier. Cyclone overflows are thickened. The thickener overflows are pumped to the grinding section and the underflows to the RIP plant.

One additional 4.0 x 6.0m ball mill with two cyclones and pump equipment will be installed at each of grinding module, when processing primary ore.

3.6.6 *Primary Ore Processing*

3.6.6.1 General

The Pioneer Primary ore is refractory with significant levels of gold being associated with sulphide minerals. These minerals will need to be oxidised before the gold can be recovered by cyanidation. The plants (Modules 2 and 3) will be operated in both summer and winter seasons.

3.6.6.2 Grinding and Flotation

As described earlier, additional milling equipment will be added to the grinding circuits of Modules 2 and 3 to enable 2Mtpa of ore to be ground to a size of 100% passing 0.2mm.

A flotation plant will be built consisting of rougher and cleaning stages. The flotation plant will be designed to recover a sulphide concentrate from the refractory ores for cyanidation and will be housed in a 120 x 24m building. Two flotation lines will be installed. Each line will include one bank of six cells for rougher flotation and one bank of eight cells for scavenger flotation, together with associated conditioners and pumps. The concentrates will be cleaned once.

The final concentrates will be pumped to a thickener block and the flotation tailings to a tailings dam. Recycled water is pumped back to the grinding circuit. Flotation reagents are mixed and fed as solutions via dosing pumps. Four blowers are envisaged to provide low pressure air to the flotation machines. A 10t overhead crane will be installed for maintenance purposes.

3.6.7 Pressure Oxidation

3.6.7.1 General

The flotation concentrates will be oxidised using Pressure Oxidation (POX). This will involve the construction of an Oxygen Plant, which will probably be a cryogenic type, which will supply oxygen to an autoclave operating at high pressure and temperature.

3.6.7.2 Oxygen Plant

An Oxygen Plant will be installed to provide an oxygen-air mixture (oxygen content 80%) to the autoclave leaching at a rate of 10,000m^3 per hour. It is envisaged that the Oxygen Plant will consists of two "Linde" units with a production rate for each unit of 5,000m^3/hour of 93.0% oxygen.

3.6.7.3 Autoclave Leaching

The Autoclave Plant will be designed to oxidize the sulfide flotation concentrates, produced from Primary and Mixed ores. Two autoclave units will be set up in the plant. Each unit will have a capacity of 65.3m^3 and will be fitted with two 12m^3 evaporators. Two pumps will be used to provide cooling water. The acidified pulp is cooled in two stages from 200°C to 90-

100°C after which it is thickened and washed to remove acid prior to cyanidation. The pulp will be cooled to 40°C in the thickener plant using wash water.

3.6.8 Tailings Management Facility (TMF)

The TMF facilities will consist of two storage dams, No.1 and No.2.

Tailings Dam No 1 is designed for storage of leach tailings for the whole period of operation. In the first phase of development, when oxide ore is processed, tailings from sorption plants No.1 and No.2 will be pumped to this dam. When the primary ore is processed, only tailings from sorption plant No. 1 will be pumped to the dam. The total amount of stored tailings will amount to approximately 16Mt.

Tailings Dam No.2 will be used in the sixth year of operation when Primary ore is processed. Flotation tailings and the pulps from the POX neutralisation process will be pumped to this dam. Recycle water will be returned to the grinding circuit and the POX plant to wash acidic residues. The Dam's capacity will be five years and the amount of tailings stored will be approximately 22Mt.

3.6.9 Design Criteria

The main design criteria for the treatment of Oxide and Primary ores are given in Table 3.20 and Table 3.21.

Table 3.20: Design Criteria, Pioneer Oxide Ores – Maximum Throughput		
Description	**Unit**	**Value**
Ore treated	kt/year	6,100
Average Au grade		
Low grade Oxide ore	g/t	0.8
High grade Oxide ore	g/t	13.6
Recovery of Au to finished production		
Low grade Oxide ore Summer	%	70
Low grade Oxide ore Winter	%	80
High grade Oxide ore	%	93
Total production of gold	kg	7,122.4
Consumption of materials and reagents:		
Sodium cyanide	kg/t ore	0.48
Caustic soda	kg/t ore	0.2
Anionite "PiroGold"	kg/t ore	0.024
Paraformaldehyde	kg/t ore	0.1
Balls	kg/t ore	0.7
Lining	kg/t ore	0.095
Conveyor belt	m^2/t ore	0.003
Miscellaneous, 5%		
One time loading of resin "PuroGold"	T	200
Power	kWh/tonne ore	14.0
Fresh process water	m^3/t ore	0.1
Operating regime:		
Number of working hours per year	Hour	8,000
Number of shifts	Shift	2
Shift's duration	Hour	12

Table 3.21: Design Criteria, Pioneer Primary Ores – Maximum Throughput		
Description	**Unit**	**Value**
Ore treated	kt/year	5,500
Average Au grade		
Primary ore	g/t	1.5
High grade oxide ore	g/t	4.8
Recovery of Au to finished production		
Primary ore	%	86.0
High grade oxide ore	%	92.0
Total production of gold	kg	8,658
Consumption of material and reagents:		
Sodium cyanide	kg/t ore	0.2
Caustic soda	kg/t ore	0.15
Resin	kg/t ore	0.02
Paraformaldehyde	kg/t ore	0.015
Limestone	kg/t ore	30
Flocculants	kg/t ore	0.012
Potassium xanthate	kg/t ore	0.14
Frother	kg/t ore	0.09
Balls	kg/t ore	2.7
Liner	kg/t ore	0.3
Conveyor belt	m^2/t ore	0.003
Miscellaneous, 5%		
One time loading of resin "PuroGold"	T	60
Power	kWh/t ore	45.0
Fresh process water	m^3/t ore	0.1
Operating regime:		
Number of working hours per year	Hour	8,000
Number of shifts	Shift	2
Shift's duration	Hour	12

3.6.10 Management and Labour Structure

The numbers of employees during the first stage, when only Oxide ore is processed, and in the second stage, when primary and high grade ores are processed, are given in Table 3.22.

Table 3.22: Pioneer Processing Management and Labour							
Position	**Category**	**Oxide Ore**			**Primary +Oxidised Ore**		
		1 Shift	**2 Shift**	**Day**	**1 Shift**	**2 Shift**	**Day**
Administration							
Plant Director	Manager	1	-	1	1	-	1
Chief Metallurgist	Manager	1	-	1	1	-	1
Chief Mechanic	Manager	1	-	1	1	-	1
Chief Power Engineer	Manager	1	-	1	1	-	1
Chief Chemist	Manager	1	-	1	1	-	1
Metallurgist	Manager	1	1	2	1	1	2
Chemist	Manager	1	1	2	1	1	2
Maintenance Engineers	Manager	1	1	2	1	1	2
Security officer	Manager	1	-	1	1	-	1
Secretary		1	-	1	1	-	1
Sub-Total		**10**	**3**	**13**	**10**	**3**	**13**
Heap Leach Area							
Head of operation area	Manager	1	-	1			
Foreman	Manager	-	1	1			
Operator of stacker	Worker	2	2	4			
Operator of pump	Worker	1	1	2			
Operator of conveyor	Worker	4	-	4			
Bulldozer driver	Worker	2	2	4			
Sub-Total		**10**	**6**	**16**			

Table 3.22: Pioneer Processing Management and Labour (cont'd)							
Position	Category	Oxide Ore			Primary +Oxidised Ore		
		1 Shift	2 Shift	Day	1 Shift	2 Shift	Day
Hydrometallurgy							
Head of hydrometallurgy operation	Manager	1	-	1	1	-	1
Shift foreman	Manager	1	1	2	1	1	2
Supervisor in repair and maintenance	Manager	1	-	1	1	-	1
Ore preparation:							
Operator of crusher	Worker	3	3	6	3	3	6
Operator of conveyor	Worker	3	3	6	3	3	6
Operator of mill	Worker	3	3	6	4	4	8
Operator of pump	Worker	1	1	2	2	2	4
Operator of crane	Worker	1	-	1	1	-	1
Sorption, regeneration, electrolysis:							
Operator of leaching and sorption	Worker	6	6	12	2	2	4
Operator for preparation of reagents	Worker	2	2	4	2	2	4
Operator of regeneration	Worker	3	3	6	1	1	2
Operator of electrolysis	Worker	1	1	2	1	1	2
Operator of compressor.	Worker	1	1	2	1	1	2
Lab assistant	Worker	4	4	8	4	4	8
Security guard	Worker	2	2	4	2	2	4
Mechanic – instrumentation/control	Worker	3	-	3	3	-	3
Power mechanic	Worker	3	3	6	3	3	6
Maintenance mechanic	Worker	3	3	6	3	3	6
Welder	Worker	3	-	3	3	-	3
Flotation:							
Shift foreman	Manager				1	1	2
Flotator	Worker				2	2	4
Regulator of flotation reagents	Worker				1	1	2
Operator of pump	Worker				1	1	2
Preparation of reagents:							
Operator of crusher	Worker				1	1	2
Operator of mill	Worker				1	1	2
Operator of pump	Worker				1	1	2
Operator – reagents	Worker				1	1	2
Operator of bucket crane	Worker				1	1	2
Autoclave leaching:							
Shift foreman	Manager				1	1	2
Operator	Worker				1	1	2
Operator of pump	Worker				2	2	4
Standby power mechanic	Worker				1	1	2
Mechanic – instrumentation/control	Worker				1	1	2
Thickening:							
Operator of thickener	Worker	1	1	2	1	1	2
Operator of pump	Worker	2	2	4	2	2	4
Oxygen station:							
Shift foreman	Manager				1	1	2
Operator of oxygen station	Worker				2	2	4
Operator of compressor	Worker				2	2	4
Sub Total		48	39	87	65	56	121
GRAND TOTAL		**68**	**48**	**116**	**75**	**59**	**134**

3.6.11 Operating Cost Estimate

3.6.11.1 Oxide Ore

PHM Operating cost predictions for the treatment of Oxide ores are given in Table 3.23.

Table 3.23: PHM Oxide Ore Operating Cost Estimates							
		Module-1		Module-2		Module-3	
		Summer	Winter	Summer	Winter	Summer	Winter
Processing volume	Unit	800	300	2000	500	2000	500
Grade	g/t	0.848	13.56	0.848	0.848	0.848	0.848
Recovery	%	70%	93%	70%	80%	70%	80%
Mill balls	kg/t	0.3	2.3	0.3	2.2	0.3	2.2
Crusher liners	kg/t	0.05	0.3	0.05	0.25	0.05	0.25
Sodium cyanide	kg/t	0.4	2.4	0.4	0.3	0.4	0.3
Lime	kg/t	1.0	3	1.0	1.5	1.0	1.5
Resin Purogold	kg/t	0.02	0.07	0.02	0.03	0.02	0.03
Polyacrylamide	kg/t	0	0.03	0	0.03	0	0.03
Caustic soda	kg/t	0.2	0.4	0.2	0.2	0.2	0.2
Paraformaldehyde	kg/t	0.1	0	0.1	0	0.1	0
Power	kW/h/t	10	45	10	25	10	25
Carbon	t/year		2,543		4,238		4,238
1 Module in operation	(US$)	4,01	13,48				
2 Modules in operation	(US$)	3,15	12,11	2,91	6,50		
3 Modules in operation	(US$)	3,01	11,80	2,77	6,18	2,75	6,13

Operating costs vary from US$2.75/t, for the summer operating schedule with three modules operating, to US$3.48/t when treating the high grade ore through a single module in the winter months. WAI believes these to be reasonable cost estimates.

3.6.11.2 Primary Ore

PHM Operating cost predictions for the treatment of Primary ores are given in Table 3.24 below.

Table 3.24: PHM Primary Ore Operating Cost Estimates				
Item	**Unit**	**Module 1***	**Module 2**	**Module 3**
Tonnes treated		600	2,500	2,500
Grade	g/t	4.80	1.47	1.47
Recovery	%	92	86	86
Mill balls	kg/t	2.3	2.7	2.7
Crusher liners	kg/t	0.3	0.3	0.3
Sodium cyanide	kg/t	0.2	0.2	0.2
Lime	kg/t	1	2.0	2.0
Limestone	kg/t	0	24	24
Resin	kg/t	0.01	0.01	0.01
Flocculant	kg/t	0.03	0.01	0.01
Caustic soda	kg/t	0.4	0.1	0.1
Potassium xanth.	kg/t	0	0.15	0.15
Frother	kg/t	0	0.1	0.1
Formaldehyde	kg/t	0.15	0.15	0.15
Power	kW/h/t	45	40	40
Carbon	t/year	1,772	7,383	7,383
Cost	US$/t	6.40	7.08	7.08
(including labour)				

**Oxide ore by RIP only*

The cost of treating sulphide ore by POX is estimated by PHM at US$7.08/t of ore. WAI considers this figure to be too low and the costs of pressure oxidation, neutralisation and cyanidation may have been underestimated. WAI recognises that POX testing of Pioneer ores is still being undertaken and based on experience predicts an Operating cost closer to US$8.25.

3.6.12 Capital Cost Estimate

The PHM process Capital Expenditure estimate for the Pioneer facility is summarised in Table 3.25 below.

Table 3.25: Pioneer Process Capital Costs – US$,000		
	Phase 1	**Phase 2**
Area	Oxide	Primary
Accommodation	1,121	
Crushing	4,009	
Milling	17,092	4,112
Thickening	8,310	
Leaching	10,392	
Services	900	
Flotation		7,265
Autoclave		11,433
Stores	49	340
Reagent Preparation		1,813
Water Supply	364	
Water treatment	193	
Heating	3,331	
Miscellaneous	2,699	2,031
TOTAL	**48,460**	**26,994**

The total process Capital Expenditure for the Pioneer project is US$75.5M with US$48.5M being allocated for treatment of the Oxide ores and US$26.99M for the Mixed/Primary ores.

WAI believes that the costs of the Autoclave plant have been underestimated but that other costs are generally reasonable. Based on experience, WAI recommends that the Capital Expenditure for the autoclave plant be increased from US$11.4M to US$25M, giving a total Capital Expenditure of US$89.02M.

3.7 Environmental Issues

3.7.1 Review of Environmental/Social Studies

A preliminary assessment of potential environmental impacts resulting from operations at Pioneer, carried out by PHM, considers the environmental impacts will be predominantly local and of a moderate level. The preliminary assessment also considers mitigation measures that will be put into place and an assessment of future pledges to achieve compliance with regard to the IFC performance standards.

Available data viewed to date indicates that air quality is good at the site, with low levels of contaminants. Surface water quality was below State registered 'background' norms, although levels of suspended solids were elevated downstream from the location of the core shed and technical facilities. The BFS for the site, including an Environmental Impact Assessment has been reviewed. Most of the potential impacts were considered amenable to mitigation. A conceptual closure plan is also included.

The technical project for the Pioneer operations has been reviewed by State expert's and public consultations have been carried out. PHM is currently finishing some amendments in response to experts comment. It was reported to WAI that PHM currently has full permits for part of the Pioneer deposit, and that technical studies for the whole site were now being completed. The expertise comment from the State Ecological Panel has been received for the smaller area, but this will also be required to extend across the whole site.

As part of the OVOS process a baseline environmental study was carried out for the Pioneer project. As part of this study, surface water samples were taken 4 times a year. Water intake points are sampled annually with potential pollution points sampled monthly. Drainage water, soils and sediments are sampled annually and air is sampled 4 times per year. Tailings decant water and piezometers in the TMF are sampled twice per month. In addition to the monitoring carried out for the baseline study, a full programme of 'operational' monitoring is also being undertaken at the site with results being sent to an accredited laboratory for analysis. PHM issues reports annually, unless the results exceed State standards, though PHM also receives interim results and carries out secondary testing to corroborate these analyses.

Scientific research is currently being undertaken by the environmental team into the use of a plant species to accumulate cyanide from the decant water in the tailings dam, and thus reduce content. This species can also hyperaccumulate gold, and trials are being undertaken regarding the potential for recovering this metal. This technique is known as phytomining. Further early stage research is being conducted into the use of bacteria to decrease heavy metal content in the TMF.

WAI Comment: It was reported to WAI that since construction of the plant, TMF and HLPs have now been completed and appropriate waste water and sewage treatment facilities have also been installed to protect surface water quality. This includes a Bio-disc cleaning system for grey water, as is in evidence at Pokrovskiy. It was reported to WAI that the suspended solids were the result of other placer companies working alluvial deposits in the vicinity of the site, and that on site monitoring every 15 days, or daily as required, enables PHM to separate its liabilities with regard to this. PHM is also working with the placer companies in response to this issue.

PHM has not yet received the official results of analyses conducted by accredited laboratories, but it was reported that the results of the first round of monitoring at Pioneer were within acceptable limits. WAI considers that the monitoring programme is appropriate, and that PHM is taking proactive and innovative steps to reduce contaminant levels in waste water and maximise gold recovery. Further recommendations regarding monitoring are included in the water management section of this MER.

3.7.2 Environmental and Social Management

Mikhail Lepanov, the Chief Environmental Engineer at Pokrovskiy, also heads the Pioneer team, but since December 2007 another environmental engineer has been based full-time at the Pioneer site, with another student and the team was augmented by a new member in August 2008. Vera Usova, PHM Environmental Manager, based in Blagoveschensk also visits the site regularly. It was reported to WAI that a section has been included in the on-site contractor's contract such that if environmental fines are imposed on PHM, due to contractor negligence, the contractor's final payment is reduced and that this included a code of practice for the contractors with reference to relevant legislative requirements.

On 30th August 2007, public hearings were carried out with community members in Tygda, regarding the Pioneer project in which 111 people took part, with the vast majority in favour.

WAI Comment: WAI considers the management structure to be good for the Pioneer site. It will be important to regularly monitor on site contractor activity to ensure that the code of practice is being adhered to. Good housekeeping, water management and environmental protection are equally important during the construction and development phases. The positive response received during the public hearings is a good indication and it will be important to ensure that a good community dialogue is maintained throughout the life of the project.

3.7.3 Review and Comment on Key Environmental and Social Issues

3.7.3.1 Environmental Status

Construction of the first stage of the Pioneer site is complete. The site is in an area of Taiga type vegetation, and had been previously mined prior to acquisition by PHM and thus can be considered as previously disturbed. A river has been diverted below the TMF, and both surface and groundwater protection measures have been put into place at the site. A TMF has been constructed, and it was reported to WAI that the base was lined by a compacted clay layer which had been drilled to 18m. It was also reported that no permafrost is present beneath the TMF. Since the September 2007 site visit the plant has started working and the HLPs and the first section of the TMF are also operational. It was reported to WAI that waste water and sewage treatment facilities have also been installed at the site.

3.7.3.2 Tailings Management

WAI understands that the TMF is designed such that any permafrost layer would rise with the filling of the tailings lagoon. The TMF is lined with compressed clay, and permeability tests on this clay were conducted in accordance with State requirements. Whilst the base of the TMF is unlined, the dam walls have been provided with an impermeable liner. This is intended to create an isolated system with piezometers fitted with temperature sondes and drainage wells at the base of the dam walls. The design of the TMF has been undertaken by PHM Engineers, who are experienced in permafrost conditions. There are boreholes downstream of the dam wall and survey points to measure dam stability have been included in addition to the piezometers. If filtration occurs in the dam this is collected and pumped back into the dam itself.

Surface water quality monitoring has been on-going in the area for 4 years, and chemical analyses downstream of the dam also assess any presence of cyanide. The TMF is separated into cross sections. In summer tails and water samples are collected and analysed and in winter ice samples are also collected and assessed. CN tests are performed every 15 days, whilst full chemical analyses, including heavy metals, are performed each month. CN species tested for include: CN, and ferrocyanide, whilst temperature and pH are also recorded. These determinands are applied to both liquid and solid samples. Ground water quality is also assessed via boreholes and sanitary protection agencies assess potable water quality.

Leachability tests for tailings material are also performed by geologists, and these data are added to the environmental database. It was reported that preliminary tests did not indicate any Acid Generating Potential in either waste rock or tailings.

WAI Comment: WAI considers that the existing monitoring programme for the TMF is well planned and comprehensive. However, it would be recommended to also add Weak Acid Dissociable (WAD) cyanide to the list of tested determinands in both surface and groundwater in the area of the TMF and the HLPs, since this is generally considered to be the best indication of cyanide toxicity in humans and animal. However this usually relates to ferrosulphate destruction and may not be representative with formaldehyde destruction, as used at PHM operations.

WAI would also advocate implementing the International Cyanide Management Code at the site as this would enable an overarching system of cyanide management and would unite various departments in the sourcing and management of cyanide at Pioneer.

3.7.3.3 Water Management

Cyanide in the TMF is neutralised using formaldehyde. It was reported that low levels of cyanide are used and few salts are produced, so the water can be recirculated back to the processing plant and HLPs. At Pioneer, extra water is also sourced from site drainage water and the open pits. This water is also used for technical needs. Since the State environmental authorities consider this to be an environmentally-sound practice, PHM's environmental tax payments are reduced to reflect this good practice.

3.7.3.4 Closure and Rehabilitation

It was reported to WAI that a detailed Mine Closure and Rehabilitation Plan (MCRP) needs to be in place 3 years prior to closure. It was also reported that PHM currently have a conceptual closure plan and outline closure budget, although this was not provided for review and comment at the time of the site visit. It was reported that, with regard to progressive rehabilitation, closure cost allocations are based on unit of product produced. For final reclamation it is planned to allocate a sum on an annual basis.

WAI Comment: WAI would recommend that the conceptual closure plan be elaborated as operations develop to accurately characterise closure requirements and identify the need for post-closure monitoring or treatment solutions. WAI would also recommend that a mine closure estimate be made to address elements of the closure plan and that this estimate should also include provision for post-closure monitoring or treatment. It would be recommended to set up this secure fund as soon as possible, so that sufficient monies can accrue. Similarly, an environmental budget to provide for all planned and unplanned environmental spending should be created.

4.0 MALOMIR

4.1 Introduction

The Malomir deposit is located in the Selemdja area of Amur region, 80km to the west of the area's capital, Ekimchan and 35km to the north of Stoyba, the closest settlement, the deposit lies some 120km to the northeast of Fevralsk railway station on the Baikal-Amur line which passes through the city of Svobodniy.

The territory is located on the southern ridges of Selemdja Mountains and is characterised by a moderate relief taiga landscape. The absolute elevations in the area are 700-971m, with local differences of between 150-200m.

The climate in the region is continental with the maximum temperature up to +37°C in July and the minimum -53°C in January. The ore field is located in an area of permafrost.

Photo 4.1: Typical Terrain around Malomir

In terms of infrastructure, there is a small airport in the village of Ekimchan that has a connection to Blagoveshchensk, whilst there is also a landing strip for small aircraft in Stoyba.

The closest settlement is Stoyba some 35km to the south on the road that connects Ekimchan with Fevralsk and Svobodniy. The railway passes through Fevralsk (Baikal-Amur) and the city of Svobodniy (Trans-Siberian Railway).

The nearest direct power supply is from a 110kV line that runs parallel to the Ekimchan – Svobodniy road.

4.2 Mineral Rights and Permitting

The Malomir Licence (No BLG14039BE) for exploration and mining of gold covers an area of 40.0km^2 and is valid from 27.04.2006 to 15.04.2030.

The co-ordinates of the licence area are given in Table 4.1 below.

Table 4.1: Co-ordinates of the Malomir Licence Area

Co-ordinate	Latitude (N)	Longitude (E)
1	53°05'35"	131°39'40"
2	53°05'25"	131°45'40"
3	53°02'15"	131°45'20"
4	53°02'25"	131°39'20"

4.3 Geology and Mineralisation

4.3.1 General

The Malomir deposit forms part of the Upper Selemdja gold area located in the Mongol-Okhotsk folded and thrust system of Palaeozoic age which is sandwiched between the Eurasian and Amur lithospheric plates.

The area is composed of metamorphosed rocks of volcanogenic-terrigenous nature of Carboniferous age. The rocks comprise quartz-feldspar-carbonaceous-mica schist, quartz-feldspar-chlorite-amphibolite, and siliceous and argillo-calcareous schists with interlayers and lenses of marbleized limestone, sandstone, quartzite and vulcanite. All of the rocks are intensively sheered and variably folded and are metamorphosed to greenschist facies.

Stratified rocks are intruded by late Palaeozoic bodies and dykes of granite, diabase, diorite porphyries, andesites and olivine basalt.

In terms of structure, low-angle overthrust faults (10-30°), and a system of approximately N-S and E-W high-angle faults are widespread. The flat-dipping tectonic zone "Diagonal" has a thickness of 100-300m and extends for more than 6km and appears to have a major ore controlling influence. This zone, which appears fairly continuous, has been traced along strike from drilling for more than 1500m and to a depth of 350m.

Overall, there are three principal orebodies within the deposit: Malomir, Ozhidayemoye and Quartzite (Figure 4.1). It is likely that they represent a single, faulted mineralised structure.

4.3.2 Local Geology

The Malomir and Ozhidayemoye mineralisation, which appear to be both related to the Diagonal Thrust Zone, are controlled by relatively flat-dipping tectonic zones seen as compression, crush and brecciation zones giving rise to entirely silicified areas (quartz metasomatites) and to veinlet silicification, often with an intensive (up to 5%) sulphide mineralisation. Breccias of quartz, sericite-quartz and quartz-adularia metasomatites are also present.

The major sulphide minerals, which total 2-3%, are represented by pyrite and arsenopyrite. There are also sulphides of nickel, cobalt, copper, lead, zinc, silver, iron, nickel arsenides, nickel, cobalt and lead sulpho-arsenides, as well as bismuthinite, magnetite, ilmenite and native gold. The size of the latter does not exceed 100-300microns.

The orebodies of the Quartzite zone are controlled by a steeply north-westerly dipping tectonic zone and were previously thought to be hosted by intensively silicified plagiogranite However, recent work by PHM has identified that the mineralisation is hosted by zones of quartz metasomatism bounded by faults and inferred sedimentary contacts with interbedded slates and phyllites.

The mineralisation seems to be generally low grade, but can be thick (averaging around 14m) and sometimes has intensive sulphide mineralisation (up to 5%). Sulphides are generally represented by pyrite. The sulphide content of the mineralisation fluctuates from single grains to 2-5%. Arsenopyrite and visible gold are rarely present in the form of single grains.

Mineralisation of the Malomir zone is of veinlet-impregnated type of gold-sulphide hosted within a black shale. Metallurgically, the mineralisation can be classed as refractory due to the gold association with sulphides.

Most of the identified orebodies are concentrated in the "Diagonal" zone with more than 94% of the resources identified therein. The remaining 6% are concentrated in the "Southern" and "Northern" zones.

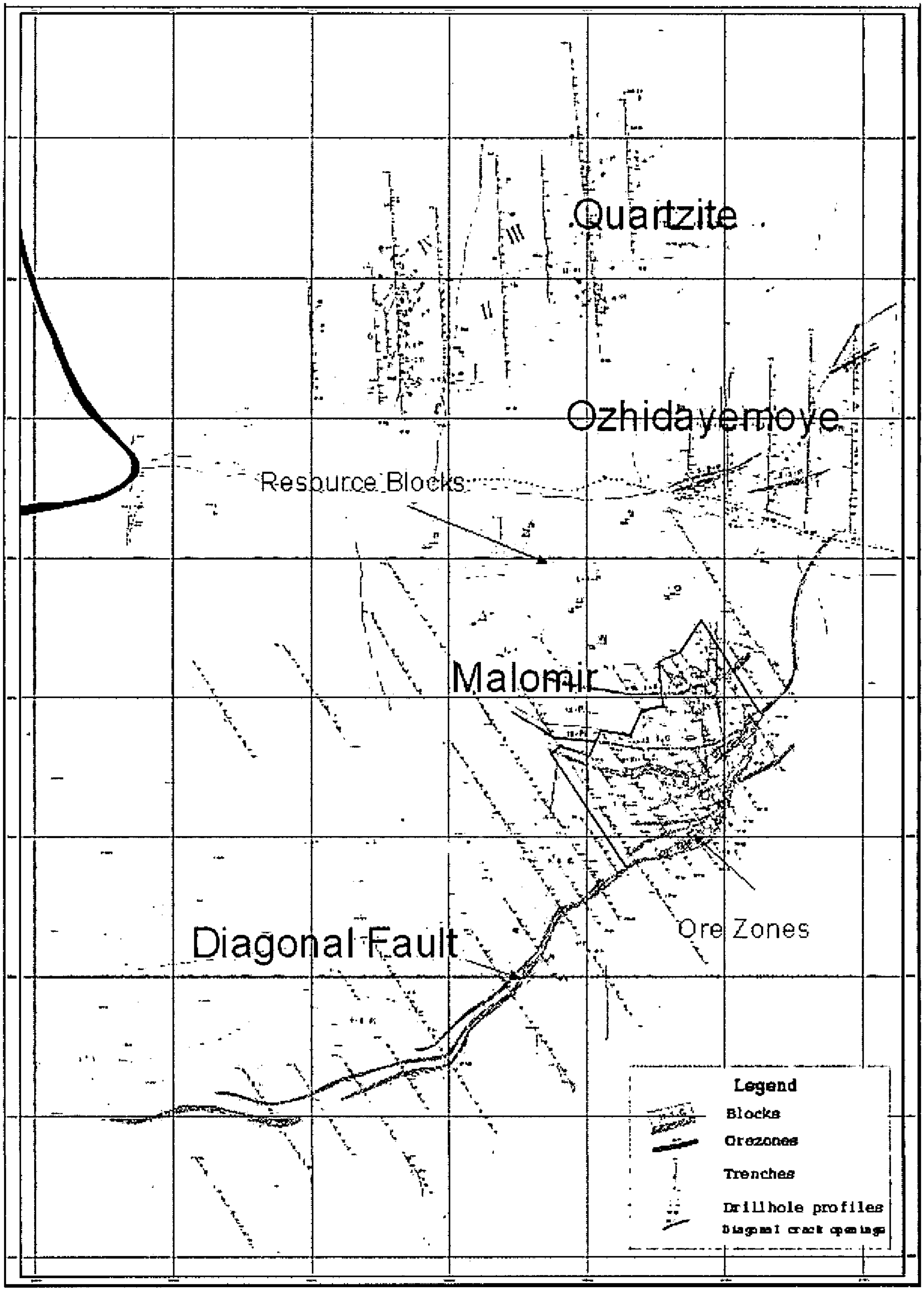


Figure 4.1: Basic Geology of the Malomir Mineralised Zones

Due to the nature of mineralisation, deposit boundaries can only be properly identified by analysis, although limonitic alteration does serve to act as an approximate guide to the oxidised crush zones which host some of the mineralisation.

Photo 4.2 shows the pre-strip area at Quartzite which clearly illustrates the oxidised ore zones and detailed channel sampling on profiles 10m apart.

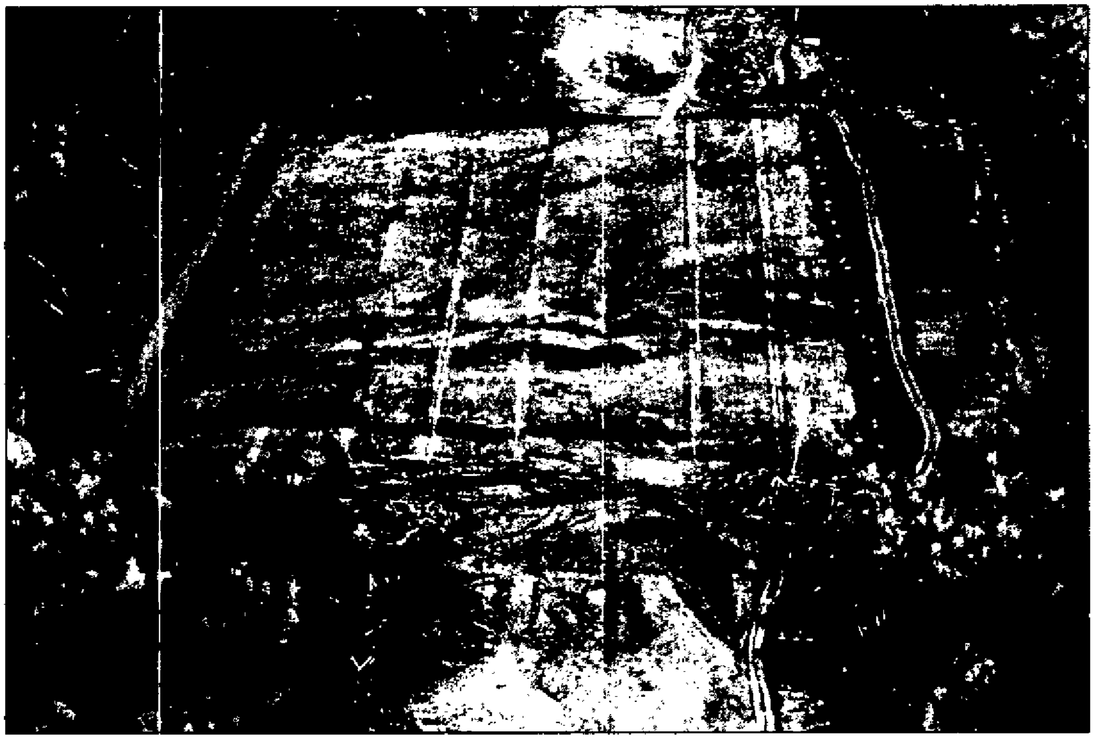


Photo 4.2: Pre-Strip at Quartzite Area showing Mineralisation and Channel Samples

4.3.3 Mineralogy

Detailed studies of the different ore types at Malomir have identified the following four styles:

1. Breccias of sericite-quartz metasomatites (average and low grade ores);
2. Breccias of quartz-adularia metasomatites (average and low grade ores);
3. Breccias with superimposed thin veinlet mineralisation of grey quartz which contains the following types:
    a. breccias of sericite-quartz metasomatites with grey thin veinlet quartz (relatively high grade ore); and
    b. breccias of quartz-adularia metasomatites with altered schists (relatively high grade and average ores); and
4. Hybrid mineralisation formed by the combination of above (ores vary in quality).

The fourth type is the one most widespread at the deposit, whilst the others are rarely identified in their pure form.

Mineralisation comprises mostly pyrite and arsenopyrite which form thin or variable impregnations in metasomatites, breccias, as well as clusters and sometimes massive veins of pyrite and/or arsenopyrite with minor amounts of sphalerite, chalcopyrite and pyrrhotite.

In some areas arsenopyrite is the key mineral with variable concentration from a few separate grains to 5-7%. Arsenopyrite grains vary from microscopic to 1-2mm, although large grains are rare. In most cases the size is less than 0.2mm.

Pyrite is one of the most widely spread sulphides within the deposit. The size of grains rarely exceeds 2mm and is usually 0.01-0.1mm.

Galena, argentite, chalcopyrite, sphalerite and pyrrhotite are present in single grains, generally around a hundredth of a millimetre.

Gold is the only valuable component of the mineralisation at Malomir with the predominant size of gold grains being between a thousandth and hundredth of a mm. The fineness of gold varies from 781 to 880. Research showed that most of the gold is represented by small (-0.07mm) and fine (0.001mm) particles. The latter are contained in arsenopyrite, pyrite, quartz and some other minerals, and they cannot be extracted by regular grinding (to 0.07mm). Thus, the Malomir deposit can be characterised as having small, fine and difficult to recover gold.

4.3.4 Mineralised Zones

Most activity has taken place over the main Malomir zone in order to define a C_1 resource through the use of 40x40m drilling in combination with large areas of pre-strip.

The original Transheya 1 (Pre-strip 1) investigated the intersection between the main Diagonal zone and ore zones 10 and 12. Close to the top of the Malomir hill, west of Transheya 1, a second *transheya* has been opened and channel sampling from this is in progress (Photo 4.3).

The purpose of this *transheya* (Pre-strip 1) is to delineate the structure of mineralised ore zone 10. This is a major body which branches from the Diagonal body in Transheya 1 and strikes approximately east-west. It has a much steeper dip (around 60° northward) than the Diagonal body. The zone can be identified in the pit by zones of yellow, brown and deep red iron staining (Photo 4.4). If this is substantiated by assay data, then the structure is quite complex in detail, with two main branches separating towards the western end of the pit, but on a scale of a few metres there are also frequent breaks and splits in the mineralisation.

At the junction of ore zone 10 with the Diagonal zone, two 'ore columns' have been delineated. In plan, the width of the columns is 50–140m, and they are separated by a narrow (up to 30–40m) strip of lower grade mineralisation. Down dip, both 'ore columns' have been traced for 320m. Metal content in the columns has been provisionally estimated by PHM as about 418koz Au at 2–2.5g/t Au (at a 0.8g/t Au cut-off).

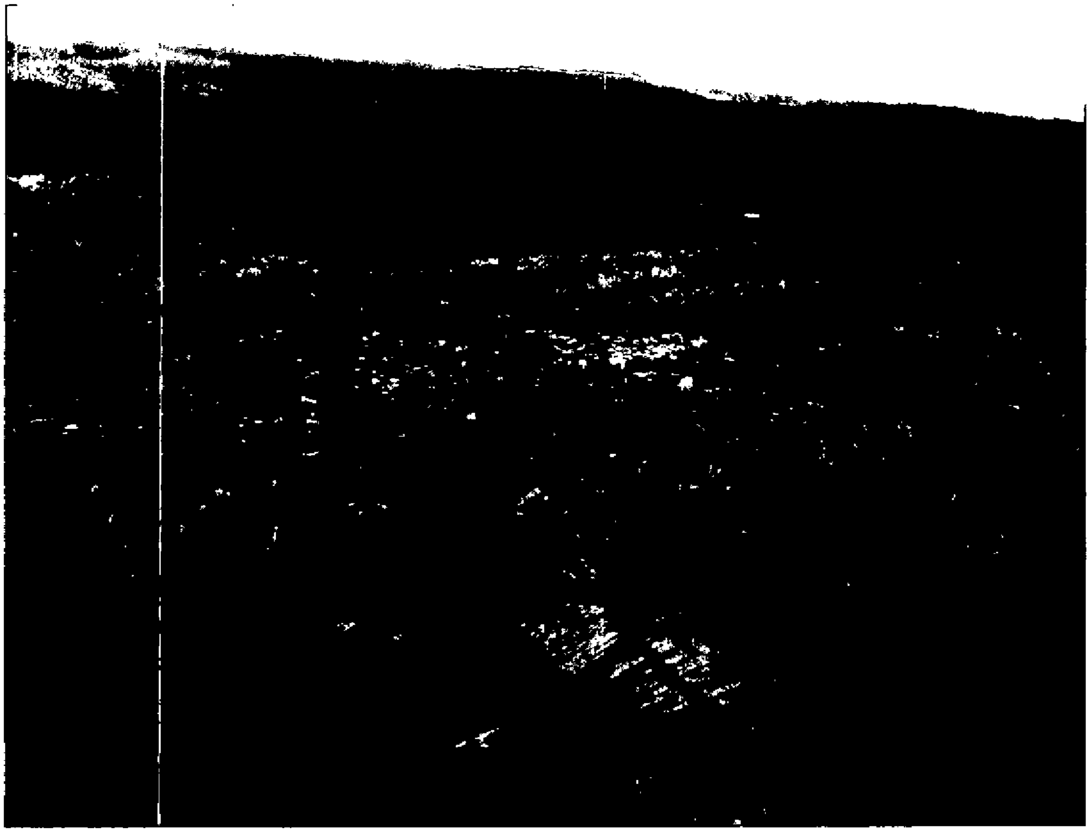


Photo 4.3: Transheya 1 (front) and 2 (middle), Malomir Main Zone (Looking Northwest)

Adjacent to the Severny Fault at depths of 130–240m, a major body of cataclastic quartz metasomatites, 150–200m wide, has been discovered. This zone constitutes an extension, to depth, of the main Diagonal zone. Within this new zone, several mineralised bodies of a thickness from 20–46m and gold grades typically of 1.0–2.2g/t Au (and up to a maximum of 40g/t Au), have been defined. In the same area of the deposit, at shallower depths of between 45–130m, drilling has intersected separate mineralised bodies from 3–27m thick with gold grades typically of 1.0–2.5g/t Au.

On the southern extension of the 2.5g/t Au mineralised zone of the Diagonal fault, its continuation has been identified by drill holes as having a thickness of 3.0–6.9m and gold grades of 0.94–1.48g/t Au.

Photo 4.4: Transheya 2 showing Channels, Sample Pits and Alteration Zones

In addition, the Malomir mineralised zone remains untested towards the north where the Diagonal fault crosses the valley of the Malomir River upstream from the exploration camp. It is intended to drill this area in order to test for previously unidentified mineralisation, and also to determine whether there is any displacement due to the inferred east-west Malomir Fault below the valley.

The Quartzitovoye area to the north has now exposed some high grade areas (30m at 30.0g/t Au) and this area, to the east of the mineralised zone is now being pre-stripped over an area of approximately 1.6ha. A current exploration grid at 40 x 80m (will require 40 x 40m for C_2) is being established. Initial interpretation suggests that there are 2 mineralised branches that display higher grades at their juncture over several 10's of metres.

Metallurgical samples are being retrieved from drillhole samples (diamond core) though resources will remain Prognostic (P_1) until testwork results are received. This area differs from the main Malomir zone in that visible gold is evident and preliminary PHM estimates suggest the potential to host some 8Mt at 2.5g/t Au for 20,000kg (643koz) of contained gold.

PHM is also using a new portable XRF (INNOV-X System, US manufacture) to measure as that is believed to correlate well to Au content. However, this method is not totally reliable as not all of the Au is associated with arsenopyrite.

4.4 Mineral Resources

4.4.1 Resources Estimated in accordance with the Guidelines of the JORC Code (2004) - WAI Datamine® Block Model (July 2008)

4.4.1.1 Software

WAI has undertaken the Mineral Resource estimation for Malomir in July 2008 enlisting Datamine® mining software. The software was used for the data evaluation, statistical analysis and resource modelling.

A database was prepared by PHM technical staff and validated using Micromine® mining software. The database received by WAI was exported from Micromine® to a text format file. WAI imported this database into Datamine® and converted it into the Datamine® "drill hole" format table. A standard "de-survey" process was used to process the drill hole data and calculate co-ordinates for each of the drill hole samples. The channel sample data were similarly converted into a Datamine® "drill hole" format using original X, Y, Z co-ordinates from the database (which were calculated in Micromine®), with interval orientation calculated from the co-ordinates.

After importing and conversion, the database was validated for consistency, using standard Datamine® checks for missing records, duplicate and overlapping intervals. Sample co-ordinates were also visually checked in plans and cross-sections, drawn in Datamine®. A number of errors were identified and corrected.

A summary of the database statistics is provided in the Table 4.2 below.

Table 4.2: Summary for the Malomir Database (WAI July 2008)

Type	Variable	No.	Minimum	Maximum	Range	Mean	Variance	Skewness	Kurtosis
Channel Samples	Au (g/t Au)	32,040	0.1	38.4	38.3	0.49	1.26	10.48	202
	Length (m)	32,040	0.2	5.0	4.8	0.93	0.02	-0.57	18
Core Samples	Au (g/t Au)	75,801	0.1	73.0	72.9	0.38	0.806	24.35	1,311
	Length (m)	75,801	0.2	4.5	4.3	1.13	0.081	0.05	-0.54
Total	Au (g/t Au)	107,841	0.1	73.0	72.9	0.41	0.93	18.96	830
	Length (m)	107841	0.2	5.0	4.8	1.07	0.07	0.34	0.33

4.4.1.2 Raw Data Statistical Analysis

Basic statistical parameters were calculated for gold and sample length within each sample type and within the database as summarised in Table 4.2. Statistical distribution for the raw grade data, suggests that channel and core samples come from statistically similar sub-populations. The channel samples' higher mean is explained by the fact that a significant number of closely spaced channel samples, located in the pre-strip areas, are situated at a high grade part of the deposit. Conversely the drill holes are more evenly distributed throughout the entire deposit.

No clear thresholds could be identified at the anticipated economic cut-off grade (COG) of 0.4-0.8g/t Au; consequently a COG of 0.3g/t Au was applied for the wireframe modelling exercise.

4.4.1.3 Structural Interpretation and Wireframe Construction

A structural model for the Malomir mineralised zone was created with a set of steeply dipping zones splitting from the main shallow structure (light blue); this is illustrated in Figure 4.2 below.

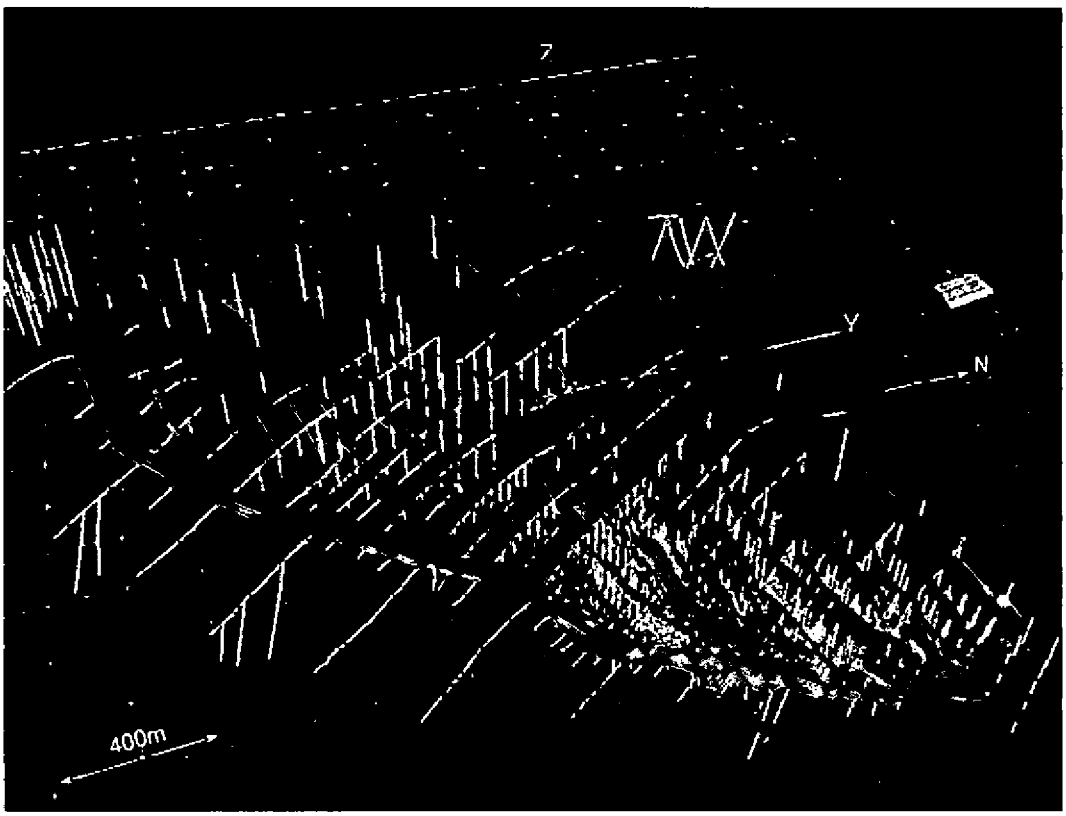


Figure 4.2: Oblique View of Malomir Wireframe Model (WAI July 2008)

A COG of 0.3g/t Au was used to identify the position of the hard boundaries though WAI believes that additional discontinuous mineralised zones occur between the more continuous east-west striking steep structures.

Solid enclosed wireframes were created as a combination of the hangingwall and footwall surfaces. The surfaces were generated as Digital Terrain Models (DTMs) using footwall and hangingwall points from the actual trench and drill hole intersections, as well as additional points interpolated between intersections on a 15×15m grid using the inverse power squared interpolation method.

4.4.1.4 Volumetric Block Model

A volumetric block model was created using the mineralised zone wireframes together with surfaces representing topography and overburden. Enclosed wireframes were filled with cells in two stages. Initially a columnar model with 5×5m cells in the mineralised zone plane was produced allowing blocks to be produced based on the entire thickness of the wireframe.

A similar columnar model was also created between steep wireframes, but with no minimum mining width applied.

The columnar model was then converted into a 3D structure by splitting the columnar cells on 5m intervals, to provide a reasonable model resolution and representation for grade variations.

The final volumetric model represents 76 domains within the deposit and for grade interpolation employed 20×10×5m parent cells with minimum sub-cells of 2×2×2m (along strike × cross strike × vertical). The model was rotated 80° around a vertical axis to align it parallel to the steep zones strike direction.

4.4.1.5 Sample Data Processing

Drill hole and trench samples were evaluated against the wireframe model and a key field was established in order to identify samples belonging to each domain.

The mineralised bodies generally have an undulating 'plate-like' shape. For grade interpolation purposes, samples and block models were projected onto a plane parallel to the overall wireframe orientation. The parameters required for the projection transformation were obtained from the nearest model cell.

Samples have interval lengths varying from 0.5 to 5.0m and therefore compositing of samples was required. One metre composite lengths were chosen for subsequent variogram generation and grade interpolation.

4.4.1.6 Subpopulation Statistical Analysis

A detailed statistical analysis has been undertaken for the sample composites within each domain identified.

Statistical decile analysis completed for each domain, together with statistical plots, indicate the presence of high grade outliers. The thresholds, to identify outliers within each domain, were obtained from analysis of both the log probability plots and decile tables. The thresholds used for top cutting are summarised in Table 4.3 below.

Table 4.3: Top Cutting Thresholds (WAI July 2008)

Domain	Threshold For Top Cut (g/t Au)	Domain	Threshold For Top Cut (g/t Au)
10	20	9100	No Top Cut
22	8	9110	5
80	6	9120	8
81	5	9130	5
82	No Top Cut	9140	8
83	No Top Cut	9150	8
84	No Top Cut	9160	8
90	20	9170	5
91	No Top Cut	9180	8
100	20	9190	8
120	4.5	9200	8
130	No Top Cut	9210	8
131	10	9220	8
132	15	9230	8
150	20	9240	8
180	8	9250	8
210	No Top Cut	9251	8
211	No Top Cut	9260	8
215	No Top Cut	9270	8
212	No Top Cut	9280	8
213	3.5	9290	8
214	No Top Cut	9300	8
220	15	9310	8
221	10	9320	8
222	10	9330	8
223	No Top Cut	9340	8
224	No Top Cut	9350	8
501	6	9360	8
502	6	9370	8
503	No Top Cut	9380	8
504	No Top Cut	9390	5
505	5	9400	8
890	5	9410	8
891	No Top Cut	9420	5
9000	8	9430	8
9050	No Top Cut	9440	4
		9450	8
		9460	8
		9470	8

A summary of sample composite classical statistics is given in Table 4.4 below.

Table 4.4: Summary for the Malomir Composites Statistic (WAI July 2008)

Domain	Variable	No.	Minimum	Maximum	Range	Mean	Variance	Skewness	Kurtosis
Diagonal Thrust (Domain 10)	Original Grade (g/t Au)	14,908	0.05	20.00	19.95	1.25	1.63	5.0	45
	Top Cut Grade (g/t Au)	14,908	0.10	32.52	32.42	1.26	1.82	6.7	88
	Length (m)	15,247	0.60	1.40	0.80	1.00	0.00	-2.8	158
Combined Steep Zones (Domains 22-100 and 130-891)	Original Grade (g/t Au)	11,192	0.05	20.00	19.95	1.04	1.66	5.4	49
	Top Cut Grade (g/t Au)	11,192	0.10	64.70	64.60	1.08	3.05	13.9	342
	Length (m)	11,973	0.50	1.50	1.00	1.00	0.00	-1.7	34
Combined Domains Between Steep Zones (Domains 9100-9470)	Original Grade (g/t Au)	62,188	0.05	8.00	7.95	0.16	0.10	7.9	109
	Top Cut Grade (g/t Au)	62,188	0.10	24.34	24.24	0.20	0.14	22.0	999
	Length (m)	66,636	0.50	1.40	0.90	1.00	0.00	-2.1	152
Ore Body 2: Steep Zone in the footwall of the Diagonal Zone (Domain 120)	Original Grade (g/t Au)	106	0.05	4.50	4.45	0.81	0.47	2.4	8
	Top Cut Grade (g/t Au)	106	0.10	6.40	6.30	0.83	0.63	3.9	22
	Length (m)	106	0.97	1.15	0.18	0.99	0.00	3.8	15
Deposit Peripheral Area (Domain 9000)	Original Grade (g/t Au)	382	0.05	1.08	1.03	0.10	0.02	3.6	16
	Top Cut Grade (g/t Au)	382	0.10	1.08	0.98	0.14	0.01	4.0	20
	Length (m)	517	0.90	1.01	0.11	1.00	0.00	-4.9	27
Footwall of the Diagonal Thrust (Domain 9050)	Original Grade (g/t Au)	19,428	0.05	6.65	6.60	0.10	0.04	9.9	170
	Top Cut Grade (g/t Au)	19,428	0.10	6.65	6.55	0.14	0.04	10.7	195
	Length (m)	20,141	0.50	1.20	0.70	1.00	0.00	-10.0	380
Total	Original Grade (g/t Au)	108,204	0.05	20.00	19.95	0.39	0.65	7.1	96
	Top Cut Grade (g/t Au)	108,204	0.10	64.70	64.60	0.43	0.84	15.5	585
	Length (m)	108,204	0.50	1.50	1.00	1.00	0.00	-3.3	142

Decile analysis illustrates a moderate influence of the high grade outliers at Malomir, but WAI considers that these outliers do not represent a significant issue that will affect the Mineral Resource estimate.

4.4.1.7 Geostatistical Analysis

WAI has generated three directional pair wise relative semi-variograms as follows:

- for the Diagonal Zone (Domain 10);
- for the combined Steep Zones Domain (Domains 22-100 and 130-871); and
- for combined domains between the steep zones (Domains 9100-9470).

Experimental semi-variograms were calculated in the plane of the mineralised zones at every 45° as well as in the cross strike direction. Experimental semi-variograms and semi-variogram models fitted are illustrated in the Figure 4.3 to Figure 4.5 below.

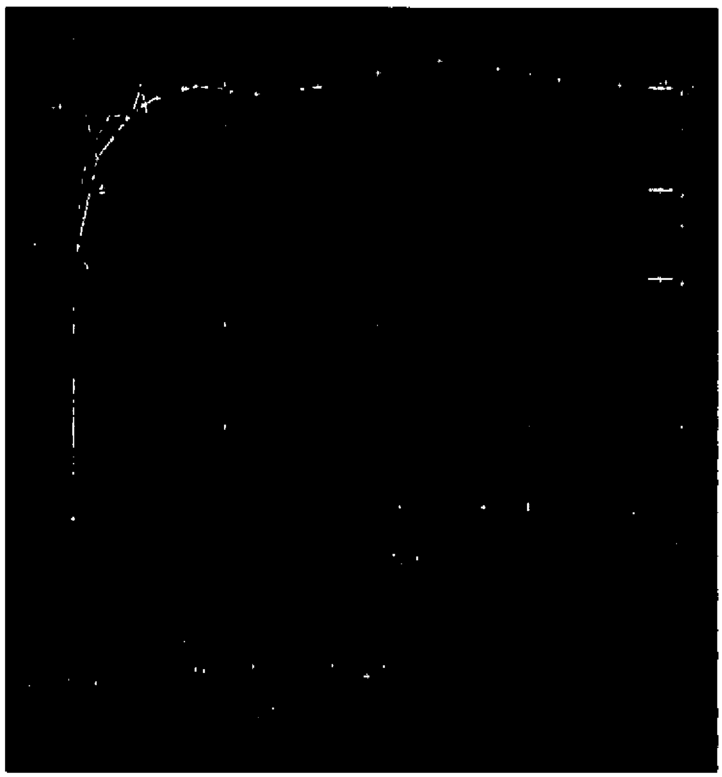


Figure 4.3: Semi-Variogram 1: Main Shallow Zone (Domain 10) (WAI July 2008)

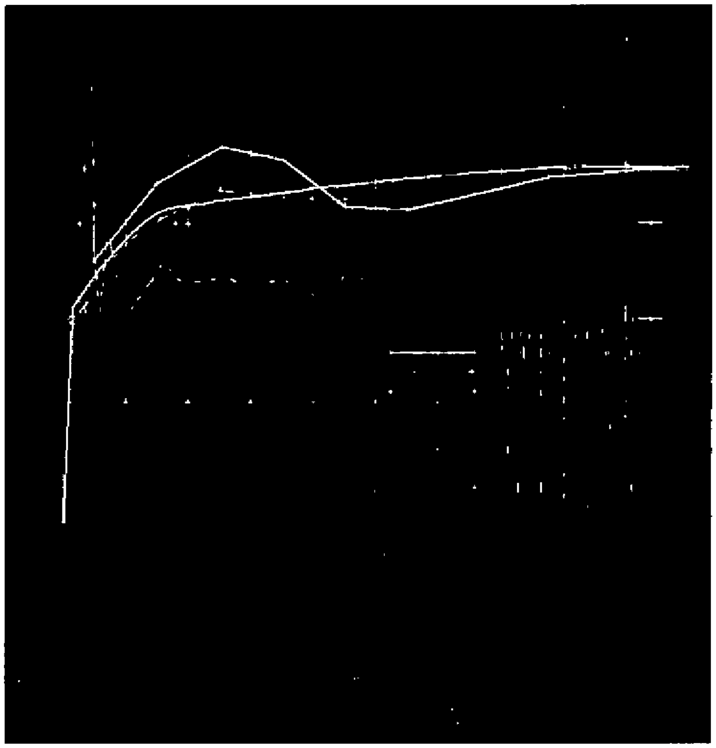


Figure 4.4: Semi-Variogram 2: Steep Zones
(Domains 22-100 and 130-891) (WAI July 2008)

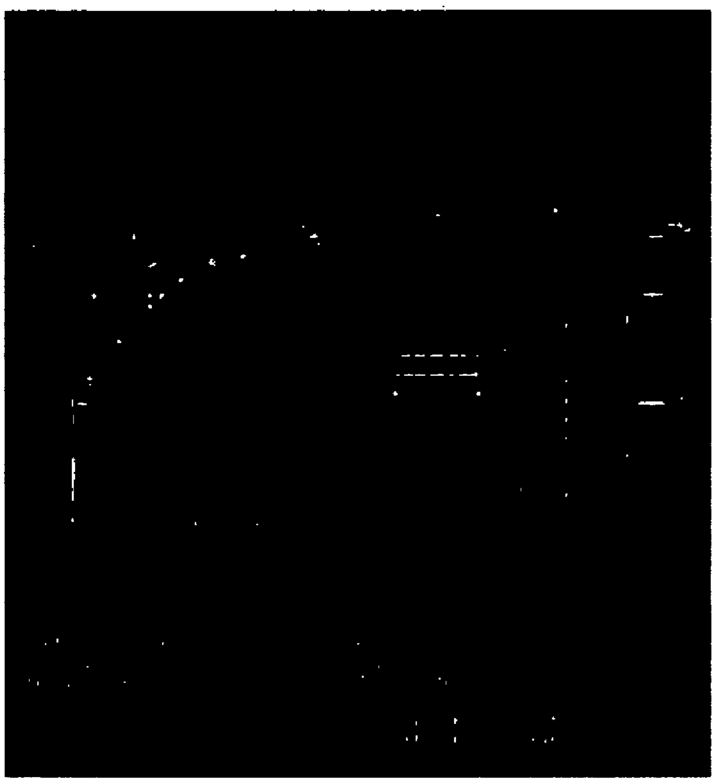


Figure 4.5: Semi-Variogram 3: Combined Domains 9100-9470
(WAI July 2008)

Semi-variogram model 3 was used to interpolate grades in the domain 9000 and domain 9050.

4.4.1.8 Composite Search Strategy and Grade Interpolation

Grade was interpolated in the resource block model using zonal control so that composite influence was restricted within the domains identified. Cross-influence between some domains was allowed.

Dimensions of the search ellipsoids were derived from the semi-variogram ranges and drill hole and trench spacing currently existing at the deposit. A total of 5 search ellipsoids were used as summarised in Table 4.5 below.

Table 4.5: Composite Search Parameters (WAI July 2008)				
Parameter	Search			Applied To
	1st	2nd	3rd	
Search Ellipsoid 1 (Horizontal*)				
Search Radii North (m)	30	60	200	Domain 10
Search Radii East (m)	30	60	200	
Search Radii Vertical (m)	5	10	33.3	
Minimum Composites	11	7	1	
Maximum Composites	20	15	6	
Minimum Drill Holes/Trenches	3	2	1	
Search Ellipsoid 2 (vertical, striking 80°)**				
Search Radii Along Strike (m)	15	50	150	Domains 22-891
Search Radii Down Dip (m)	15	50	150	
Search Radii Cross Strike (m)	2	7	20	
Minimum Composites	6	4	1	
Maximum Composites	12	10	4	
Minimum Drill Holes/Trenches	3	2	1	
Search Ellipsoid 3 (dip 15°, dip direction 350°)				
Search Radii Along Strike (m)	20	50	150	Domain 9050
Search Radii Down Dip (m)	20	50	150	
Search Radii Cross Strike (m)	5	12.5	37.5	
Minimum Composites	7	6	1	
Maximum Composites	16	11	7	
Minimum Drill Holes/Trenches	3	2	1	
Search Ellipsoid 4 (vertical, striking 80°)**				
Search Radii Along Strike (m)	15	60	150	Domains 9100-9470
Search Radii Down Dip (m)	15	60	150	
Search Radii Cross Strike (m)	4	16	26.6	
Minimum Composites	7	6	1	
Maximum Composites	16	7	7	
Minimum Drill Holes/Trenches	3	2	1	
Search Ellipsoid 5 (dip 65°, dip direction 6°)				
Search Radii Along Strike (m)	15	60	150	Domain 9000
Search Radii Down Dip (m)	15	60	150	
Search Radii Cross Strike (m)	4	16	26.6	
Minimum Composites	7	6	1	
Maximum Composites	16	7	7	
Minimum Drill Holes/Trenches	3	2	1	

Note:
* for grade interpolation composites and block model were projected to a horizontal plane
** for grade interpolation composites and block model were projected to vertical plane, striking at 80°

Three alternative estimators, these being ordinary kriging (OK), inverse power of distance cubed (IDW^3) and nearest neighbour (NN) were used to interpolate grade into the model. Following the model validation, ordinary kriging was considered the best method for estimation of the Malomir resource at this stage.

4.4.1.9 Model Validation

A visual check of the model sections against composites was performed. The checks were focused on comparing kriging and inverse power of distance estimators, whereas the nearest sample estimator was used for global and local bias checks.

Comparison of the Global Model grade for the different estimators suggests that the NN estimator provides a slightly higher (approximately 3% rel) global estimate than the IDW^3 or OK methods, whereas the latter two give very similar global results.

In order to further investigate a global bias, a number of internal model checks were performed as follows:

- correlation analysis between estimated cell grades and average composite grades inside the cell; and
- comparison of the grade-tonnage curves generated for different estimation methods.

From the analysis of the scatter plots and visual model checks, ordinary kriging has been considered a better estimator for the Malomir mineral resource as it provides more appropriate grade smoothing, especially for the high grade part of the deposit.

Comparison of the grade-tonnage curves, suggests that OK and IDW^3 provide very similar estimations, but above a 0.5g/t Au COG, the OK grade is slightly lower.

4.4.1.10 Selectivity Adjustment

Resource wireframes were created with no minimum mining width taken into consideration and therefore in order to provide a more realistic estimate of the mineral resources, intentional dilution was incorporated into the model on the basis of 5m and 3m minimum mining width for the shallow and steep zones respectively.

A comparison of the estimated resources at a COG 0.8g/t Au is provided in Table 4.6 below.

Table 4.6: Comparison of the Malomir Estimates at a 0.8g/t Au COG before and after Selectivity Adjustment (WAI July 2008)

Search	Estimate Before Adjustment				Estimate After Adjustment			
	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)	Tonnage (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
1	5,830	1.46	8,523.9	274	5,830	1.46	8,523.1	274
2	43,825	1.35	59,058.1	1,899	43,575	1.35	58,717.6	1,888
3	47,579	1.18	56,137.1	1,805	45,652	1.18	53,718.8	1,727
Total	**97,234**	**1.27**	**123,719.0**	**3,978**	**95,057**	**1.27**	**120,959.4**	**3,889**

4.4.1.11 Mineral Resource Classification

WAI has estimated the Malomir Mineral Resource in accordance with the JORC Code (2004).

The Malomir gold deposit has been extensively explored by trenching and drilling. WAI considers that the amount of data collected, data spacing and quality are sufficient to classify the Malomir mineral resources in the *Measured*, *Indicated* and *Inferred* categories.

Resource classification is based on the search parameters. Cells estimated in the first search are classified as *Measured*, second search parameters as *Indicated* and for the third search as *Inferred* Mineral Resources.

A COG of 0.6g/t Au was chosen for reporting Malomir mineral resources.

4.4.1.12 Mineral Resources Evaluation

The WAI mineral resource statement for Malomir identified *Measured*, *Indicated* and *Inferred* category resources, at a COG of 0.6g/t Au is summarised in Table 4.7 below:

Table 4.7: Malomir Mineral Resources (WAI July 2008)

Resource Category	Tonnage (kt)	Grade (g/t Au)	Metal Au	
			kg	koz
Measured	7,239	1.31	9,501	305
Indicated	57,156	1.19	68,115	2,190
Measured + Indicated	**64,395**	**1.21**	**77,616**	**2,495**
Inferred	87,549	0.94	82,262	2,645

WAI Comment: The WAI geostatistical resource model has estimated resources using ordinary kriging which has produced an overall *Measured* and *Indicated* resource of 64.4Mt at a grade of 1.21g/t Au and an Inferred resource of 87.5Mt at a grade of 0.94g/t Au.

PHM has estimated C_2 resources using the Russian Standard Classification System of 44.2Mt at a grade of 1.55g/t Au and P_1 resources of 28.9Mt at a grade of 1.34g/t Au.

Whilst the WAI model has shown an increase in metal content, there has been a reduction of the average grade, which is due to both grade smoothing resulting from the interpolation technique employed and top-cutting of high grade samples. However, in WAI's opinion, the geostatistical approach to modelling provides a more realistic grade estimate as it considers the grade continuity and distributions through the deposit.

A grade-tonnage curve for the WAI 2008 resource model is shown in Figure 4.6 below.

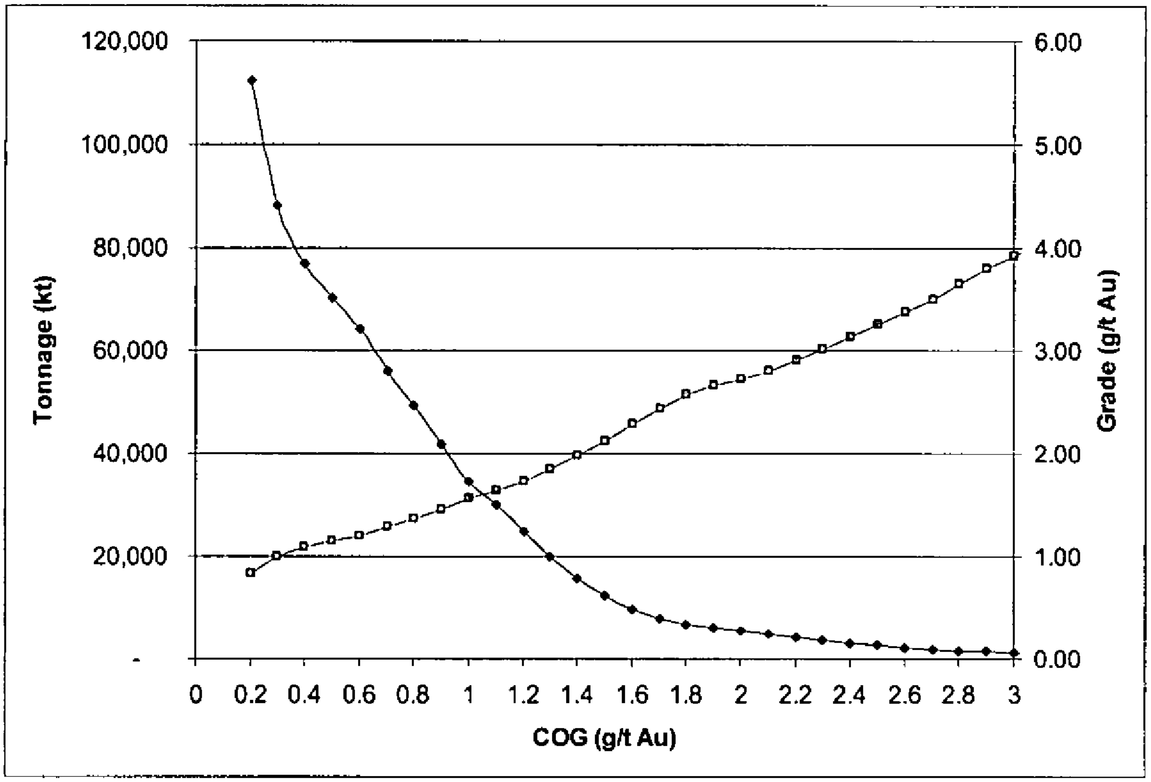


Figure 4.6: Malomir *Measured + Indicated* Combined Category Mineral Resources Grade-Tonnage Curve (WAI July 2008)

4.4.2 Russian Standard Resources and Reserves

PHM currently estimates its mineral resources and reserves according to the Russian Standard Classification System. The resources and reserves for Malomir (at a COG of 0.8g/t Au) are presented in Table 4.8 below:

Table 4.8: Malomir Russian Standard Resource and Reserve Summary (PHM as at 01.01.08)

Deposit	C_2				P_1			
	Tonnes (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnes (kt)	Grade Au (g/t)	Au (kg)	Au (koz)
Malomir	44,159	1.55	68,231	2,194	28,941	1.34	38,647	1,243
Ozhidaemoye	7,611	1.59	12,095	389	3,570	1.40	5,000	161
Quartzitovoye					6,197	1.71	10,611*	341
TOTAL	**51,770**	**1.55**	**80,244**	**2,580**	**38,708**	**1.40**	**54,191**	**1,742**

* categories of reserves & resources on Quartitovoye are reduced (by comparison with 2007) due to more complex structure of exposed ore bodies, requiring a denser exploration grid

A further 21.8Mt at 1.60g/t Au containing 35t (1.1Moz) have been derived by PHM in the P_2 category and 54Mt at 1.30g/t Au containing 72t (2.3Moz) in the P_3 category, though these are not declared by PHM they do provide an indication of the relative potential of the deposits.

Exclusion from the resources of P_3 category for Quartzitovoye is due to unsuitability of the ore for heap leaching and is thus they are not considered as reserves (383Mt at 0.7g/t Au containing 268t or 8.6Moz).

4.5 Mining

Malomir is an advanced stage development project. Currently there is no mining activity on site but a large scale trenching/pre-stripping operation has been completed to allow sampling for resource estimation purposes.

It is intended that the Malomir project will commence mining during the first half of 2010. A Pre-feasibility study, including an open pit design, has been completed by PHM.

4.5.1 Reserve Estimation

WAI has estimated reserves for Malomir based on the WAI Datamine® resource model. As at Pioneer and Pokrovskiy, the reserve estimation takes into account mining and economic factors to give an indication of the amount of rock that is economically mineable or can be termed 'ore'.

The factors that are considered when calculating reserves are:

- The cost of mining, the cost of processing;
- The recovery of ore from the pit;
- Dilution of the ore by waste material;
- The efficiency of the processing method;
- Physical constraints of the mining operation;
- Metal prices;
- Governmental;
- Environmental; and
- Social.

The Malomir deposit is amenable to open pit mining and, therefore, the reserve estimation is performed in conjunction with the mine design as part of the pit optimisation process.

4.5.2 Mine Design and Optimisation

The Malomir mine consists of two open pits, Malomir and Ozhidayemoye. The designs of the two pits are based upon geological block models of the resources, as modelled by WAI in July 2008 using Datamine® geological modelling software, followed by NPV Sceduler® for pit optimisation. The resource block models are used to create economic pits using the same optimisation methods as discussed for the Pokrovskiy and Pioneer deposits. The input variables for both pit designs are given in Table 4.9. The results of the optimisation are shown in Table 4.9.

Table 4.9: Malomir Economic Optimisation Parameters		
Parameter	***Unit***	***Value***
Ore Mining Cost	*US$/t*	0.96
Waste Mining Cost	*US$/t*	0.70
Processing Cost	*US$/t*	7.87
G&A Cost	*US$/t*	0.25
Refining & Transport Charge	%	1.0
Royalty Payment	%	6.0
Mining Dilution Factor	%	5
Mining Recovery Factor	%	97
Processing Recovery	%	80
Gold Price	*US$/oz*	650
Environmental	*US$/t*	0.1

Table 4.10: Malomir Optimisation (Measured + Indicated Resources) In Accordance with the JORC Code (2004) – WAI (July 2008)			
Parameters	***Gold Price (US$/oz)***		
	650	***700***	***750***
Total Rock Mass, kt	231,982	256,969	248,078
Waste, kt	181,220	200,243	223,892
Ore, kt	50,762	56,726	60,186
Grade, g/t	1.26	1.22	1.21
Total Gold, kg	63,994	69,333	72,616
Total Gold, koz	2,057	2,229	2,335
Stripping Ratio, t ore/t waste	3.57:1	3.53:1	3.72:1
Economic COG, g/t	0.59	0.54	0.50

Based on a US$650/oz gold price. WAI has derived Proven and Probable reserves of 51Mt at an average grade of 1.26g/t Au, this requires that some 181Mt of waste are removed to access the orebody at a stripping ratio of 3.57:1.

Currently, the mining schedule for Malomir is based on the reserves derived by PHM using the Standard Russian Classification scheme, these are then applied to PHM's financial projects and commitments.

WAI has also optimised the Malomir deposits including *Inferred* resources, using the same input parameters as given in Table 4.9. The results of this optimisation are given in Table 4.11.

Table 4.11: Malomir Preliminary Optimisation including *Inferred* Resources	
Parameters	***Combined Malomir Pits***
Pit Slope Angle,	40
Total Rock Mass, kt	276,210
Waste, kt	215,770
Ore, kt	60,440
Grade, g/t	1.24
Total Gold, kg	74,853
Total Gold, koz	2,407
Stripping Ratio, t ore/t waste	3.57
Economic COG, g/t	0.6

WAI Comment: WAI is of the opinion that Malomir represents a significant open pit reserve that has considerable potential to become a profitable operation in the near future.

Increasing the gold price and hence the economic cut-off grade has a large impact on the preliminary reserves. Results indicate an economic COG of 0.6g/t Au (equivalent to US$650/oz) would yield 60.4Mt at a grade of 1.2g/t Au and a COG of 0.54g/t Au (equivalent to US$700/oz) would yield 70.8Mt at a grade of 1.2g/t Au. More work is required however to establish recoveries at lower cut-offs.

New geotechnical and hydrogeological drillholes are currently being undertaken to aid final pit design and data are input directly into MS Excel® at the logging facility to aid and speed up the process.

4.5.3 Mining Equipment

It is planned that Malomir will be mined using conventional open pit methods and will employ a mixture of Russian and Western built mining equipment as at both Pokrovskiy and Pioneer.

PHM have placed orders for 13 Caterpillar 777F rigid dump trucks and 3 Liebherr R9250 face shovels for delivery in November 2009, to bolster their fleet of Belaz trucks and EKG excavators that will become available when Pioneer is re-equipped early in 2009. The majority of the ore is likely to be free digging but should blasting be required Atlas Copco DTH rigs will most likely be employed.

Photo 4.5: Malomir Bulk Sampling Area

4.5.4 Mining Infrastructure

There is currently preliminary infrastructure at Malomir and development is ongoing. This includes. This includes haul roads, power supply, workshops and maintenance facilities, explosives magazine, primary crusher, blending stockpiles and waste dumps. General infrastructure will include staff accommodation, canteen, heating plant and communications facilities. Much of the general infrastructure equipment is on order and deliveries are due.to be delivered.

4.6 Mineral Processing

4.6.1 Introduction

The Malomir ores are known to be predominantly refractory and have been subjected to several detailed metallurgical test programmes. There are three different ore type categories within the deposits, namely Oxide, Transition (Mixed) and Primary. The testing of the orebody is continuing and pilot scale tests are planned for late 2008.

4.6.2 *Laboratory Testwork 1990-2006*

(a) General

Laboratory testing of samples from the Malomir deposit has been conducted by numerous research organizations including DVIMS, TulNIGP, TSNIGRI and Irgiredmet. Preliminary testwork was also undertaken by PHM metallurgical staff at Pokrovskiy mine. The list of metallurgical reports on Malomir ores is given in Table 4.12 below.

Table 4.12: Testwork Reports on the Malomir Deposit

Year	Name of Report	Performed by	Sample ID
1990	Testwork on small bulk technological samples of Malomir deposit	DVIMS	MCT624-379, MCT 624-387, MCT 24-390, MCT 624-403, MCT 409, MCT 609-102, MCT 101-39, MCT 101-45, MCT -2
2005	General studies on the composition and technological assessment of gold and silver deposits of Amur Oblast	TSNIGRI	94-1 94-2 94-3
2006	Study on the technological properties of Malomir ore samples: Oxide (T-4 of 2,08t) and primary (T-7 and T-8 of 155 and 139kg)	TulNIGP	T-4 T-7 T-8
2006	Testwork on T-3 ore sample from Malomir gold-ore deposit	Irgiredmet	T-3
2006	Testwork on two ore samples (Sample T-6 and T-9) from Malomir	Irgiredmet	T-6 T-9
2006	General studies on technological properties of two samples of oxide ore and three samples of primary ore from the Malomir deposit with further provision of recommendations as to their processing technology"	PHM	-

(a) DVIMS 1990

Initial mineralogical studies were conducted by DVIMS in 1990 on nine small trench samples, selected from the Diagonalny ore zone which represented oxidized and mixed ore types. The samples weighed 20-25kg and grades ranged from 1.3 - 5.7g/t Au. The samples gave reasonable recoveries by direct cyanidation (73.3 to 95.2%), but did not respond well to gravity or flotation.

(b) TSNIGRI 2005

In 2005 TSNIGRI carried out studies on three samples representing Oxidised, Mixed and Primary ores from the Malomir deposit. The results of these tests are summarised as follows:

- A high-grade Oxide sample (6.3g/t Au, 1.75% S) gave a gravity concentrate assaying 82g/t Au at a recovery of 34.4% and a flotation concentrate assaying 22.6g/t Au at a gold recovery of 52.2%. Gold recovery by cyanidation at 95% -0.07mm was 73%. Percolation leaching at -10mm gave a recovery of 68.2%;
- The Primary ore sample (1.4g/t Au, 1.39% S) gave a gravity concentrate assaying 24.8g/t Au at a recovery of 64.1% and a flotation concentrate assaying 2.5g/t Au at a recovery of 21.5%. The recovery by cyanidation at a grind size of 92% -0.074 mm was 16.7%. Percolation leaching at -10.0mm gave very low recovery of 1.7%; and
- The Mixed ore sample (2.4g/t Au, 0.9% S) gave a gravity concentrate assaying 26g/t Au at a recovery of 50.8% and a flotation concentrate assaying 7.8g/t Au at recovery of 41.6%. Cyanidation at a grind size of 94% -0.074mm was 71.4%. Percolation leaching at -10.0mm gave a recovery of 52.4%.

(c) TULA 2005-2006 and Irgiredmet

In 2005-2006 TulNIGP and Irgiredmet undertook further testing in order to gain a greater understanding of the processing characteristics of the Malomir ore types. The following samples were tested:

- One trench sample (T-6) of oxidized ore was selected from Ore Zone No1 (4.0g/t Au, weighing 500kg);
- Two trench samples (T-3 and the T-4) of low-grade oxidized ore from Ore Zone No2 (1.84g/t Au and 1.92g/t Au, weighing 550kg and 2008kg); and
- Three core samples (T-7, T-8 and T-9) of Primary and Mixed ore types selected from Ore body No10 and Ore zone No1, (assaying 2.88g/t Au, 1.56g/t Au and 1.7g/t Au and weighing 155kg, 139kg and 290kg respectively).

The results of these programmes are summarised as follows:

- Malomir Oxide ores can be processed by whole ore cyanidation with recoveries ranging from 72-84% (see Table 4.13). The optimum grind size was found to be 80-85% passing 0.074mm. The oxide ores can also be processed by heap leaching with gold recoveries ranging from 62-82% at a crush size of -10 mm;
- The Oxide ores are not amenable to processing using gravity or flotation technologies; and

- The Primary and Mixed ores are refractory and are not amenable to cyanide leaching. Combined gravity and flotation processing gave concentrates assaying 25-30g/t Au. This sulphide product was refractory and would require oxidation using roasting, autoclave or bacterial oxidation.

A summary of the testwork results undertaken on Malomir samples is given in Table 4.13 below.

Table 4.13: Malomir Testwork Summary

Parameter	Ore Type											
	High grade oxides		Low grade oxides			Mixed			Primary and mixed			
	94-1 50kg (TsNIGRI) 2005	T-6 500kg (Irgiredmet) 2006	DVIMS 50 kg 1 sample 1990	T-3 550 kg (Irgiredmet) 2006	T-4 2000 kg (TulNIGRI) 2006	94-3 50 kg (TsNIGRI) 2005	DVIMS 9 samples 1990		94-2 50 kg (TsNIGRI) 2005	T-7 155 kg (TulNIGRI) 2006	T-8 139 kg (TulNIGRI) 2006	T-9 290 kg (Irgiredmet) 2006
							Oxides	Mixed				
	Trench, № 624	Trench №38	42 samples from trench	Trench, channel .№ 38, Ore zone 1		Core Hole 48	Trench at "Diagonalnoye" Ore body		Core Hole42	Core ore/b-10 (28-102m)	Core ore/b-1 Hole38 and48 (101-200m)	
Au grade g/t	**6.3**	**4.2**	**1.6**	**1.84**	**1.92**	**2.4**	**1.3-5.7**		**1.4**	**2.88**	**1.56**	**1.7**
As_{ox}/As_{tot} grade in sample, %	2.36	0.91	n/d	1.45/1.57=92	n/d	0.4	более 1.0%		0.25	n/d	n/d	0.057
S_{tot} grade in sample, %	1.75	0.60	n/d	0.074	0.080	0.9	0.12-1.47		1.39	1.64	1.59	1.42
Fe_{ox}/Fe_{tot} in sample, %	n/d	96.7	n/d	97.7	88.9	n/d	n/d		n/d	46.0	45.0	57.0
	Gold forms in the sample											
Free		3.3	n/d	2.5	7.2 11.8		0.1-0.37	1.89-4.17		29.1	5.6	4.6
Locked but cyanidable		81.1		67.5	61.9 68.6					14.2	22.2	9.6
Total cyanidable	**65.1**	**84.4**		**70.0**	**69.1 80.4**	**58.3**	**72-84**	**50-62.5**	**21.4**	**43.3**	**27.8**	**14.2**
Mineral Associations		2.6		4.5	-					7.1	-	5.6
With Fe oxides and hydroxides	14.3	7.1		17.8	-	4.2			7.1			15.8
With sulphides	18.2	1.7		1.3	10.3 4.9	33.3	12-17	7-37.5	75.2	42.5	55.6	44.6
In quartz\with carboniferous subst	2.4	4.2		6.4	20.6 14.7	4.2	4-9.4	30-12-	14.3	7.1	16.6	9.1\10.7

Table 4.13: (cont) Malomir Testwork Summary

	Gravity Testing											
Mass rec. (γ) Grade (β) Au Recovery % (ε)	2.6 82 **34.4**	1.3 12.9 **3.7**	Not suitable	3.0 3.0 **4.0**	1.79 23.3 **21.7**	4.3 26 **50.8**	Not suitable **10.3-10.7**		3.1 24.8 **64.1**	6.01 27.6 **65.4**	2.58 31.0 **49.3**	2.6 30.8 **50.0**
	Flotation Testing											
Flotation concentrate γ β ε	4.9 22.6 **1.8**	16.4 10.0 **38.8**	Not suitable	12.4 4.6 **33.9**	7.0 14.6 **52**	11.7 7.8 **41.6**	3.1 7.2 **16.6**	5 24,4 **24.4**	10.3 2.5 **21.5**	6.6 32.8 **85.1**	6.8 19.2 **80.8**	4.4 29.2 **78.1**
Gravity+flotation con γ β ε	7.5 43.2 **52.2**	17.7 10.1 **42.5**		19.9 3.5 **37.9**	7.4 16.3 **64.3**	16 12.7 **92.4**			13.4 7.6 **85.6**	7.9 28.5 **88.7**	5.0 26.6 **82.2**	4.3 33.4 **85.8**
	Recovery to concentrate and tailings leachate											
Au recovery into solution, %							Flot+CN tail=**71%**	Flot+CN tail= **82%**		Grav+CN tail.=**66.7%**	Grav.+CN tail.=**62.0%**	
	Cyanidation											
Grain size, % -70µm Au recovery %	94% **73.0**	62-85% **83.2-83.9**	-1mm **68.3**	80% **72.1**	85% **80.0**	94% **71.4**	85% **81.6**	85% **66.7**	92%- **16.7**	85-95% **36-40**	85-95% **24.7-30.1**	85-95% **9.5-10.2**
Cyanide consumption, kg/t	0.5-0.6	0.2-0.3	0.45-0.5	0.5-0.6	1.1-1.2	0.5-0.6	0,75		0.5-0.6	0.9-1.0	1.0-1.1	0.3-0.5
	Heap Leaching – Recovery Versus Crush Site											
Gold recovery %	-10 68.2 -2 65.1	-10 82.3 -5 80.9 -2 82.4	-50 73.8 -30 63.2 -10 65.5	-10 64.5 -5 67.4 -2 64.9	-20 61.5 -10 70.2	-10 52 -2 47.6	n/d	N/d	-10 1.7 -2 16.7	Not suitable	-10 16.2 Not suitable	-40 9.1 -20 9.6 -10 11.3

4.6.3 Testwork Undertaken in 2007 - 2008

4.6.3.1 General

Programmes of testwork continued on samples from the Malomir deposit throughout 2007 and 2008. The work has centred on the feasibility of using radiometric sorting as a means of pre-concentrating the ores, testing of samples from the Quartzitovoye bodies and further pressure oxidation testwork.

4.6.3.2 Radiometric Sorting

X-ray radiometric separation testing has been carried out using a RADOS LLP test unit. Tests were undertaken on Sample T-12 representing the unoxidized part (>100m depth) of mineralised body 1-1-C_1 of the first zone of the Malomir deposit.

The testwork results have shown that preliminary X-ray concentration of the mineralisation is possible and promising. It has been found that approximately 30% of the material can be rejected with gold losses of only 4-5%.

4.6.3.3 Quartzitovoye Ore Zone Tests

Irgiredmet has completed testing of two samples, T-10 and T-11, from the Quartzitovoye mineralised zone located near to the Malomir deposit. This gold quartz mineralisation is primary in nature, with a low sulphide content and generally low gold grades (1.19–1.68g/t).

Flotation testing gave gold recoveries of 92.3% for T-10 and 87.05 for T-11. Mass recoveries were 3.78-3.84% and the concentrates assayed 30.4-36.9g/t Au. The flotation concentrates had a high arsenic content of 4.3-8.7%. The pyrite content of the concentrate ranged from 28.8-36.0%, and the arsenopyrite content ranged from 9.3-18.9%.

The mineralised material and the flotation concentrates are refractory to direct cyanidation and recoveries do not exceed 51% due to gold associations with sulphides, iron hydroxides, carbonates and chlorites. Ultra-fine grinding of the concentrates (90% - 0.02mm) did not result in increased recoveries.

Roasting of the flotation concentrates followed by leaching gave the following recoveries of 82.5% for T-10 and 89.3% for T-11. The overall total gold recovery using "flotation-roasting-leaching" is 75.9-76.1% for T-10, and 76.7% for T-11.

Stage gold recovery from the flotation concentrate by pressure oxidation and cyanide leaching was 92.4-93.1% for T-10 and 98.6-98.9% for T-11. The overall gold recovery using flotation-autoclave oxidation-leaching was 85% for T-10 with gold recovery into the flotation concentrate of 92.1%. The total recovery from the T-11 sample using the same process was 84.8% with gold recovery into the flotation concentrate.

A metallurgical sample representing the recently discovered high-grade zone of Quartzitovoye was being prepared during the WAI site visit in July 2008.

4.6.3.4 Pilot Plant Trials – Primary and Mixed Ores

Irgiredmet has conducted pilot plant flotation testwork and further processing of the flotation concentrates using autoclave and bio-oxidation of two bulk metallurgical samples T-15 (2 tonnes) and T-16 (10 tonnes) with gold grades of 1.7-2.2g/t Au.

Rational analysis has shown that only 16.6% of the gold is cyanide leachable due to its association with sulphide minerals.

Flotation recoveries for both samples are approximately 85% with concentrate yields of 4-5% at concentrate grades of 25-28g/t Au.

Irgiredmet has undertaken autoclave oxidation trials on samples of the pilot plant concentrate using a 12l autoclave and PHM also sent samples for testing to the Hatch Group and GRD Minproc.

Currently, Irgiredmet is exposing the first portions of the flotation concentrate to bacterial-chemical oxidation using Thiobacillus thiooxidans type of bacteria. The oxidation degree of sulphides is currently reported to be in excess of 75.3%.

4.6.4 Basis for Project Design

4.6.4.1 General

The following parameters were selected by PHM for the treatment of Malomir mineralisation:

- annual production of primary and mixed mineralisation of 6.0Mtpa;
- average gold grade in the primary ore - 1.42g/t Au; and
- operational mode – 365 days per year with two shifts of 12 hour each.

The amount of Oxide mineralisation present at Malomir was regarded as being too low to support a separate processing facility.

4.6.4.2 Adopted Processing Technology

The Primary and Mixed mineralised material are highly refractory due to the significant levels of gold associated with sulphide minerals (up to 40%). Various processing options were considered to treat the flotation concentrates and PHM selected POX as the most suitable method.

This view was based on the studies carried out by Irgiredmet on similar flotation concentrates from Pioneer which had a gold grade of 25-30g/t Au and sulphur content of 21%. It was predicted that autoclave treatment of the flotation concentrates at temperatures of 200-220°C at pressures of 2.5-3.0MPa for 1-2 hours, using 80% oxygen, would result in 97-98% oxidation of the sulphur and arsenic minerals present. Subsequent leaching of the oxidised concentrate would give a stage gold recovery of not less than 95%.

Overall gold recovery was predicted as being approximately 80% with a flotation recovery of 82-84%. The following flowsheet was proposed:

- Coarse crushing of material to -300mm;
- SAG milling the crushed product in closed circuit to 20mm;
- Spiral classification of the SAG Mill discharge;
- Cycloning of the classifier overflow with the classifier sands passing to a ball mill;
- Ball milling in the closed circuit with cyclones, to give a product -0.1mm;
- Flotation of a gold sulphide concentrate at a mass recovery of 4.5% of the feed ore to give a concentrate assaying 27.3g/t Au at a recovery of 86.3%;
- Thickening of the flotation concentrate;
- Preliminary acidification of the flotation concentrate;
- Pressure oxidation of the concentrate at 200°C and with a partial oxygen pressure of 8-10atm;
- Thickening and washing of the autoclave product;
- Neutralisation of acid products with limestone;
- Neutralisation of the oxidised pulp;
- Standard RIP cyanide leaching of the oxidised concentrate;
- Detoxification of the pulp using formaldehyde;
- Electrowinning;
- Filtration and drying of cathode sludges; and
- Smelting.

4.6.5 Process Design

4.6.5.1 Primary Crushing Complex

The primary crushing complex will be housed in a 24 x 21m building. Ore will be delivered by trucks into a 7.5 x 7.5m feed hopper and will pass via plate feeders to one of two 1200 x 1500mm jaw crushers. The crushed ore (-300mm) is then conveyed via a stockpile to the grinding section.

4.6.5.2 Grinding

Milling will take place in a 90 x 48m building. There will be three milling lines each consisting of a 7.5 x 2.5m SAG mill, two 4.0 x 6.0m ball mills, classifiers, and associated sumps and pumps.

The SAG mill product will pass to a spiral classifier operated in closed circuit with the sands being returned to the SAG mill. The classifier overflows, at 100% passing 0.1mm, are pumped to 500mm cyclones and the underflows pass to the ball mills. The cyclone overflows will gravitate to a 50m diameter "Supaflo" thickener.

4.6.5.3 Flotation

Two flotation lines will be housed in a 132 x 18m building. Each line will consist of one bank of eight rougher cells, one bank of eight scavenger cells and two cleaning cells. The flotation concentrates are pumped to the thickener and the tailings are pumped to Tailings Dam N°1 and also to the leaching section to neutralise acidic products. Two 10t overhead cranes will be installed for maintenance purposes.

4.6.5.4 Concentrate Thickening

Four 24m diameter "Supaflo" type thickeners will be installed. One will be used to thicken the flotation concentrates and the three others will be used to wash (remove acid) from the oxidized pulps from the autoclave leaching. They will be acid-resistant, rubber lined and with stainless steel rakes. The overflow from the thickeners will be pumped to the milling section.

The flotation concentrate thickener underflow is pumped to the autoclave section for preliminary acidification and the thickener overflows are re-circulated.

4.6.6 Pressure Oxidation

4.6.6.1 Oxygen Plant

The oxygen station will supply the oxygen-air mixture to the autoclaves at a rate of 20,000m^3 per hour. The oxygen plant will consist of three "Linde" units each producing 5,000m^3/hour of 93.0% oxygen.

4.6.6.2 Autoclave Leaching

There will be three lines of autoclave leaching each with a working volume of 65m^3, equipped with two 12m^3 evaporators and high-pressure pumps. Cooling water will be supplied to autoclaves. Acidified flotation concentrate will be pumped into the five-chamber autoclave using high-pressure pumps. The oxidised pulp exits from the autoclave, after two stages of evaporative cooling, at 90-100°C and will be pumped to the washing section to remove acid prior to cyanidation.

4.6.7 Leaching

Leaching will take place in Pachuca tanks, 6m in diameter and 10.8m high, as follows:

Residual acid will be neutralised using flotation tailings and ground limestone and then the pulp will be leached using standard RIP technology.

The neutralised pulp will be fed into the preliminary cyanidation Pachuca tanks and then to RIP leaching. Loaded resin will be washed and screened and pumped to a shaking table to remove sand. Six 15m^3 columns will be used for resin regeneration.

The eluate from the resin stripping will be pumped to five 1m^3 electrolytic cells. The gold cathode sludges will be filtered, dried and smelted to produce doré, which will be the final product.

4.6.8 Sodium Cyanide Handling

Sea containers will be delivered by truck from Fevralsk and placed on a concrete-floor area. At full production, daily consumption of cyanide will be 2.3t. Four containers will be set up to give enough supply for 30 days. The total amount of cyanide stored on site will be 80-100t. Cyanide will be added to the process as a 10% solution.

4.6.9 Tailings Facilities

Tailings dam No.1 will store flotation tailings and gypsum products resulting from the acid neutralisation processes. The capacity of the tailings dam will be 56.3Mt. Water will be reclaimed from the tailings dam and returned to the milling and reagents preparation sections.

Tailings dam No.2 will be used to store cyanidation residues. Recovered water will be returned to wash the resin. The dam capacity will be 2.8Mt.

4.6.10 Design Criteria

The Design Criteria for the processing of Primary and Mixed ores are given in Table 4.14.

Table 4.14: Malomir Design Criteria

Description	Unit	Value
Tonnes treated	Mtpa	6.0
Average grade	g/t	1.42
Gold recovery	%	82.0
Gold production	kg	6,986.4
Consumption of materials and reagents:		
Sodium cyanide	kg/t ore	0.1
Caustic soda	kg/t ore	0.03
Resin	kg/t ore	0.02
Paraformaldehyde	kg/t ore	0.15
Lime	kg/t ore	2.0
Limestone	kg/t ore	30.0
Flocculant		0.03
Potassium xanthate	kg/t ore	0.15
Frother	kg/t ore	0.1
Copper sulphate	kg/t ore	0.05
Balls	kg/t ore	2.8
Lining	kg/t ore	0.35
Conveyor belt	m^2/t ore	0.003
Miscellaneous, 5%		
Power costs		
Electric energy	kWth/t ore	40.0
Fresh technical water	m^3/t ore	0.3
Number of staff (per day)	people	133
Operating regime:		
Hours per annum	hour	8,000
Number of shifts	shifts	2
Shift duration	hours	12

The plant will treat 6.0Mtpa of ore at a head grade of 1.42g/t Au. Gold recovery is predicted to be 82%. The plant will operate using a 2 x 12 hour shift system.

4.6.11 Number of Staff

The anticipated number of workers in 2010 for the enterprise is shown in Table 4.15.

Table 4.15: Malomir Process Staff Levels

Position	Shift 1	Shift 2	Total
Management			
Plant Manager	1	-	1
Chief Metallurgist	1	-	1
Chief Mechanical Engineer	1	-	1
Chief Power Specialist	1	-	1
Chief Chemist	1	-	1
Metallurgist	1	1	2
Chemist	1	1	2
Repair engineers	1	1	2
Security Chief	1	-	1
Secretary	1	-	1
Sub Total	**10**	**3**	**13**
Hydrometallurgy			
Chief	1	-	1
Shift Master	2	2	4
Equipment repair and maintenance master	1	-	1
Ore Preparation			
Crusher operator	2	2	4
Conveyor operator	2	2	4
Mill operator	5	5	10
Pump equipment operator	2	2	4
Crane operator	2	-	2
Sorption-electrowinning			
Leaching and sorption operator	2	2	4
Reagents preparation operator	2	2	4
Regeneration and electrowinning operator	2	2	4
Compressor equipment operator	1	1	2
Lab assistant	4	4	8
Smelting operator	2	-	2
Security guard	2	2	4
Control-measurement equipment operator	3	-	3
Duty electrician	3	3	6
Duty mechanic	2	2	4
Welder	3	-	3

Table 4.15: (cont) Malomir Process Staff Levels			
Position	**Shift 1**	**Shift 2**	**Total**
Flotation			
Flotation operator	2	2	4
Flotation reagents dozing operator	1	1	2
Pump equipment operator	3	3	6
Thickening operator	2	2	4
Reagents Preparation			
Crusher operator	1	1	2
Mill operator	1	1	2
Pump equipment operator	1	1	2
Reagents preparation operator	1	1	2
Bucket crane operator	1	1	2
Autoclave Leaching			
Shift manager	1	1	2
Operator	1	1	2
Pump equipment operator	2	2	4
Duty electrician	1	1	2
Control and measurement equipment operator	1	1	2
Oxygen Station			
Shift manager	1	1	2
Oxygen station operator	2	2	4
Compressor unit operator	1	1	2
TOTAL	**76**	**57**	**133**
Engineering and Technical Staff	16	7	23
Workers	60	50	110

The Malomir project will employ a total of 110 personnel. Of these, 13 will be at the management level. The total number of management, engineering and technical staff will be 23. A total of 110 workers will be employed working on a 12 hour shift basis.

4.6.12 Operating Cost Estimate

The consumables used in ore processing and the PHM operating cost estimate are given in Table 4.16 below.

Table 4.16: Malomir Process Operating Costs		
Item	**Unit**	**Value**
Mill balls	kg/t	2.8
Lining	kg/t	0.35
Sodium cyanide	kg/t	0.08
Lime	kg/t	2.0
Limestone	kg/t	30
Purogold resin	kg/t	0.01
Polyacrylamide	kg/t	0.03
Caustic soda	kg/t	0.03
Potassium xanthate	kg/t	0.15
Frother	kg/t	0.1
Paraformaldehide	kg/t	0.15
Copper sulphate	kg/t	0.05
Electric energy	kWh/t	40
Coal	t/year	17,718
Costs		
per tonne of ore	US$	7,14
Per gram of metal	US$	6,41
Per oz of metal	US$	199.0

WAI Comment: The Malomir process capital expenditure cost is estimated at US$7.14/t of ore treated. WAI believes this figure is too low and recommends that a figure of US$8.12/t be used in financial analysis.

4.6.13 PHM Process Capital Costs

PHM's estimate of the capital expenditure cost of treating 6.0Mtpa of Malomir Mixed and Primary ores is given in Table 4.17.

Table 4.17: Malomir Process Capital Cost	
Area	**Cost US$k**
Crushing	3,974
Milling	22,246
Stores	388
Leaching	3,239
Thickening	9,835
Flotation	9,062
Pressure Oxidation	16,993
Services	376
Reagent Preparation	1,617
Water Supply	283
Water treatment	193
Heating	2,691
Miscellaneous	2,671
TOTAL	**73,568**

4.6.14 Capital Cost Estimate from Western Process Engineering Companies

In early 2008 PHM entered into discussions with two western Process Engineering companies, Hatch Associates and GRD Minproc Ltd, who are capable of providing an EPCM service for the construction of a Pressure Oxidation and leach facility for the Malomir project. PHM is awaiting cost estimates from these companies at the time of the WAI Site Visit in July 2008.

4.7 Environmental Issues

4.7.1 Review of Environmental/Social Studies

Baseline conditions are currently being studied at the site by independent specialists contracted by PHM. The baseline study is expected to be finished imminently, with submission of this report to the authorities. Data collected to date indicate that air quality at the site is good with contaminants falling below State described 'background' levels. Water sampling indicates high background levels of Mn and Fe (reported to be typically high in the Amur region) and levels of suspended solids are also very high.

At Malomir, one PHM environmental engineer, who is working in parallel with another environmental engineer from Regis, PHM's exploration company, is based on site.

It was reported to WAI that during the exploration stage, environmental monitoring was commissioned in parallel with the geological study. Rozgidromet and Amurgeologia are licensed to collect the field data. Amurgeologia are collecting water quality data, whilst Rozgidromet are monitoring air quality. Water hydroflora and fauna are monitored by

Amurribvod, the State fishery agency. WAI was also informed that an ecologist conducts a 'watching brief' on geological exploration works to investigate potential environmental impacts during the exploration stage, and that on-site contractors are now required to adhere to an environmental code of practice during their works.

When a site licence is obtained, environmental research into baseline environmental conditions commences, and according to the law this can take up to 3 years. This database is then submitted to State agencies, who calculate approved background concentrations for all elements. This document, once received, forms part of the OVOS. At Malomir, baseline environmental research is being completed, and PHM is waiting to receive approved background levels from State agencies, since the Russian system requires baseline data to be approved before State calculated emission limits can be issued.

This background study will then be submitted to Irgiredmet or PHM engineering, who will review the investment evaluation (an engineering study) and the section of the OVOS which relates to this. Public hearings will then be carried out.

Once the OVOS section has been amended in light of the public hearings, the impact assessment section is written as part of the project feasibility study. This document will then be submitted to the authorities for Ecological Expertise comment and approval. Depending on how quickly the OVOS and investment evaluation section are assessed by Irgiredmet or PHM engineering, it is expected that the final OVOS submission will occur in 6 months to 1 year's time. It is planned to write the technical environmental report and work plan once the public hearings have been carried out and when State agencies have provided the Company with background emission levels for the site.

WAI Comment: WAI considers that the rationale for environmental assessment at the site is sound, but was concerned that the environmental supervision of exploration activities does not meet the standards described in the rationale. Subsequently, WAI is encouraged that since the last visit, an environmental code of conduct for contractors has been introduced at the site, which will ensure good on-site environmental practice.

It will be important to test and source a sustainable potable water supply, given the high natural background concentrations of Mn and Fe.

Should the project proceed, WAI recommends that in parallel with the OVOS, an ESIA be conducted to ensure compliance with the Equator Principles and IFC Performance Standards. Given the pristine nature of the site, it will be important to ensure that all potential environmental impacts are adequately characterised and addressed by management and mitigation strategies.

4.7.2 Review and Comment on Key Environmental and Social Issues

4.7.2.1 Environmental Status

At Malomir it is understood that there are no designations (e.g. specially protected sites) for environmental or ecological protection, biodiversity conservation, etc. However, the environment is at present largely 'unspoilt', with the exception of the areas covered by current and historical exploration and mining works. Any mining operation will have to be designed with a high level of environmental protection. The majority of the land that is the subject of the mining proposals is covered by 'Taiga' type forest. Whilst any land used for construction of infrastructure and mine facilities will constitute significant land-take here, there are large areas of this vegetation type, and the increased economy of the area will compensate for the loss of land. However, on the cessation of mining if land has been irreversibly lost, a rehabilitation plan will be implemented to return lands to a usable state as close to pre-operational levels as possible.

Given the high Fe and Mn levels in the water, a long-term potable water supply is being sought. A small spring, to service the accommodation camp during the construction phase, is currently being used. In the long-term, it is likely that water treatment to remove these metals will be required at site.

It was reported to WAI that the siting of project infrastructure has now been virtually decided for the Malomir site, although some alternative locations still exist for the Tailings Management Facility (TMF), which will be subject to appropriate testwork. One of infrastructure options maybe to canalise the Sukonir River however this has not yet been decided. It was reported that previous operations, including placer deposit exploitation in the area have affected the Sukonir River, and thus it is already considered to be disturbed.

WAI Comment: The potential impact of canalising the Sukonir River will need to be carefully considered and will be included in the technical design project, to ensure that the impact on hydrofauna and water quality can be adequately mitigated. Despite its reported disturbed status, it will be important to ensure that water quality does not deteriorate as a result of PHM operations. It will also be important to protect the Malomir creek and the Min River which flow in close proximity to the site.

4.7.2.2 Closure and Rehabilitation

Pursuant to existing environmental laws and regulations, upon the cessation of operations, mining companies are obligated to close their operations and rehabilitate the lands that they mine in accordance with these laws and regulations. Closure plans are then to be submitted to the regulatory authority for approval prior to implementation. At present the State Authorities provide for the calculation of closure costs on the basis of a cost per tonne of waste deposited in the event that these costs are to be met by the State, as a result of default by the mining company. These costs are prohibitive and designed to encourage operators to undertake the rehabilitation works themselves. The classification of waste at Malomir has not yet been determined, and is dependent upon the toxicity of the final product. Irrespective of the method of calculation, estimates of the total ultimate closure and rehabilitation costs for mining operations are significant and based principally on current legal and regulatory requirements that may change materially during the life of the mine.

A conceptual closure plan, outlining generic aspects of closure has been included in the Feasibility study which is currently being prepared; however, no estimates for closure at Malomir have currently been provided by PHM. Once a full technical work plan for environmental protection is in place for Malomir, a closure provision will be developed.

4.7.2.3 Water Management

With the proximity and direct linkage to the Sukonir River, the Min River and the Malomir creek, water quality and the protection of water resources (ground and surface) will be a high priority. This will require particular attention to water management, river diversion, erosion control and containment of wastes, particularly tailings. The TMF will require a closed water system, incorporating adequate drainage measures for handling and diverting surface waters. The need for effective control of water management has been identified as a key issue. This is particularly important with respect to the control of surface water in the vicinity of the proposed open pit and the TMF. The Sukonir River will need to be diverted to the east of its current course and technical studies to support this will be carried out by PHM as required by State legislation.

Dewatering will be required for pit operations and a closed circuit water reticulation system will be designed in due course, as has already been done at Pokrovskiy which will reduce pressure on natural water resources.

A water balance has not yet been prepared for the operations. It is thought that the process and 'technological' water requirements can be met from surface water supplies in the area.

Cyanide management will need to be carefully controlled to avoid deleterious environmental impacts, particularly on water quality. WAI would recommend that PHM aims to bring operations at Malomir in line with the International Cyanide Management Code, such that good environmental management is practised. Similarly, emergency response procedure, and well-managed fuel and chemical storage facilities will be very important to avoid contamination incidents.

4.7.2.4 Social Issues

The local economy would receive a very significant boost with the establishment of a major employer (direct and indirect) such as a mine in the vicinity. This will have a profound effect on the economy and social infrastructure. Local employment would be available.

4.7.2.5 Tailings Management

Tailings management will be a key issue, given the presence of surface water features in the vicinity of the site. The construction of an engineered, surface tailings disposal facility would be expected to meet federal design requirements, incorporating Best Available Techniques (BAT) in its construction, use and long term security.

5.0 OTHER HARD ROCK ASSETS – AMUR REGION

5.1 Introduction

Apart from the principal PHM assets of Prokovskiy, Pioneer and Malomir, staff from WAI also briefly visited the Tokur and Albyn projects, as well as viewing several placer gold operations from the air.

In addition, data have been reviewed on the majority of other PHM properties held in the Amur Region and brief details of these are presented below. These assets range from recent acquisitions where little or no work has been undertaken, to well advanced drill projects and previously worked mines.

These projects all require further exploration and geological modelling type work before meaningful mineral resources can be estimated. All the projects are amenable to open pit mining and are being actively explored in order that PHM meets its production targets over the coming years.

The order in which the assets are discussed below to some extent takes into account the importance of these within the overall PHM corporate strategy and business plan.

Figure 5.1 shows the location of the principal assets of PHM in Amur Region.

The Russian standard resources and reserves classification system includes categories P_2 and P_3 to indicate the exploration potential of a region or licence area. These categories do not correspond with any resource categories in the JORC Code (2004), or any other internationally recognised reporting code.

In previous years PHM has reported resources in these categories, and for exploration areas such as those in the Amur Region, they have provided some guidelines on the relative potential of different areas. However, PHM has taken a decision not to report P_2 and P_3 categories from 2008.

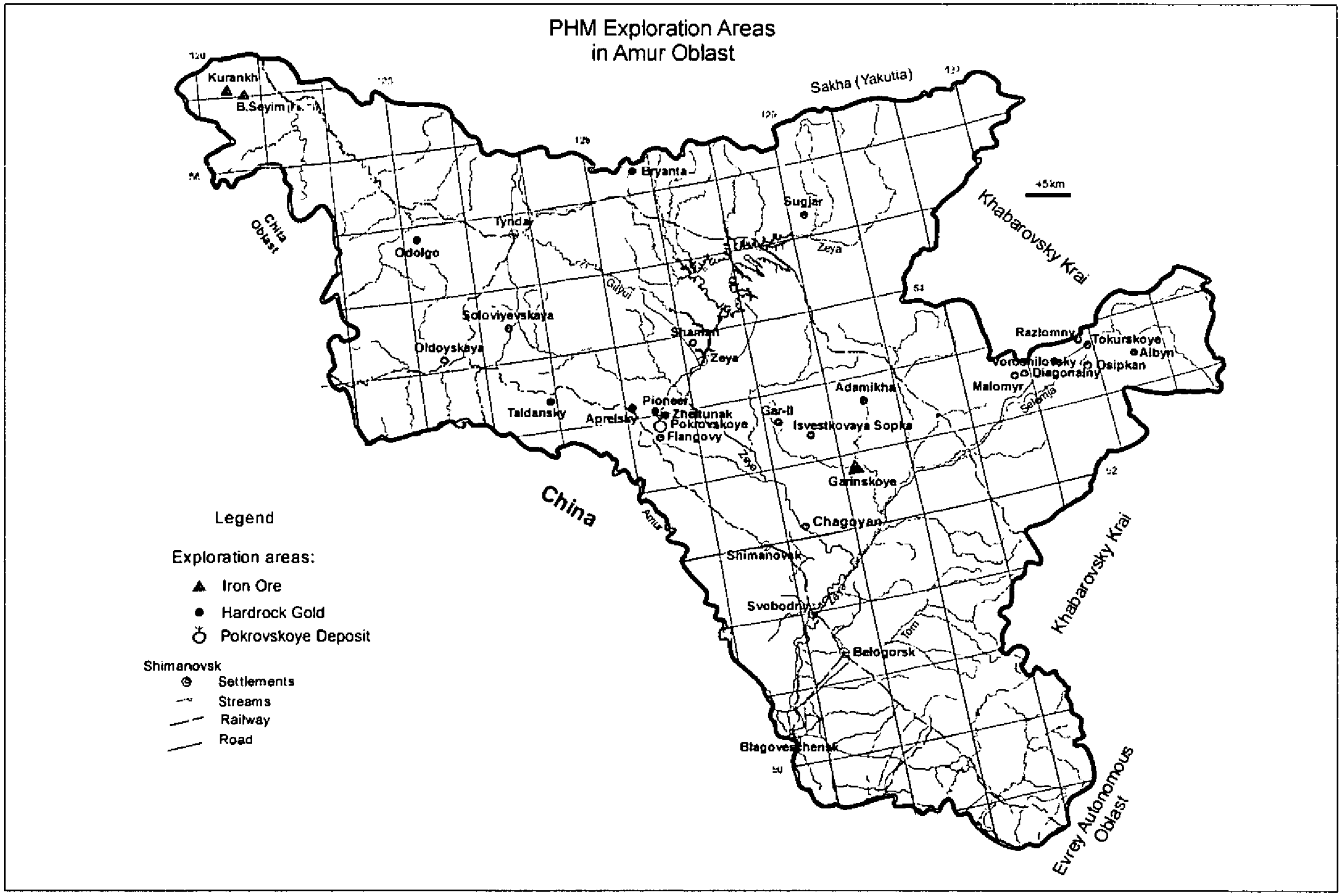


Figure 5.1: Principal PHM Assets in Amur Region

5.2 Pokrovskiy Satellite Deposits

5.2.1 Introduction

A number of important satellite deposits lie close to the Pokrovskiy mine, each at different stages of exploration. These are included within the main Pokrovskiy licence. The location of these satellite deposits are indicated in Figure 5.2 below.

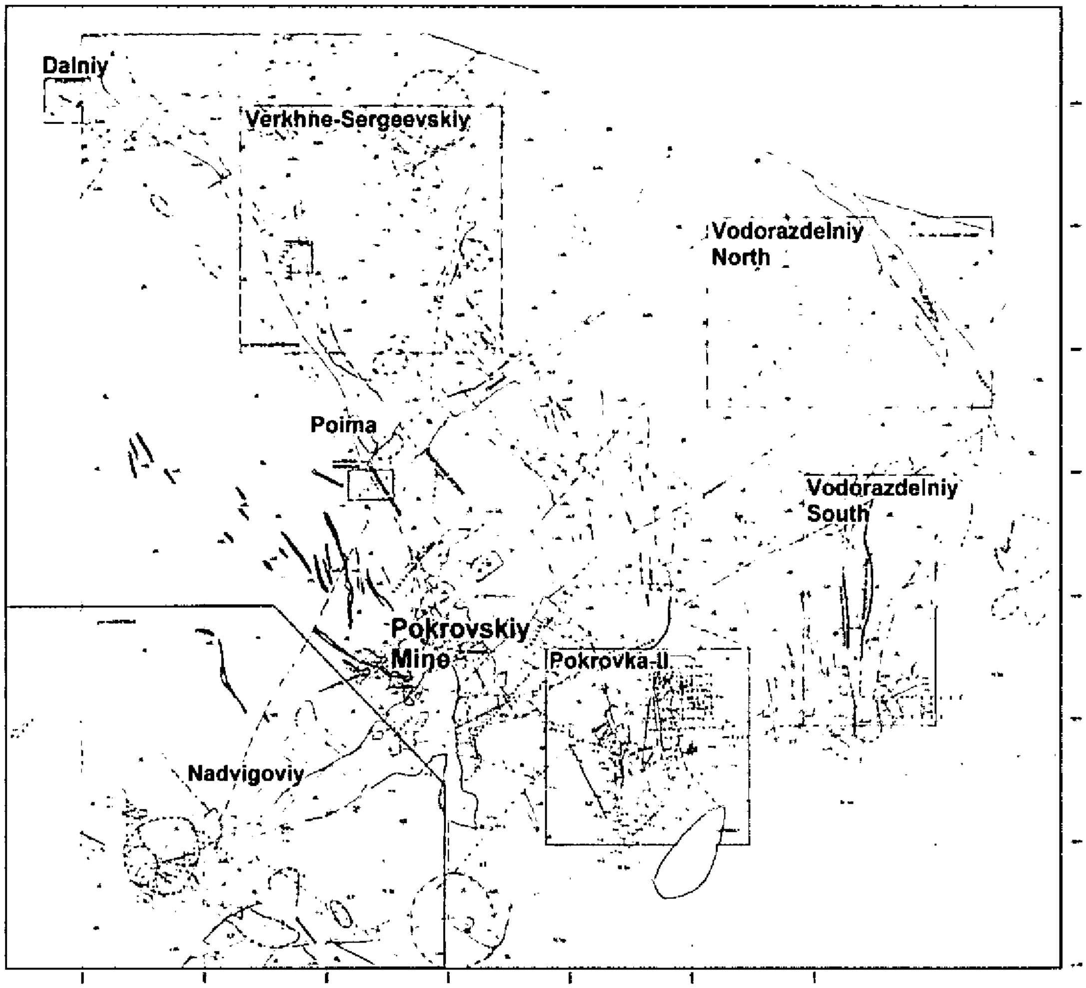


Figure 5.2: Location of Pokrovskiy Satellite Deposits

5.2.2 Mineral Rights and Permitting

The Sergeevskiy Licence No BLG00900BR for exploration, and mining of gold, covers all Pokrovskiy satellite deposits (area of 95km^2) and has a validity period from 06.05.99 to 01.09.20.

The co-ordinates of the licence area is given in Table 5.1 below:

Table 5.1: Sergeevskiy Licence Co-ordinates		
Co-ordinate	Latitude (N)	Longitude (E)
1	53°15'30"	126°16'00"
2	53°15'30"	126°22'30"
3	53°13'20"	126°30'00"
4	53°10'30"	126°30'00"
5	53°10'30"	126°19'00"
6	53°13'00"	123°13'00"

WAI Comment: According to the licence agreement, reporting must be completed in the first quarter of 2009. A feasibility study on results of exploration activities at Pokrovskiy inner satellite deposits is currently being prepared and reserves are expected to be approved by the GKZ in the first quarter of 2009.

5.2.3 Geology and Mineralisation

Some 4km northwest of Pokrovskiy, located in a similar tectonic situation as Pokrovskiy, is the Dalny zone. Fracturing has formed two separate mineralisation trends (northwest-southeast and southwest-northeast) in the form of silicified low grade sulphide mineralisation. Initial grades appear attractive and supported by limited deep drill holes.

5.2.3.1 Pokrosvka-2

The Pokrovska-2 deposit lies to the southeast of Pokrovskiy and is covered by Recent/Neogene sands and clays along with the locally named "fanglomerates". In general, the geology and mineralisation of the deposit are very complex, and current interpretation through drilling and trenching, has finally resolved the complex geological structures.

Considerable exploration has taken place as, at the time of its discovery, this deposit was considered to have more potential than other deposits in the Pokrovskiy area. There is significant quartz float with some high grades (>100g/t Au) and good pathfinders such as Ag and As. However, initial exploration could not find where the quartz fragments had originated.

An extensive drilling and trenching programme by PHM has discovered significant mineralisation including the "fanglomerates". These units have gold both within the fanglomerates and in 'basement' rocks below them. A richer block to the northeast of the eastern bay has now been explored. Gold has been found at shallow depths in tuffs dipping gently to the south. In four holes, from 30m depth and with thickness around 20m, grades are in the region of 2g/t Au gold-equivalent (i.e. allowing for high silver grades).

Further east, the fanglomerates thin out, and significantly they are found to be displaced by a low-angle thrust (Figure 5.3). As will be seen below, this may be crucial to the interpretation of these rocks and to the evaluation of their gold-bearing potential.

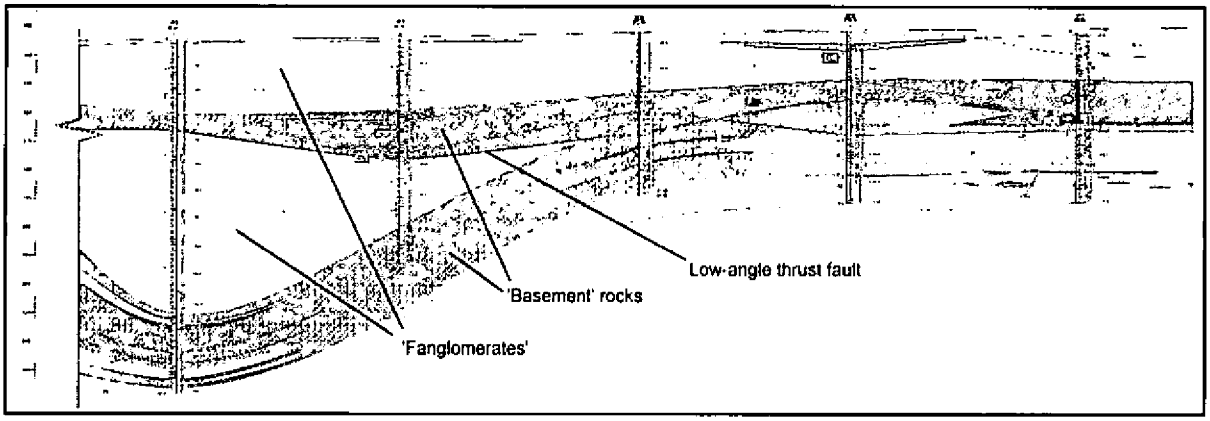


Figure 5.3: West-East Cross Section through the "Fanglomerates"

At similar shallow depths to the north of this area, there is a northward dipping thrust zone which is gold-bearing. This has not yet been traced for any distance, so there are not yet any thickness and grade estimates. One hole (3447) intersected 11m at an average of 4.7g/t Au.

Recent views suggest that the fanglomerates represent an olistostrome which is a sedimentary deposit composed of a chaotic mass of heterogeneous material, such as blocks and mud, that accumulates as a semi-fluid body by submarine gravity sliding or slumping of the unconsolidated sediments. The age of the unit is believed to be the upper part of the Lower Cretaceous.

This concept fits the discovery that significant tectonic activity was continuing during and after the formation of the fanglomerates (i.e. they are affected by later thrust faulting). The above description of an olistostrome matches both the observed appearance of the rocks and the fact that gold-bearing fragments in them have been transported only a very short distance (high degree of angularity and variable grain size) from the source mineralisation bodies. If this new interpretation is correct, the 'fanglomerates' should more correctly be referred to as mélange deposits.

The granite intrusion present at Pokrovska 2 is pre-mineralisation, but is mineralised in a similar manner to Pokrovskiy.

Generally, the "fanglomerate" mineralisation appears to be sub-horizontal and has produced intersections both within this unit and the interbedded volcanics, of 19.8m at a grade of 2.56g/t Au and 32.6m at a grade of 1.87g/t Au. In addition, the granite has intersections up to 17.8m at a grade of 5.73g/t Au. However, gold grades are generally highly variable.

Furthermore, some of the higher grade mineralisation may be related to the Sergeevskiy Fault (a NW-SE trending fault associated with the Pokrovskiy deposit) which seems to localise grades adjacent to it.

At the northern margin of Pokrovska-2, on a southeastern extension of the Molodezhnoye orebody, high silver grades up to 130g/t have been found so far in just one drill hole profile. If confirmed, this represents a different ore type and will need metallurgical study.

WAI Comment: The Pokrovska-2 deposit represents an exciting target which is being aggressively explored by PHM in order to better understand the structure and mineralisation. WAI believes that this deposit has the potential to host significant gold (and silver) mineralisation.

Exploration to the southeast of Pokrovskiy shows continuation of the mineralised stockwork towards Pokrovska-2 that could ultimately lead to their amalgamation.

Pokrovska-2 displays two types of mineralised structure:

- shallow dipping tectonic structures within 'alluvial' units (fanglomerates); and
- stockwork (Pokrovskiy type).

The fanglomerates contain some large bed thickness, as much as 60m, but maintain a grade of circa 1g/t Au, with some higher grade areas, though these grades are often higher than in the stockwork.

Testwork is currently being undertaken by Ingridmet with some 23t from the fanglomerates already showing similar potential processing route as that for Pokrovskiy. However, clay zones within the fanglomerates appear barren and may need to be 'washed' out prior to processing.

A 40 x 40m area in the north of the Pokrovska-2 mineralised zone has been estimated by PHM to Russian standards to contain a Prognostic P_1 resource of 33kt at 1.6g/t Au. Currently the deposit hydrogeology is being investigated with a resource estimate due to be submitted to GKZ for approval next year (2009), but as an 'Off Balance' estimate using a 0.5g/t Au equivalent (taking into account Ag).

5.2.3.2 Nadvigoviy

This occurrence lies on the same structure as Pokrovskiy, some 2km to the southwest. A rich gold placer is present over the site. Satellite imagery has identified circular features whilst geochemistry has delineated strong secondary haloes.

Limited drilling has indicated the presence of fanglomerates, although preliminary data appear confusing.

The area has been divided into areas "A" and "B" representing the west and east sides of the block respectively.

Within Area "A", a geochemical anomaly was located in the allochthon (the rocks which lie above a thrust) in granitic rocks similar to those at Pokrovskiy. However, drilling since 2005 has not confirmed the presence of any significant mineralisation. This year, drill holes 3601, 3602 and 3603 intersected an ore structure trending NW-SE *viz*,a mineralised breccia within a thrust zone (though not the main thrust structure of the Nadvigoviy block). In hole 3601, gold grades were recorded averaging 1.2g/t Au over a near-surface 9m intersection, and at greater depths a shallow-dipping weakly mineralised metasomatic zone was intersected.

At Area "B", shallow mapping holes were recorded as locating gold within fanglomerates. However, other holes intersecting fanglomerates were found to be barren. The most likely explanation for the recorded gold was contamination from a Neogene palaeo-placer deposit. There is a deep ancient valley filled with Neogene sediments in exactly this area, trending NW-SE (parallel to a modern placer deposit lying about 500m to the south).

From this, two theories have been put forward for the styles of mineralisation seen:

1) Neogene sediments deposited in a paleo–valley with Au >6g/t in some holes; and
2) A second style of mineralisation similar to that seen at Pokrovska-2.

Placer deposits, whether modern or Neogene, are outside the scope of the licence. However, the Company, as discoverer of this deposit, has discovery rights, and the obligation to carry out initial exploration of the deposit - and the right to acquire a mining licence on the deposit if it is found to be economic. WAI understands that it is a legal obligation to carry out the exploration and for non-compliance the licence can be withdrawn at the present time PHM does not have any intentions to stop exploration works at Pokrovska-2, moreover PHM is preparing a full feasibility study in order to put Pokrovska-2 reserves on the state balance in 2009.

5.2.3.3 Poima

This occurrence lies along the Sergeevskiy fault, south of the Verkhne-Sergeevskiy exploration block. Drilling has been carried out across the Sergeevskiy (pre-mineralisation) and Pokrovskiy (post-mineralisation) faults.

Low grade gold mineralisation (0.8g/t Au) was intersected at 100-115m depth, although further north, in hole 3343, gold was detected at 10m depth in brecciated andesite/dacite tuffs. Although adjacent holes were barren, this is of more potential interest due to its shallow depth and the similarity of these rocks to those in the Pokrovskiy mine and their relationship with the Sergeevskiy fault, believed to be one of the principal controlling structures for mineralisation.

A further 500m northwards, similar breccias are again intersected, mostly barren in samples assayed so far, but where gold occurs, grades up to 3g/t Au have been found. This block is adjacent to a very rich placer, the source of which must be close; this is also the location of a major anomaly in the 3d geochemical modelling done in 2004-5. The decision has been made to continue this exploration.

5.2.3.4 Vodorazdelniy South

This occurrence lies adjacent to the tailings dam, and limited drilling has identified high silver grades (>1,000g/t Ag), but with very low grade gold. The high silver grades are all at depth, in blind ore bodies with more than 50m of overburden. There is a possible small gold deposit near surface, but of low grade and little potential economic interest. Due to metallurgical concerns, structural complexity and depth, work has been suspended on this site.

Further east of Pokrovska-2 lies the Vodroazdelny mineralised zone that is composed of gently dipping (mineralised) silicified tectonic zones of generally low grade with some higher grade 'pay-shoots' (<1.0g/t Au).

5.2.3.5 Vodorazdelniy North

There is a possible mineralised structure trending NE-SW in line with the main Pokrovskiy ore bodies. Coinciding with this structure, there is a rich gold placer deposit in the river Ushurikha coincident also with a Pb/Ag/U geochemical anomaly. One line of mapping drill holes and one trench have indicated patchy gold grades from data received to date.

Most assay results from exploration at Vodorazdelniy are not yet received, but if they do not indicate any improvement, then exploration in this area will be suspended in this area.

5.2.3.6 Verkhne-Sergeevsky and Dalniy

Exploration in these areas is so far in the preliminary stages. There are indications of gold mineralisation. For example in the north of the Verkhne-Sergeevsky zone, one mapping hole found 0.5g/t Au over an interval of 6.8m within a geochemical (Au) aureole. In the northwest corner of the area, where previous work indicated a primary aureole and gold was detected in mapping holes (up to 1g/t Au), mineralisation has not been confirmed by deep drilling.

In the Kontaktoviy area, gold found in mapping holes has not been confirmed from deep drilling. This is probably because the gold is actually in a palaeo-placer. This observation can only be confirmed by much more additional drilling, with no assurance that anything of interest will be found. The decision was taken by PHM to suspend work on this block.

5.2.3.7 Bazovaya

The Bazovaya mineralised zone is located to the east of the main 'Inner Flanks' areas, and was considered to be of relatively little significance, with an area of shallow but low grade gold mineralisation ('out-of-balance' C_2 resource).

Areas of better gold grades have mainly been identified in the central and southern parts of the area, whilst exploration has shown very low grades in the north-west of Bazovaya area. New exploration work has failed to confirm predecessor estimates and no obvious trend has been identified. Two Prognostic P_1 resource zones, with sub-horizontal orientation, have been identified; one at 13.2m thickness in the south, with 732kg (24koz) gold resource, the other 22.8m thick in the north central area, with 5,400kg (174koz) gold estimated resource. Currently it is not clear how further exploration will increase resources, since the geological structure is still not well understood. Further assay results are still awaited, and may shed light on a possible model of concentration at the contact of the andesite and andesite tuff breccias.

WAI considers that further drilling and trenching is required to properly determine the potential of the site, though due to poor ground conditions this work can only be undertaken during the winter months.

5.3 Pokrovskiy Outer Satellite Deposits

5.3.1 Introduction

The Pokrovskiy outer satellite deposits comprise four separate sites covered by the Zheltunak licence. Exploration continues at the Velikiye Luzhki and Anatolevskiy areas to the south of Pokrovskiy mine, the Proletarskiy area to the west and Zheltunak to the east northeast. The location of the four sites with respect to Pokrovskiy is shown in Figure 5.4 below.

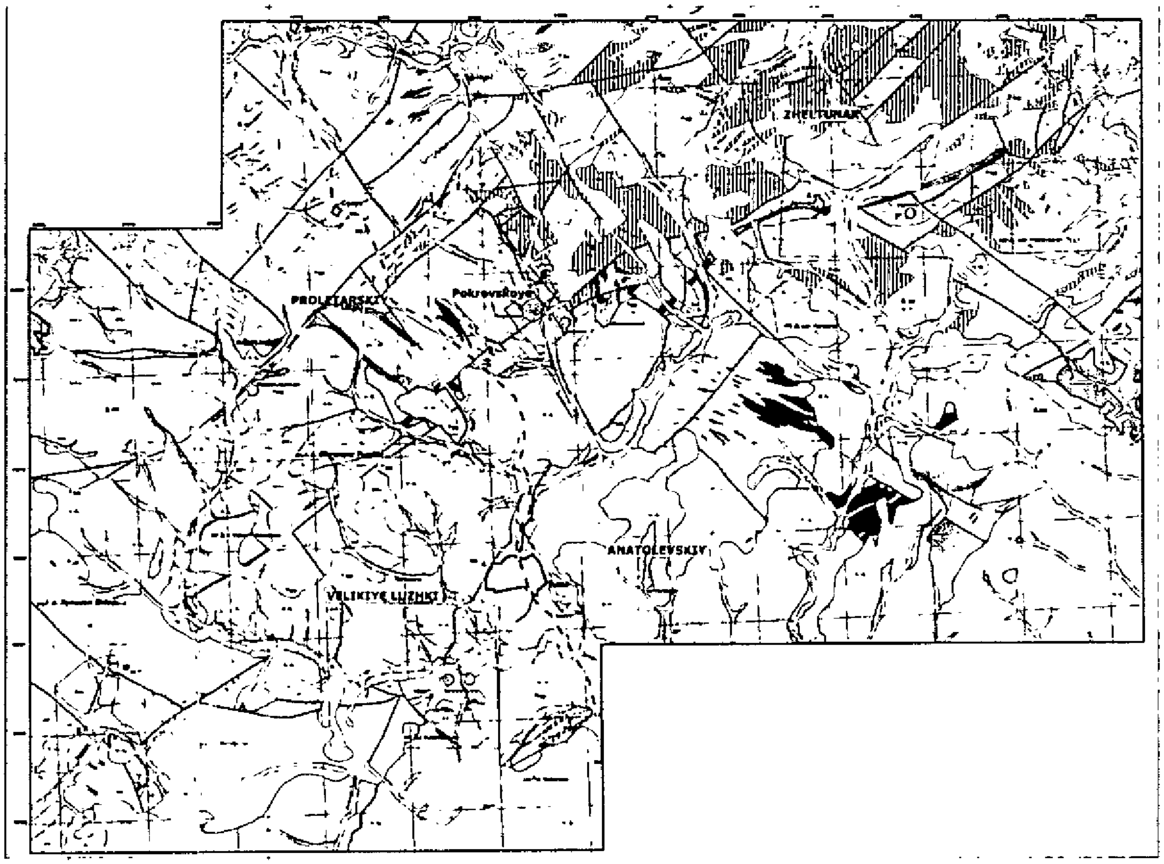


Figure 5.4: Pokrovskiy Outer Satellite Deposit Licences

5.3.2 Mineral Rights and Permitting

The Zheltunak Licence No BLG01697BR for geological prospecting, exploration and mining of gold includes four sites: Zheltunakskiy, Proletarskiy, Anatolyevskiy and Velikiye Luzhki, together making up some 147km^2. The validity of the licence is from 14.06.2005 to 31.12.2030.

The co-ordinates of the sites are given in Table 5.2 to Table 5.5 (inclusive) below:

Table 5.2: Velikiye Luzhki Licence Area (52km^2) Co-ordinates		
Co-ordinate	**Latitude (N)**	**Longitude (E)**
1	53°02'30"	126°12'10"
2	53°06'00"	126°12'00"
3	53°05'40"	126°19'00"
4	53°02'30"	126°19'00"

Table 5.3: Anatolyevskiy Licence Area ($4km^2$) Co-ordinates		
Co-ordinate	Latitude (N)	Longitude (E)
1	53°05'40"	126°25'00"
2	53°07'00"	126°25'00"
3	53°07'00"	126°26'30"
4	53°05'40"	126°26'30"

Table 5.4: Proletarskiy Licence Area ($40km^2$) Co-ordinates		
Co-ordinate	Latitude (N)	Longitude (E)
1	53°09'50"	126°11'30"
2	53°13'00"	126°11'10"
3	53°13'00"	126°15'00"
4	53°09'50"	126°19'10"

Table 5.5: Zheltunakskiy Licence Area ($51km^2$) Co-ordinates		
Co-ordinate	Latitude (N)	Longitude (E)
1	53°14'20"	126°30'30"
2	53°17'30"	126°30'30"
3	53°17'40"	126°38'10"
4	53°14'10"	126°38'10"

5.3.3 Geology and Mineralisation

5.3.3.1 Proletarskiy

The Proletarskiy site lies some 3km southwest of Pokrovskiy and close to the railway. The area comprises terrigenous Jurassic rocks intruded by dykes and quartz diorites and may well represent a roof pendent.

The most obvious significant geological feature of this area is a series of NW-SE trending granite-porphyry dykes, south of a dioritic intrusive complex. Gold mineralisation, as indicated in a rich placer which crosses the area, is confirmed in a series of lines of shallow mapping holes, but little consistent evidence of gold mineralisation has been identified.

A strong linear anomaly (indicated by gold and arsenic aureoles) over 1.3km in length has been identified, trending WNW-ESE (across ten lines of samples at 100m spacing), possibly along the line of a previously unsuspected fault parallel to two major faults across the north of the area. Gold grades, even in these shallow holes were up to 0.71g/t Au. This forms a significant exploration target and will require trench exploration and if confirmed will need to be drilled. It is the only consistent exploration target so far discovered in the Proletarskiy block.

Exploration is still at an early stage though is actively continuing.

5.3.3.2 Velikiye Luzhki

The Velikiye Luzhki licence area lies some 14km south of Pokrovskiy. The basic structure of the Velikiye Luzhki area consists of a diorite mass to the north, overlying Jurassic and Cretaceous sediments on the south, the contact being a thrust zone dipping northwards. Gold is found in quartz veinlets occurring as multiple intervals coinciding with tectonic structures and metasomatic zones (albitisation and silicification). Some mineralised intervals are found in apparently unaltered sedimentary rocks.

Gold is found in both the footwall and hangingwall of crush zones, as well as with pyrite in tectonic zones adjacent to granite porphyry dykes. The dip of the sedimentary rocks is variable; the form and dip of mineralised zones is unknown. Gold mineralisation has been intersected in a series of N-S parallel trenches over a strike length of 2.3km.

The question of orientation of the ore zones is still not resolved though one drill hole (C-04) can potentially resolve this situation. The geological log reports a potentially mineralised zone but no assays have yet been received. Adjacent drill hole C-08 and trench K-24 both contain some tens of metres of strong mineralisation with a porphyry dyke footwall, and a similar dyke is also reported in hole C-04. If these are correlated they would indicate a southward dip at about 50°. Indications from other data (drill hole C-06 and trench K-15) suggest that the mineralised zones may be very steeply dipping (southwards) or sub-vertical.

Recently, a pre-strip (transheya) some 86m long has been excavated along the main east-west trending mineralised zone with trenches every 8m, but assay results have only been received for three trenches to date including 1.4m at 2.02g/t Au, 7m at 1.17g/t Au and 6m at 2g/t Au. Drilling during the winter is planned for this prospect.

A Prognostic P_1 resource has been estimated by PHM to Russian Standard Classification System and is quoted as 2Mt at 2.5g/t Au. However, additional exploration is required to delineate the gold mineralisation further and support this statement.

5.3.3.3 Anatolyevskiy

This small prospect lies some 10km south of Pokrovskiy, close to a state road where an old pit was developed for road stone production.

This zone contains Jurassic age hard contact-metamorphosed slates and aleurolites, which have been silicified and mineralized through intrusion by a quartz diorite.

The sediments are cut by sigmoidal quartz veins dipping SE at approximately 30° which produced some gold grades, i.e., 3.8m at 3.54g/t Au and 3.3m at 6.17g/t Au. However, initial indications are that this represents a small occurrence.

Preliminary trench exploration and shallow drilling have intersected mineralisation and identified a zone of metasomatic alteration at least 640m in extent, on either side of the contact zone between a Cretaceous quartz-diorite intrusion and sandstone host rock. There are encouraging, but incomplete results thus far from trenches (Figure 5.5) and decisions on further drilling are awaiting the receipt of assay data.

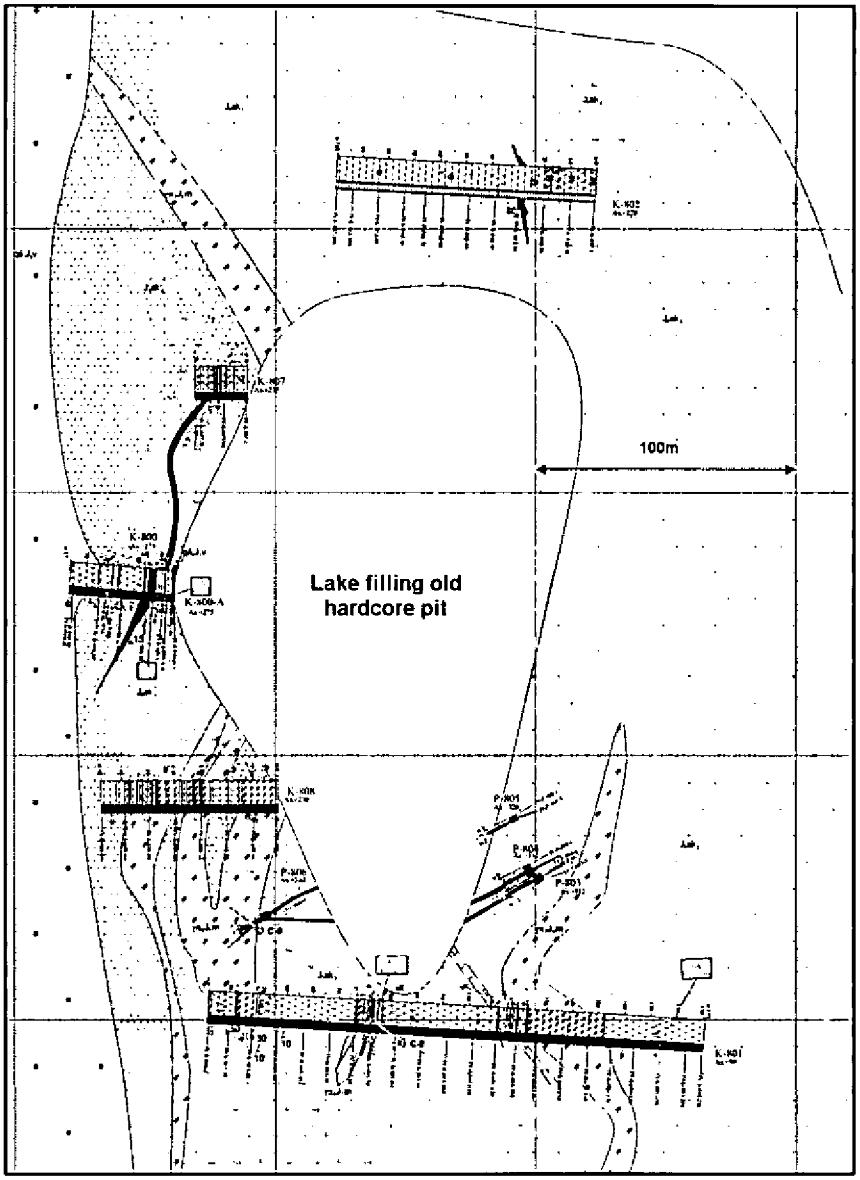


Figure 5.5: Anatolyevskiy Exploration Trenching

5.3.3.4 *Zheltunakskiy*

Recent trenching at Zheltunakskiy, 13km east-north-east of Pokrovskiy 2, has revealed an intersection of 38.3m at 2.0g/t Au. Mineralisation was noted in a low angle overthrust zone with low sulphide content and appears to consist of a series of sub-parallel zones. Two large anomalies display low resistivity and magnetic signatures. However, mineralisation appears to represent 'crush' zones that may not be the actual main mineralised zone that has yet to be revealed but may be nearby.

The Zheltunakskiy site is thought to represent the centre of a volcanogenic field, with an associated Au-Mo-Ag geochemical anomaly which might represent a porphyry signature. The rocks comprise andesites, dacites, tuffs, breccias and subvolcanic dacites which may reflect a caldera setting.

Previous work in 1976 showed diluvial quartz chips with gold values up to 44g/t, whilst more recently, lithogeochemistry, geophysics and some trenching have identified secondary haloes which look interesting.

In 1987, some drilling and trenching took place which encountered intense argillic alteration and quartz veining (up to 5m), although assays were not that encouraging (2-4g/t Au but sporadic sampling over short intervals). The veins were accompanied by weak silificification which was chip sampled with the majority of assays above 10g/t Au.

However, in general this represents an early stage project and PHM plan to follow up geochemical anomalies identified with trench and drill hole exploration.

5.4 Tokur

5.4.1 Introduction

The Tokur deposit, which lies some 450km east of Pokrovskiy, was discovered in 1939 and exploited until 1992 by underground methods to a depth of around 400m, producing some 35t of Au.

PHM acquired the Tokur deposit in June 2003. Tokur has been mined at different times and is well served by local infrastructure and is located in an area of intensive historic placer mining. The exploration and mining licence covers the area surrounding the old Tokur mine and the Innokentevsky and Taranakh deposits, associated with the Glavniy fault which appears to control the gold mineralisation.

PHM has built a fully accredited laboratory at Tokur in order to assay samples from Tokur and Malomir, as well as other assets in the area. Further work is ongoing to develop a regional test plant for gravitational, flotation and cyanidation metallurgical work for the Group's three assets in the region.

Current gold production from Tokur comes from placer extraction, beneath and adjacent to the mine waste dumps (Photo 5.1). Future plans look to re-treat both the mine waste dumps and hand sorted rejects from the previous operations.

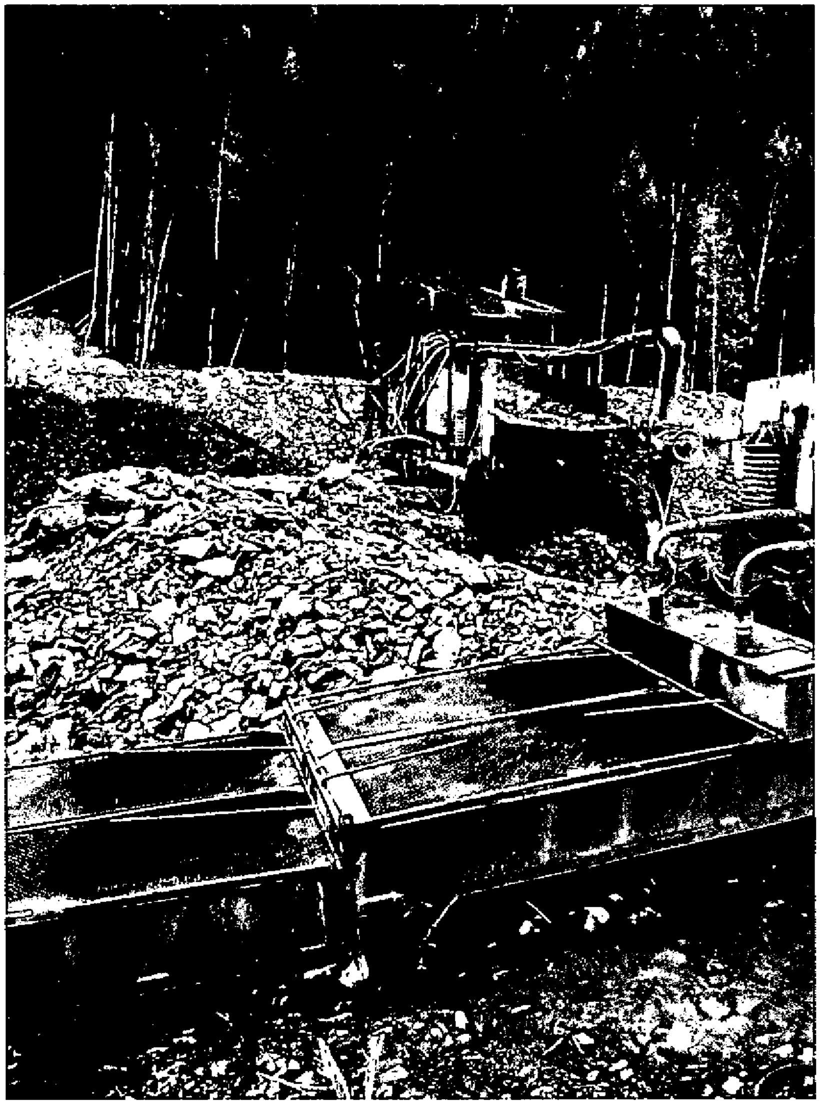


Photo 5.1: Placer Working at Tokur

5.4.2 Mineral Rights & Permitting

The Tokur exploitation Licence No BLG01366BE for gold mining covers an area of 480ha (4.8km^2) without any depth limitation and is valid from 22.11.2002 to 31.12.2013.

The co-ordinates of the licence area are given in Table 5.6 below:

Table 5.6: Tokur Licence Co-ordinates		
Co-ordinate	Latitude (N)	Longitude (E)
1	53'17'00"	132°48'00"
2	53°17'00"	132°55'00"
3	53°16'00"	132°55'00"
4	53°16'00"	132°48'00"

5.4.3 Geology and Mineralisation

Gold occurs at Tokur in quartz veins cutting Palaeozoic slates and shales, within a thrust-sheet structure related to the Mongolo-Okhotsk mobile belt. There also appears to be secondary enrichment in the oxide zone. The principal mineralisation at the old Tokur Mine was associated with a silicified zone along a major thrust fault, known as the Glavniy Fault.

Preliminary geological exploration of the Glavnaya mineralised zone has been completed over its entire length (6.0km). Exploration trenches and drill holes have confirmed and extended the previous reserve estimates in the central Tokur and Innokentevsky deposit areas.

It has been established that economic mineralisation within this zone is concentrated in 'ore columns' associated with gold-bearing quartz veins. The longest such section (1.5km) is located at the Tokur deposit itself. It has a typical gold grade of 2.2g/t Au over a thickness of 8.5m. At depth the grade gradually increases and at 150m is 3.6g/t Au over 5m.

5.4.4 Mineral Resources

PHM have estimated the resources and reserves for the Tokur project according to the Russian standard classification system.

WAI has examined the resource and reserve data pertaining to the Tokur project. PHM disclose resources and reserves from A through to P_3 although for purposes of this report, WAI does not consider it appropriate to quote the P_2 and P_3 resources as they do not have any direct equivalent to the JORC Code (2004) even though they may represent exploration potential. The resources and reserves as estimated by PHM for Tokur are summarised in Table 5.7 below.

Table 5.7: Tokur Russian Classified Resources and Reserves (PHM 01/01/08)												
Category	$B + C_1$				C_2				P_1			
Ore Zone	Tonnes (kt)	Au (g/t)	Au (kg)	Au (koz)	Tonnes (kt)	Au (g/t)	Au (kg)	Au (koz)	Tonnes (kt)	Au (g/t)	Au (kg)	Au (koz)
Quartz Vein Mineralisation	414	11.80	4,883	157	414	11.80	4,883	157				
Waste Dumps					737	1.69	1,244	40				
Glavnily Fault Mineralisation	3,518	2.24	7,869	253	7,700	1.92	14,774	475				
Prognostic									15,010	3.39	50,947	1,638
TOTAL	**3,932**	**3.24**	**12,752**	**410**	**8,851**	**2.36**	**20,901**	**672**	**15,010**	**3.39**	**50,947**	**1,638**

These resources are also summarised in Table 1.1 where some rounding has occurred.

As can be seen from the table above, the majority of the resources are related to the Glavnily Fault mineralisation. PHM has produced a preliminary pit design which exploits the near surface oxide mineralisation (down to approximately 50m) and indicates some 4.3Mt at a grade of 1.95g/t Au might be available for extraction. However, the terrain around this area is rugged and PHM states that drilling this target is problematic.

Russian Classification Standard for Tokur protocols in 1991 stipulated a 40-80 x 20-80m underground drill grid for C_1 category, which gave average grades between 2.1 – 2.4g/t Au, with average thicknesses between 8 – 20m.

A bulk sample of 300kg collected in 1989 produced gravity/flotation recovery of 90% with a head grade of 3.4g/t Au. This sample was collected across the main fault zone which represents the potential open pit target for PHM in the upper zones.

A study in 1988 suggested the deposit extended over a 3km strike length and 1km depth at a grade of 2.8g/tAu. Reserves were calculated for this fault zone as 2.6Mt at 3.4g/t Au. In 1989, another study at 1.2g/t Au COG gave 3.4Mt at 2.2g/t Au at C_1 category, and 5.4Mt at 1.8g/t at C_2 category. From this, approximately 10t of gold was projected for the open pit. More work is required to delineate the hard rock potential of this deposit.

In addition, resources remain in the previously worked quartz veins above the Glavniy fault, and higher grades than expected (up to 11g/t Au) were found at the fault itself.

A modest tonnage has also been estimated in the waste dumps where annual samples were collected on a 4m x 4m grid (surface grab only), but may not be representative of the year's production.

Some recent 200–500kg samples have been collected from the area, which have returned very high gold values of 16 and 22g/t Au.

In addition, a 5t sample was collected which gave a value of 1.4-1.6g/t Au, whilst work in 2004 estimated two areas of waste dumps, a 250kt site and 487kt in a narrow valley, both with grades of around 1.7g/t Au.

WAI Comment: PHM has included the Tokur resources into their corporate long-term business plan. It is believed that this will be produced from treatment of the waste dumps through a pilot plant operation, currently being built at the site, from which a business plan will be derived.

5.4.5 Processing

Processing at Tokur will commence with the treatment of low grade dump material. The operation will be expanded to treat gold bearing arsenical quartz ores in later years.

Material will be crushed in two stages using a jaw and cone crusher. The crushed product will be ground in two ball mills with the ground product passing to jigs. The jig concentrate will be cleaned using a 12" Knelson concentrator. The Knelson concentrate will be subjected to intensive cyanide leaching. Gold will then be recovered from the leachate by direct electrowinning. The cathodic sludges will be filtered, dried and smelted to produce a final dore product. It is estimated that overall gold recovery using this method will be 76-80%.

It was reported that Irgiredmet are developing a flowsheet for the treatment of the quartz ores. It is anticipated that these will be exploited in 2009. It is thought that the final flowsheet will involve gravity and flotation followed by intensive leaching of the concentrates. Overall gold recoveries using this method are expected to be 74% with cyanide leach recoveries of the concentrates being 94%.

PHM are also evaluating radiometric sorting as a means of pre-concentrating the Tokur ores.

The economic feasibility of processing the Tokur ores is currently being evaluated.

5.4.6 Environmental Issues

5.4.6.1 Review of Environmental/Social Studies

Tokur currently has one environmental engineer on site. It was reported to WAI that all environmental permits have been obtained for operations at Tokur. Currently, the waste dumps from former underground operations are being reworked. The technical project for the site has been approved, and all permits are in place. The OVOS is valid for 3 years for atmospheric data and 5 years for water quality.

There are two separate technical projects for Tokur. The first covers the reworking of the old waste dumps, and the second the installation of a mini cyanidation plant at the site, located approximately 12km from the site. Under Russian laws, reprocessing of the waste dumps is not considered as mining but as rehabilitation.

WAI Comment: WAI has not been provided with details of the monitoring programme for the Tokur site, but would note that in a previously disturbed area, environmental protection is as important as in a greenfield site. As such the monitoring programme should be comprehensive enough to adequately characterise environmental conditions in all areas, and appropriate mitigation and management measures should be introduced to minimise environmental damage.

5.4.7 Review and Comment on Key Environmental and Social Issues

5.4.7.1 Environmental Status

Tokur is in one of the most abundant alluvial gold areas in the Amur region. Alluvial mining has been operating since 1933 when approximately 5000 people were living in Tokur village. This number is currently reduced to approximately 850. In 1939 Tokur was worked by the Gulag workers. There are currently reported to be high levels of unemployment and alcoholism in the area. However, there is a growing young community with approximately 300 children in the local schools. Fishing and hunting are also important activities for the local economy. The mine was previously worked both underground, and via alluvial gravity separation and the area is thus considered to be disturbed. PHM is currently gravity separating the old waste dumps from the old adits.

WAI Comment: WAI considers that the mining operations have potential to revitalise the community at Tokur. It is recommended to use local labour, wherever possible, both for direct and indirect employment purposes (e.g. site work and catering supplies). It is also be recommended to draft a social management plan for the community, to implement measures and initiatives to improve community conditions and engagement.

5.4.7.2 Water Management

Water management, particularly with regard to potential metal leaching from old waste dumps will be critical. Plant discharges will also need to be carefully controlled. If cyanide is introduced into the processing circuit, it will be imperative that high level environmental protection measures are put into place.

WAI Comment: A hydrological study will be required to provide confidence that the surface water drainage and diversion proposals can be accommodated, to ensure that water requirements can be met, and to confirm water quality. A hydrogeological investigation, to assess the sensitivity of groundwater in the area will also be required.

At the cyanidation plant, is recommended to bring practices in line with the International Cyanide Management code, to ensure that high level environmental management is being employed in this regard.

5.4.7.3 Historic Environmental Liability and Closure Requirements

It was reported to WAI that the old TMF at the Tokur site is not included in PHM's liabilities, since this does not form part of the licence area. The Company's only obligation is not to further degrade environmental conditions as a result of their operations. Similarly, the government usually subcontracts a mining company to reprocess tailings as they do not have sufficient State funds to rehabilitate these areas. WAI understands that the financial benefits of this reprocessing go to the company.

An appropriate closure plan and fund for closure costs will need to be established. It was reported that there is a conceptual closure plan for the cyanidation plant, and that 3 years prior to closure, detail will be added to this plan. It was reported that PHM will be required to undertake some progressive rehabilitation at the mine site, and once the site has been fully exploited, it will be necessary to re-profile and re-cultivate it, prior to returning it to State control. Given the previously disturbed nature of the site, the requirement for on-going monitoring post-closure may be higher than at other sites, and this should be considered when allocating monies for closure. WAI would recommend PHM to draft a closure plan now, with associated cost estimates, which can be updated throughout the operational phase of the project. This review will also ensure that sufficient funds are available at closure.

5.5 Albyn

5.5.1 Introduction

PHM acquired the Albyn property which lies some 45km to the southeast of Tokur in 2005. Preliminary exploration work started here in the first half of 2006 with drilling and trenching in the central area. Exploration here has concentrated on a green-field zone, previously unexplored, of 'granitised' slates and greenstones (albite-epidote-actinolite slates: meta-volcanics) to the east of the Kharginskoye deposit, between the rivers Right Albyn and Left Albyn. The terrain at Albyn shows moderate relief and does not present any immediate problems to exploration activities (Photo 5.2).

5.5.2 Mineral Rights & Permitting

The Albyn Licence N° BLG01784BR for exploration and mining of gold covers an area of 40km^2, and is valid from 15.02.2006 to 31.12.2030.

The co-ordinates of the licence area are given in Table 5.8 below:

Table 5.8: Albyn Licence Co-ordinates		
Co-ordinate	Latitude (N)	Longitude (E)
1	52°59'10"	133°33'40"
2	52°59'10"	133°41'10"
3	52°55'10"	133°41'15"
4	52°56'30"	133°36'20"

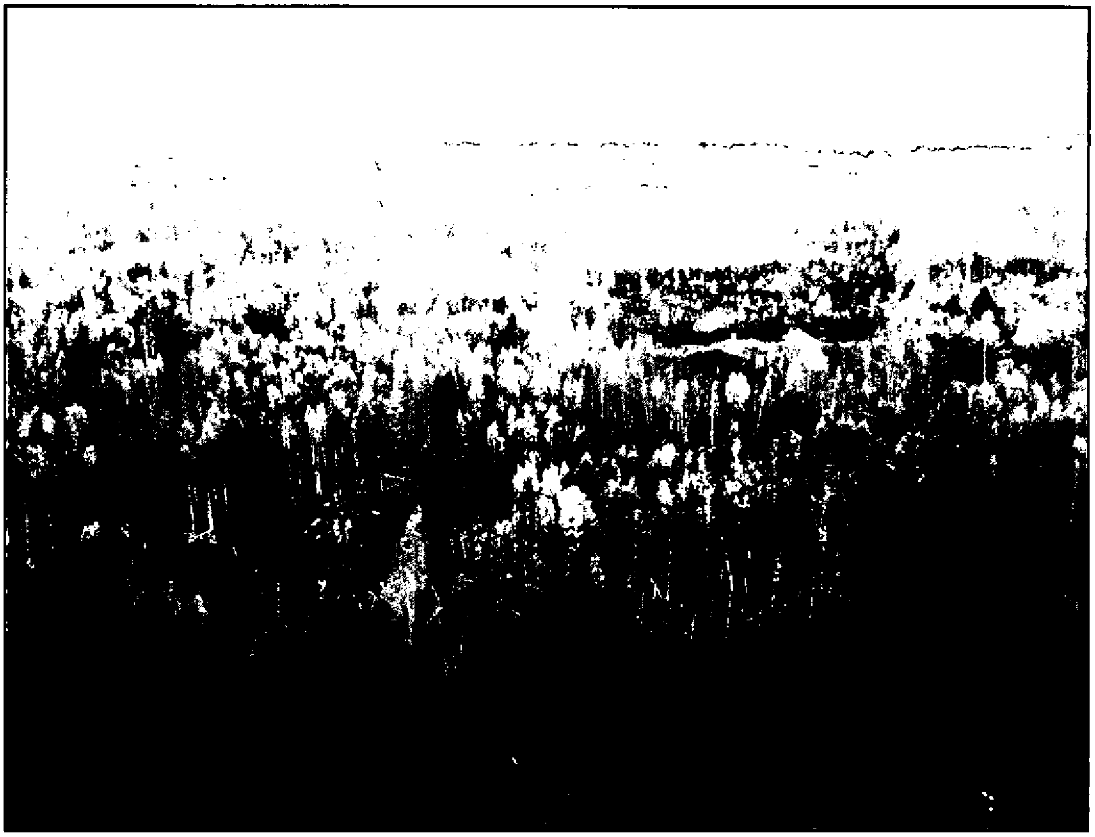


Photo 5.2: Albyn Terrain

5.5.3 Geology and Mineralisation

The mineralisation seen at Albyn comprises a series of gently dipping sub-parallel metasomatic zones that show variable thickness and grade (Figure 5.6).

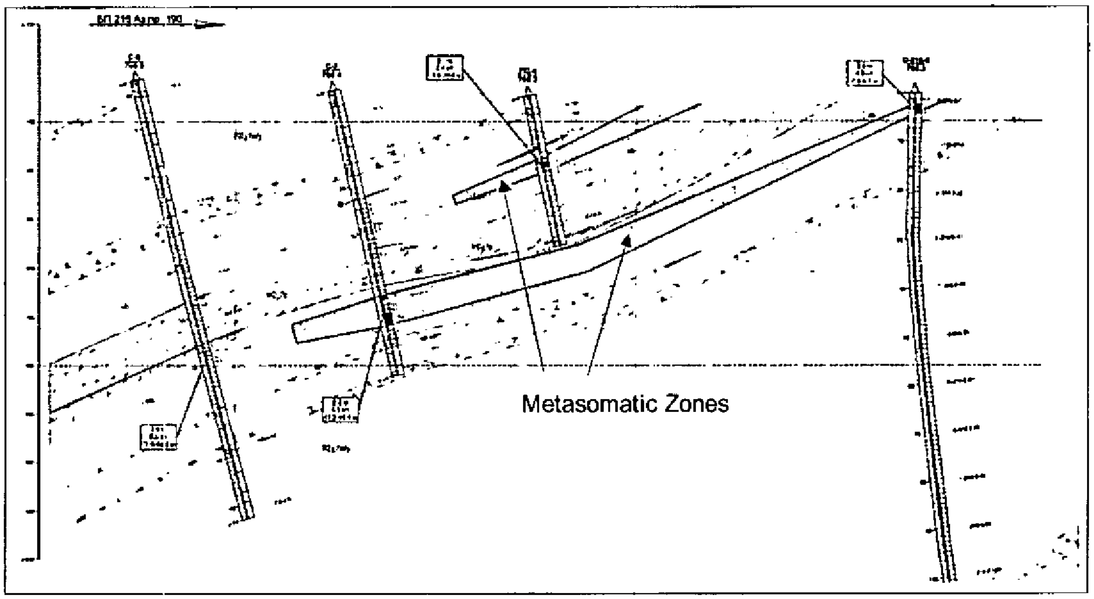


Figure 5.6: Typical Section through Albyn Mineralisation

The zone has been tested for over 4km in strike length, although present exploration has been concentrated within a central, smaller zone.

This central zone strikes east-west and is about 1km in length. The dip is gentle (average 35°), northwards and free gold is present in albitites and enclosing metasomatic rocks. The gold appears to be typically coarse grained.

The mineralisation contains approximately 2-3% sulphides in the form of arsenopyrite, with minor pyrrhotite, pyrite and chalcopyrite. Furthermore, mineralisation is not restricted to albitisation (>60%) but also to schistose zones, though geometry of the structure remains similar.

Drilling (on a 160x80m grid) has been completed to a depth of 200m and for 500m down dip and trenching on outcrop at intervals of 160m. Results confirm the eastward extension of the known Kharginskoye deposit and previously explored zones extending 2km to the west. Grades are typically 3g/t over thicknesses of around 7m. Drilling also continues in the central area, to the east and on the flanks to the south and north that indicate the presence of mineralisation in some of the core zones. No assay data was available at the time of presenting this MER, although grab samples have proven the presence of Au mineralisation.

It appears that mineralisation extends further east, outside the licence area, and PHM are applying for an extension to the area to encompass this zone.

5.5.3.1 Sample Analysis

The current sampling procedure sees that geologists select a mineralised zone where all samples are assayed, including host rock, by fire assay and spectral analysis. If the results are elevated these are re-assayed (fire assay), although these tend to represent less than 1% of the total sample number.

However, reliable sample assay analysis has proven problematic, due to the presence of course gold and has been suspended whilst further investigation is undertaken. Large samples (50 and 100kg) have been fire assayed following extensive sample preparation including grinding to -0.3mm and screening to -0.074mm, followed by concentration by use of a shaking table. However, as expected, the labour requirements and costs are high.

Regular samples are also taken and controlled by various size channel samples (maximum 30 x 5cm), but tend to result in the larger size samples equating to higher grades. Similarly the gravitational (shaking table) and screening samples provide equal assay results. The resultant assay sample flow sheet is as follows:

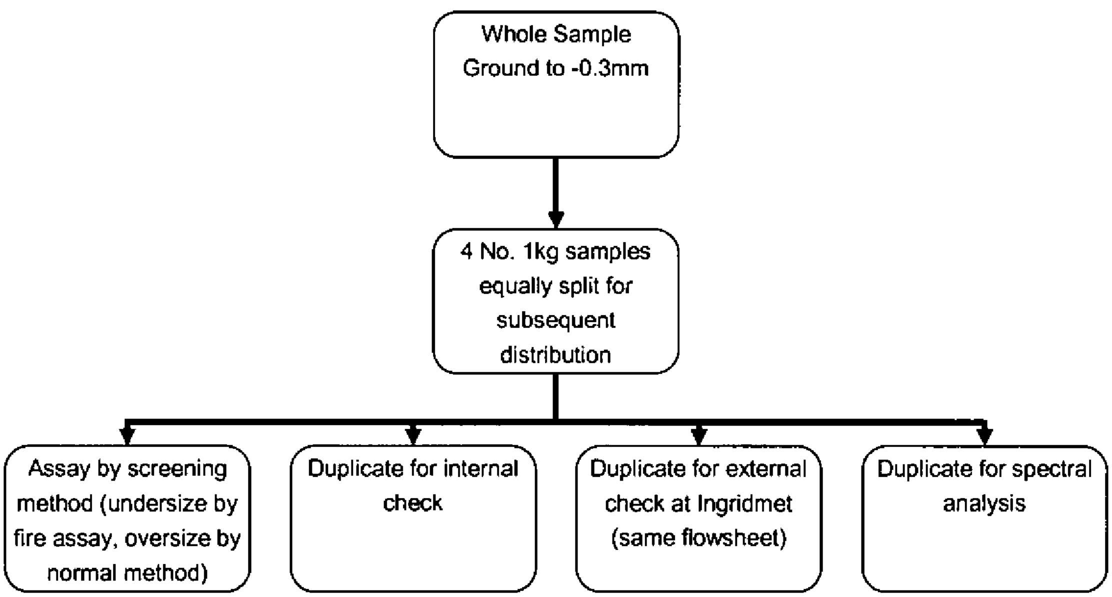


Figure 5.7: Assay Sample Flow Sheet

In addition to the current sample assay issues, re-assay of historical samples has also shown poor repeatability being both +'ve and –'ve. This only adds to the issues of assay results and the use of the historical data in any new resource estimate. Further work is necessary to resolve this situation before data can be reliably used in resource estimation.

Metallurgical work undertaken in the 1950s identified that 68% of the gold is freely liberated, 24% partially liberated but amenable to cyanide leaching, whilst 8% remained associated with sulphides and less readily extractable.

5.5.4 *Mineral Resources*

Albyn is a relatively early stage exploration project, but preliminary drilling and trenching have identified and delineated seven mineralised zones: 1, 1a, 1b, 1v, 1g, 2 and 2a which have widths varying from 0.8-16.1m (average 3.6m). Under the Russian Standard classification system, these have been allocated a P_1 category.

The estimation methodology uses the Russian standard cross-sectional methodology assigning a fixed SG of 2.5 to all blocks, a cut-off grade of 0.8g/t Au, minimum mineralisation width of 3m (if less than 3m, but high grade, accumulation value used) and with a maximum waste inclusion of 5m.

A breakdown of the resources for the Albyn mineralised zones is presented in Table 5.9 below.

Table 5.9: Albyn Prognostic Resource Statement (PHM as at 01.01.08)

Mineralised Zone	Original Russian P_1 Resources			
	Tonnage (kt)	Grade (g/t Au)	Au (kg)	Au (koz)
1	7,013	3.19	22,394	720
1a	1,897	3.09	5,859	188
1b	674	2.07	1,397	45
1v	30	2.93	88	3
1g	73	2.19	160	5
2	1,962	2.82	5,541	178
2a	519	6.34	3,289	106
Total	**12,168**	**3.18**	**38,724**	**1,245**

Table 5.10 summarises the P1, P_2 and P_3 prognostic resources estimated by PHM for Albyn plus the P_1 and P_3 resources for Kharginskoye.

Table 5.10: Albyn and Kharginskoye Prognostic Resources (PHM as at 01.01.08)												
Ore zone, deposit, mineralisation type	P_1				P_2				P_3			
	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)
Albyn quartz-albite zones	12,168	3.18	38,728	1,245	12,000	3.10	37,000	1,190	10,000	3.00	30,000	965
Kharginskoye deposit quartz veins	800	15.00	12,000	386					600	16.60	10,000	322
TOTAL:	**12,968**	**3.90**	**50,728**	**1,631**	**12,000**	**3.10**	**37,000**	**1,190**	**10,600**	**3.80**	**40,000**	**1,287**

WAI Comment: The P_1 resource for Albyn appears to be broadly in line with the *Inferred* category of Mineral Resources under the guidelines of the JORC Code (2004), although the overall mineability of such resources at this time is unknown.

However, the gentle dip of these mineralised units coupled with moderate topography does appear encouraging for the development of an open pitable resource should other technical and economic parameters prove positive. Moreover, the relatively simple mineralogy and geologic continuity both make the Albyn property an exciting project and one which is worthy of continued exploration and development.

Poor assay repeatability, together with issues regarding historical assay results, raises concern over the reliability of any resource estimate at this stage. The error could easily be in the order of ±10%. Notwithstanding these comments, the proposed new drilling programme is likely to confirm and improve the overall resource potential.

5.5.5 Process Testwork

Metallurgical work undertaken in the 1950's identified that 68% of the gold is freely liberated, 24% partially liberated but amenable to cyanide leaching, whilst 8% remained associated with sulphides and less readily extractable.

In April 2008 two samples from the Albyn deposit designated TAL -1 (Oxide) and TAL -3 (Primary) were delivered to Irgiredmet for testing.

TAL -1 was obtained by channel sampling Trench K-257 and represented the oxidized gold-quartz ore type. The sample weight was 527kg, and the average calculated gold grade was 4g/t Au.

Sample TAL-3 consisted of cores from bore holes TS-257-12, TS -257-12-1, TS -257-14 and TS -257-14-1. The sample material represented albite-quartz metasomatites. The weight of the sample was 346kg and the calculated assay of the sample was 1.2g/t Au.

The head sample analyses of TAL1 varied from 4.0 to 7.2g/t Au and this variation was attributed to the presence of coarse gold. The TAL-3 sample assayed 0.89g/t Au, lower than indicated from the drill assays. Consequently additional material was delivered to Irgiredmet as sample "TAL-2".

The results of rational analysis, undertaking using amalgamation with grinding and re-treatment of the tailings are given in Table 5.11.

Table 5.11: Rational Analysis Results

Gold Recovery by size	Distribution			
	TAL-1		TAL-3	
	g/t	%	g/t	%
- 2.0mm	1.99	28.0	0.14	15.4
- 1.0mm	1.93	27.2	0.48	52.7
- 0.5mm	1.82	25.6	0.01	1.1
- 0.2mm	0.52	7.3	0.08	8.8
- 0.074mm	0.10	1.4	0.04	4.4
Intergrown (leachable)	0.69	9.7	0.14	15.4
Total	6.36	89.6	0.75	82.4
Total leachable	7.05	99.3	0.89	97.8
Finely impregnated	0.05	0.7	0.02	2.2
Total in the head ore	7.10	100	0.91	100

Gold is present in the native form with a coarse liberation size and should be easily recovered.

A short programme of testwork was undertaken to determine the leach recoveries at different grind sizes. The results are given in Table 5.12 below.

Table 5.12: Dependence Between the Grind Size and Recovery

Grind Size Weight % < 0.071mm	Head Grade g/t Au	Recovery %	
		Head	Solution + tails
15	4.28	79.4	65.9
40	3.57	88.0	76.1
60	9.92	88.6	91.8
80	3.86	97.9	96.0
85	8.22	96.6	97.1
95	3.97	98.0	96.3
85 % -0.04 mm	2.69	98.3	95.4

Again, high gold recoveries were achieved at relatively coarse grind sizes indicating that the ore can be easily processed.

Gravity testwork using Jigs and a Falcon concentrator demonstrated that a significant proportion of the gold was gravity recoverable. The results of the tests are given in Table 5.13 and Table 5.14.

Table 5.13: Results of the Gravity Test using Jig and Tables

Product	Weight %	Gold Grade Au g/t	Recovery %
Concentrate – 2 mm	0.92	320	32.0
Concentrate -1 mm	0.18	507	9.9
Concentrate -0.5 mm	0.43	445	20.8
Concentrate -0.2 mm	0.28	294	8.9
Concentrate -0.074mm	0.25	232	6.3
Combined concentrate	**2,06**	**348**	**78.0**
Tails	97.94	2.1	22.0
Total:head ore	100	9.2	100.0

Table 5.14: Results of the Gravity Test using using Falcon Concentrator

Material	Yield %	Gold Grade Au g/t	Recovery %
Concentrate -1 mm	2.2	126.0	42.5
Concentrate -0.5 mm	2.0	84.3	25.9
Concentrate -0.2 mm	1.8	64.5	17.8
Concentrate -0.074 mm	2.1	27.8	9.0
Combined concentrate	**8.1**	**76.6**	**95.2**
Tails	91.9	0.34	4.8
Total : head ore	100	6.52	100

The Jig and Falcon tests gave gold recoveries of 78.0% and 95.2% at mass recoveries of 2.06% and 8.1% respectively.

It was concluded that gold in the mineralisation is highly leachable and that gravity methods should also be used during processing.

5.5.6 Environmental Issues

5.5.6.1 Review of Environmental/Social Studies

Works have only recently commenced at Albyn since this site is currently at the exploration stage. Various accredited companies have been commissioned to start the collection of baseline data for State permitting which could take up to 3 years to complete. Amurgeologia are collecting data on water, soil, sediment and precipitation quality. Gidromet are undertaking atmospheric baseline monitoring and Amurribvod are looking at hydroflora, hydrofauna and water resources. A PHM environmental engineer is responsible for co-ordinating these studies.

Prior to obtaining a full OVOS, only exploration can take place on site. However, the engineering design can begin, but at this stage is based only on regional data which are not as good as site specific information. Construction can then start but the regional data have to be backed up at a later stage by site specific data and permits need to be amended. For this reason PHM is planning to undertake engineering design once site specific information has been collected. Currently PHM is obtaining the necessary permit approvals for any designations at the site, e.g. heritage sites, cemeteries etc. The Russian environmental laws require a large number of permit approvals. PHM are currently progressing this process and WAI is confident that PHM has systems in place to ensure that all necessary permits are obtained in a timely fashion.

WAI Comment: Ore bodies are found beyond the licences in the Albyn area, PHM is trying to arrange for two additional licences for those areas, which it will hopefully get via auctions, which will take place the end 2008, beginning 2009. Exploration works are rescheduled according to an additional agreement which was signed to the Licence agreement, pursuant to which finalisation of exploration works was re-scheduled from 31 December 2008 to 31 December 2010, two stages were established for the geological survey, one to be finalised by the end of this year and the second by the end of 2011.

5.5.6.2 Environmental Status

The deposit is located in a remote area of the Amur region. At present only a small exploration camp has been developed on site. It was reported to WAI that for a small camp, it is not necessary to construct sewage treatment facilities, or more sophisticated infrastructure, although there are approved methods of e.g. camp latrine construction. Should the camp become permanent, or larger, stricter controls will be required.

WAI Comment: Should the deposit pass into the exploitation stage it will be necessary to ensure that all appropriate permitting is in place. Similarly, given the remote and previously undisturbed nature of the site, comprehensive environmental monitoring will be required to characterise all potential environmental impacts resulting from operations and to ensure that mitigation measures are adequate to prevent environmental degradation.

5.5.6.3 Social Management

The Albyn site is very remote and human influence will have a significant impact in the area. It will therefore be important to educate staff on site with regard to environmental protection. This will extend to areas such as waste management and disposal, and hunting or fishing, such that natural resources are not abused or degraded as a result of human activity at the site.

5.5.6.4 Closure and Rehabilitation

Even after the exploration stage there are requirements for site rehabilitation under State law if operations do not continue. This includes backfilling of trial pits and trenches and site re-profiling.

WAI Comment: If operations are not pursued at Albyn it will be important to ensure that the site is returned, as closely as possible, to its pre-operational state, although WAI understands that the project will proceed to the development stage.

5.6 Taldan

5.6.1 Introduction

The Taldan licence (100% PHM Holdings) area is located 115km to the northwest of Pokrovskiy (Table 5.15), close to Taldan station, and includes two known mineralised areas: (a) Burindinskoye (most studied), and (b) Topazovskoye.

5.6.2 Mineral Rights & Permitting

The Taldan Licence No BLG13939BR for exploration and mining of gold covers 94km^2 in area and is valid from 12.02.2007 to 30.12.2031.

The co-ordinates of the licence area are given in Table 5.15 below:

Table 5.15: Taldan Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	53°41'26"	124°45'23"
2	53°38'34"	124°57'22"
3	53°35'28"	124°56'08"
4	53°37'53"	127°43'14"

5.6.3 Geology and Mineralisation

The geology of the area is similar in many ways to Pokrovskiy, with Jurassic sedimentary and Cretaceous volcano-sedimentary rocks (the Taldanskaya suite - andesites and trachyandesites, dacites, and rhyodacites), intruded by early Cretaceous granite porphyries and monzodiorites, granodiorites, and quartz monzonites of the Burindinskoye complex, with dykes of andesite, trachyandesite and dacite-andesite controlled by a diagonal system of faults (both NW and NE trends).

Gold mineralisation occurs within the volcanic/plutonic association and appears most prospective in N-S trending dislocations and in long lived NE and NW trending faults. Gold-silver mineralisation occurs in covering and volcanic formations of the Taldan complex and is associated with propylitic and argillitic metasomatism.

In the Burindinskoye 'ore' field, epithermal gold and silver are found in quartz and quartz-carbonate veins and zones of veinlets within propylitic metasomatites up to 2km long. The Burindinskoye deposit itself was discovered in 1974 and explored in 1977-79, 1980-85, and 1988-91. In 1980-84, a total of eleven mineralised bodies were intersected.

The Taldan 'ore field', which has not yet been explored in detail, includes (a) the Topazovskoye ore occurrence (area 16km^2): mineralisation in andesitic subvolcanics, and dykes, in crush zones, with brecciation and silicification, with orebodies up to 200m to 800m wide, (b) the Topazovskoye-2 ore occurrence (area 2.5km^2), containing both gold and silver, and (c) the Pravotaldanskoye ore zone.

5.6.4 Mineral Resources

Previous Russian standard resources and reserves were estimated in 1991 with the following details:

- Burindinskoye C_2 - Au 7.4t, Ag 35.2t;
- Burindinskoye P_1 - Au 6t; and
- Topazovskoye P_1 - Au 10t.

Updated resources for the Taldan licence by PHM are given in Table 5.16 below.

Table 5.16: Taldan Russian Standard Prognostic Resources (PHM as at 01.01.08)

Block, ore deposit	P_1				P_2				P_3			
	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)
Burindinskoye	1,000	7.50	7,500	241	800	7.50	6,200	199	5,000	2.00	10,000	322
Topazovskoye					3,000	1.70	5,000	161	18,000	1.70	30,000	965
TOTAL:	**1,000**	**7.50**	**7,500**	**241**	**3,800**	**2.90**	**11,200**	**360**	**23,000**	**1.70**	**40,000**	**1,287**

It is understood that these current Prognostic resources are unapproved by GKZ.

Exploration work based on trenching and drilling on profiles 160m apart has tested the Burindinskoye mineralisation down to 150m. Typical sections show fairly low grades, at depth of around 1-2g/t Au over 4-6m width and thus opportunities may be restricted to narrow open pit development rather than to a potential underground target. However, the project is at an early stage of exploration.

WAI Comment: Data have been reviewed on this property and WAI is uncertain as to the ultimate viability of this asset.

5.7 Solovevskiy

5.7.1 Introduction

The Solovevskiy licence (50% PHM Holdings), which is located to the northwest of Pokrovskiy, contains three known mineralised zones including Kirovskoye (160.8km^2), Nagiminskoye (72.9km^2), Glebovskoye (20km^2) and Yankanskaya.

5.7.2 Mineral Rights & Permitting

The Solovevskiy Licence No BLG13936BR for exploration, assessment and mining of gold covers 253.7km^2 in area, with a validity period from 12.02.07 to 30.12.2031 (it includes Kirovskoye, Glebovskoye ,Nagiminskoye and Yankanskaya).

The co-ordinates of the sites are given in Table 5.17, Table 5.18 and Table 5.19 below:

Table 5.17: Kirovskoye Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	54°17'20"	124°17'55"
2	54°20'10"	124°19'00"
3	54°24'10"	124°26'40"
4	54°23'25"	124°28'50"
5	54°18'15"	124°29'00"
6	54°15'45"	124°30'30"
7	54°14'15"	124°30'25"
8	54°15'15"	124°22'50"
9	54°16'05"	124°21'25"
10	54°16'00"	124°18'30"

Table 5.18: Glebovskoye Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	54°18'55"	124°44'40"
2	54°18'55"	124°47'40"
3	54°18'20"	124°49'40"
4	54°16'30"	124°48'45"
5	54°16'30"	124°45'55"
6	54°17'00"	124°44'55"

Table 5.19: Nagiminskoye Co-ordinates		
Co-ordinate	Latitude (N)	Longitude (E)
1	54°10'00"	124°27'05"
2	54°12'10"	124°28'05"
3	54°11'15"	124°39'05"
4	54°10'10"	124°41'10"
5	54°08'25"	124°11'15"
6	54°08'25"	124°37'10"

5.7.3 Geology and Mineralisation

The Kirovskoye deposit, consisting of coarse gold-bearing quartz veins and stockworks, lies in the south and middle of a granodiorite stock and has already been mined underground (9t Au produced up to depletion in 1956). The deposit forms a hill with rich gold placers draining away from it.

The mineralisation contains bismuth, zinc, copper and lead as well as gold and in the deeper levels some uranium was also extracted. It is possible that the stockwork might be mined as an open-pit operation, and evaluation of this option is one of the purposes of the planned on-going exploration programme.

Apart from the existing mine, there is a large area of gold anomalies trending NE in the Kirovskoye block. Also within the Kirovskoye block, and immediately to the south of the granodiorite stock hosting the Kirovskoye deposit, is a major east-west thrust fault which constitutes the palaeo-plate boundary. There is an east-west belt of Jurassic and Cretaceous rocks, and to the south of these, within the Palaeozoic rocks there are a number of gold/copper anomalies to be investigated. In addition, there is a line of gabbro and hornblendite intrusions with geochemical anomalies (Cu, Au, Ag, W, Bi) which will also need to be explored.

The Kirovskoye block is being intensively explored by trenching (Photo 5.3).

Previous workings were mainly on the Central block, although attention is concentrated on three adjacent areas in particular: the South zone, the Staratelskiy block and the Severniy block (Figure 5.8). The aim is to locate zones of gold mineralisation suitable for medium to large scale open pit exploitation.

Photo 5.3: Trenching on the Severnaya Zone, Kirovskoye Deposit

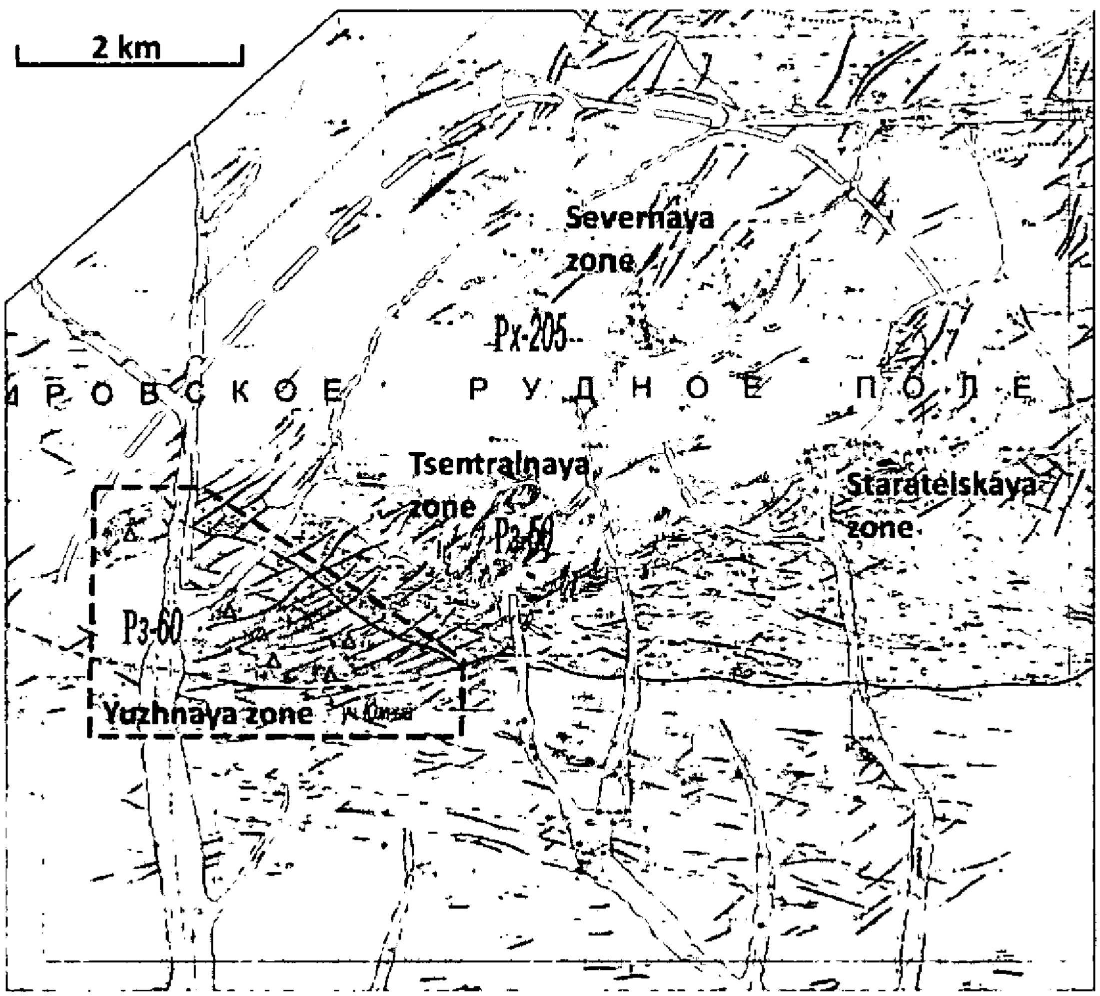


Figure 5.8: Geology and Mineralisation of the Kirovskoye Block

On the Yuzhnaya area, two trenches have been dug so far, and documented, but not all samples are yet assayed. From data received so far, significant intersections have already been identified, including 25m averaging 4.6g/t Au (including 4m at 41g/t Au) in sandstones with metasomatic zones (silicification plus arsenopyrite), and quartz veinlets. In the next trench, a corresponding interval has been identified with 15m at 11.9g/t Au average grade. Altogether a total of six ore intervals have been found so far. These appear to be associated with contact zones of granodiorite and diorite porphyry dykes. The structure has been followed for 2.5km in geophysical data (SP/IP), in silicified/sulphidised sandstones at diorite porphyry contacts.

In the central zone (not currently a principal exploration target) there are at least 8 'knots' (ore shoots) known, several of which have previously been worked.

In the Severnaya zone, high grade thick veins are known, cutting granodiorite with beresitised zones containing sulphides (pyrite, arsenopyrite, chalcopyrite, and bismuthine). There is visible gold up to 0.5mm within mm-scale veinlets. Veinlets are of both quartz and sulphides. Assay data from trenches are yet to be received.

To the south of Severnaya zone, the Staratelskaya zone can be traced eastwards for up to 6km. Here there are veins trending both NE-SW (similar to the other zones at Kirovskoye) as well as E-W. The junctions of these two vein systems will be explored for potential enriched zones or ore shoots.

At Glebovskoye, a gold/mercury ore type ('Carlin' type) has been identified with exploration works on-going. Geochemical survey results have now been received from this area over a rectangular block 2km wide and 3km N-S, and indicate some strong anomalies. In particular, in the north central part of the area there is a silver anomaly, with an indication of possible zonation, as there are Hg anomalies around its margins. Trending E-W across the southern part of the surveyed area there is a serpentinised ultrabasic intrusion with Cr, Ni, and Co anomalies together with Ag, Co, Cu, Zn, and Hg. Further work is planned to test the origins of these geochemical aureoles.

At Nagiminskoye, there is a buried Neogene-Palaeogene placer up to 60m thick.

In the Nagiminskoye block, placer deposits contain very fresh gold grains, indicating a source close by, whilst there is a silcrete layer below the placer, also containing gold. Bed rock consists of slates, with pyrite and gold bearing zones.

PHM plan to extract some 500kg of Au per year from the placer whilst investigating volcanogenic breccia zones which are intruded through the host rocks and gravels.

WAI Comment: The mineralisation styles seen within the Solovevskiy licence area appear to provide a good opportunity for the discovery of new gold resources and continued exploration is warranted.

5.7.4 Mineral Resources

The latest Russian resources prepared by PHM for the various mineralised zones within the Solovevskiy licence area, including Kirovskoye, Nagiminskoye and Glebovskoye plus Yankanskaya, are summarised in Table 5.20 below.

Table 5.20: Solovevskiy Russian Prognostic Resources (PHM 01.01.08)

Area, block, ore deposit	C_2			P_1			P_2		
	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Tonnage (kt)	Grade Au (g/t)	Au (kg)
Kirovskoye (quartz veins)	1,107	8.50	9,411	1,000	7.00	7,000			
Kirovskoye (stockwork)							25,000	2.00	50,000
Glebovskoye block									
Nagiminskoye block									
Yankanskaya									
Total	**1,107**	**8.50**	**9,411**	**1,000**	**7.00**	**7,000**	**25,000**	**2.00**	**50,000**

5.8 Saguro-Semerotakskiy

This is a new exploration licence (BLG 01984 BR), located to the south of Osipkan. The relationships among the NE Amur licence areas are indicated in the small-scale geological map (Figure 5.9).

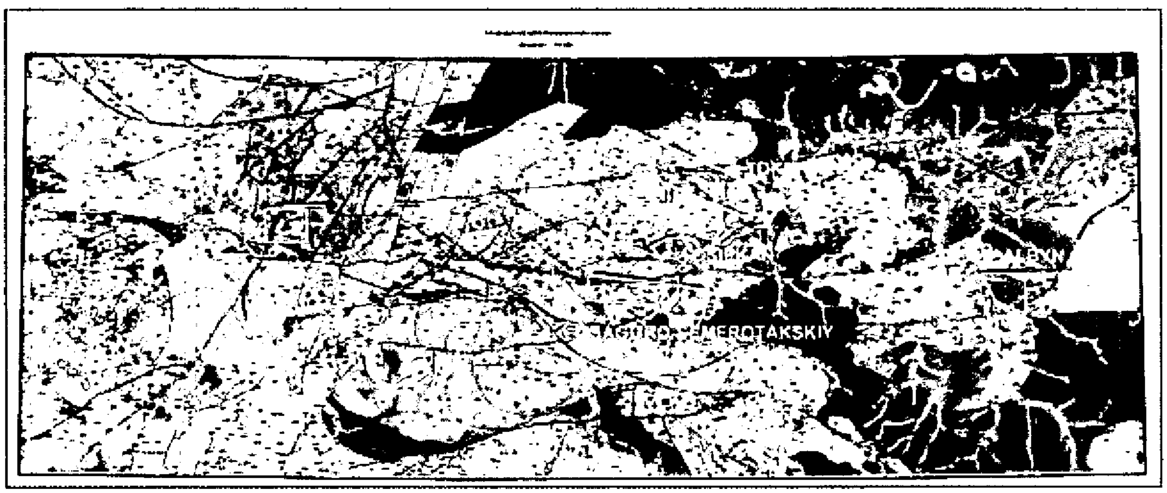


Figure 5.9: Licences of the NE Amur Area

This licence consists of two separate exploration areas: Sagur, on the east of Koboldo village and the Selemdzha river, and the larger Semerotakskiy area, to the west of the river and village.

The Sagur suite of carboniferous slates, with argillisation and metasomatic quartzites associated with thrust faults, forms the main ore-bearing structure, with an east-west crush zone, dipping northwards.

In the (eastern) Sagur area in the 1940s and 1950s an underground mine worked gold, extracting about 3.5 tonnes from quartz veins. 720kg gold remained in the mine when it was closed, explored but not extracted. Fragments show a zone of quartz veining in the metasomatites. Surface fragments of these rocks assay at 15g/t Au. It is considered that this is a highly prospective area, since the predecessors were extracting gold only from the quartz veins and not the gold-bearing metasomatites. The quartz veins, dipping NE at 45°, are 0.3 to 3.2m thick and reported to contain gold up to 40 - 60g/t Au grades up to a maximum of 2,700g/t Au, associated with arsenopyrite, pyrrhotite, and scheelite. A preliminary exploration programme will include a set of trenches cutting the secondary gold aureole. A TsNIGRI estimate of resources is understood to be 17.5t of contained gold in this part of the licence alone.

In the western part of the licence (Semerotakskiy) there are a number of further prospects. A granite intrusion in this area is crossed by a N-S mineralised crush zone. There are also two convergent crush zones trending east-west across the area, and trenching is planned to explore these.

Field work is scheduled to start in the latter part of 2008. There is good road access to the licence areas, with no point being more than a few km from the nearest road. Predecessor work included geochemical surveys to a high standard in 1990 over much of the Semerotakskiy area. Although in principle there is a broad area of the licence which needs to be surveyed, this existing work will allow the process to be foreshortened and will save considerable time.

It is possible that both parts of this licence are highly prospective, and potentially could host deposits of scale comparable to Malomir or Pioneer. The Sagur area, with a history of underground mining of high-grade quartz-vein gold, has great potential for open-pit extraction of gold from metasomatites which have not previously been exploited.

Placers within this licence area are currently being worked by the company.

5.9 Oldoiskaya

5.9.1 Introduction

This licence (100% PHM Holdings) covers an area of 742km^2 is west of Taktamygda village and straddles the Trans-Siberian railway (Figure 5.1).

5.9.2 Mineral Rights & Permitting

The Oldoiskaya Licence No BLG13938 for geological study, exploration and gold mining, covers 742.6km^2 in area, and has a validity period from 12.02.07 to 30.12.31.

The co-ordinates of the licence area are given in Table 5.21 below:

Table 5.21: Oldoiskaya Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	54°00'00"	122°45'05"
2	54°04'00"	122°45'05"
3	54°05'55"	123°00'00"
4	54°07'55"	123°07'40"
5	54°07'15"	123°08'10"
6	54°07'55"	123°11'40"
7	54°08'40"	123°11'05"
8	54°10'10"	123°18'20"
9	54°08'35"	123°18'20"
10	54°07'05"	123°22'55"
11	54°03'05"	123°24'50"
12	54°02'30"	123°27'20"
13	54°01'45"	123°22'30"
14	53°57'40"	123°14'40"
15	53°54'40"	123°00'00"
16	53°55'50"	122°53'15"
17	53°58'45"	122°50'20"
18	54°00'00"	122°50'20"

5.9.3 Geology and Mineralisation

The Oldoiskaya area represents an ancient tectonic plate boundary zone, the Mongolo-Okhotsk line, with predominantly Proterozoic sediments in which four prospective areas have been identified. One of these consists of a quartz-carbonate stockwork hosted by Silurian/Devonian terrigenous sediments, which is reflected by a major geochemical aureole.

Exploration is still at an early stage, although a number of primary geochemical haloes have been identified and on-going exploration works have included geophysics and some trenching. In addition, minor drilling has recorded values up to 2g/t Au.

Interestingly, PGMs have been identified in surrounding placer deposits with iridium, osmium and palladium (0.3g/t) which appear to be emanating from dykes around the gabbro.

Very preliminary estimates have placed resources at 16t Au (category P_2).

WAI Comment: PHM has proposed an active exploration programme for 2008, including trenching and drilling in the most promising areas. WAI concurs with the proposed programme.

5.10 Shaman–2

5.10.1 Introduction

This prospect, which is located near Zeya, lies about 70km northeast of Pioneer (Figure 5.1).

5.10.2 Mineral Rights & Permitting

The Shaman-2 Licence No BLG13937BR (100% PHM Holdings) for prospecting, exploration and mining of gold, covers $60km^2$ in area and has a validity period from 12.02.07 to 30.12.31.

The co-ordinates of the licence area are given in Table 5.22 below:

Table 5.22: Shaman-2 Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	53°58'50"	126°52'00"
2	53°58'50"	126°57'30"
3	53°53'35"	126°57'50"
4	53°53'25"	126°52'10"

5.10.3 Geology and Mineralisation

Akin to Solovyeskiy and Oldoiskaya, this area is close to the Mongolo-Okhotsk plate boundary line.

The geology is complex, with Proterozoic rocks of the Garmakanskaya suite (quartz-sericite slates, phyllites, meta-sandstones) and Cretaceous igneous rocks of the Burindinskoye complex (biotite-hornblende granodiorite, with dykes of granodiorite and diorite porphyry, as well as aplites and aplogranite). Tectonically there is predominant SW-NE faulting with some major NW-SE and N-S faulting also. In the surrounding region there are known to be copper porphyry deposits with molybdenum and silver, as well as lead, zinc, and tungsten. In the licence area the Shaman 'ore' field is represented by gold mineralisation.

Previous exploration has established a lithochemical anomaly with gold up to 150mg/t in geochemical samples of rock, arsenic up to 0.1% As and silver up to 1.5g/t Ag.

In the central block (3 x 3.5km) there is a large gold anomaly coinciding with a region of kaolinisation of the acid igneous rocks, with geochemical sample grades up to 4mg/t Au, as well as many small aureoles reaching 10mg/t Au trending NE-SW (possibly associated with faults) and with sample grades reaching 1g/t Au in two places.

PHM has recently undertaken soil geochemical analysis on a 500x40m spacing, now infilled to 100 x 20m, as well as geophysics (IP, Magnetics and Resistivity) along with rock chip samples, the results of which are awaited.

5.11 Sugjar

5.11.1 Introduction

This licence area (100% PHM Holdings), which contains the known Gargan deposit, was obtained in December 2006, and is situated to the northeast of the Zeya reservoir in the northern Amur Region. Previous exploration in the region was carried out from 1968-71 which found 0.3-0.5g/t Au in separate geochemical samples. There is potential for PGMs here, as platinum has been found in placer deposits in the Gargan area and forms up to 5% of heavy mineral concentrates.

5.11.2 Mineral Rights & Permitting

The Sugjar Licence No BLG01883BR for prospecting, exploration and mining of gold covers 14.0km^2 in area, and has a validity period from 14.12.06 to 31.12.31.

The co-ordinates of the licence area are given in Table 5.23 below:

Table 5.23: Sugjar Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	54°49'00"	129°13'00"
2	54°50'30"	129°12'00"
3	54°52'20"	129°19'00"
4	54°51'00"	129°20'20"

5.11.3 Geology and Mineralisation

The area is hosted by Early Archean and Proterozoic schists and schistose rocks, as well as various intrusions, mostly seen as crystalline schists.

Mineralisation identified appears associated with granodiorite-porphyry and felsite dykes in a wide SW-NE trending zone of faulting, with gold associated with copper, zinc and molybdenum, as well as (uneconomic) iron and graphite.

In the north of the area, hydrothermal alteration includes sulphidisation and low-temperature silicification (with quartz breccias); host rocks are chlorite-actinolite and chlorite-biotite slates. Two mineralised crush zones have previously been identified in the north of the area, the first 250m in lateral extent and, 6-7m thick, whilst the second is 150m laterally and 1-3m thick, both with SW-NE strike, and dipping NW at 40-60°.

Fieldwork in 1996-98 also found Au-Ag mineralisation in the north of the area (0.03-30g/t Au and up to 700g/t Ag, by atomic absorption analysis). The highest grades were from veins with multi-phase brecciation and medium to coarse grained quartz.

Of interest are the reported accounts of up to 10% PGMs in placer concentrates which are now depleted.

5.11.4 Mineral Resources

PHM has prepared preliminary Prognostic resources according to Russian standard methods and these are summarised in Table 5.24 below:

Table 5.24: Sugjar Russian Standard Prognostic Resources (PHM as at 01.01.08)

Block	P_2				P_3			
	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)
Gargan	14,600	1.50	22,000	707	13,000	1.50	20,000	643

5.12 Adamikha

5.12.1 Introduction

The Adamikha exploration licence lies approximately mid-way between Pokrovskiy and Malomir and represents a relatively new target area for PHM.

5.12.2 Mineral Rights & Permitting

The Adamikha Licence No BLG01550BP (100% PHM Holdings) for exploration, assessment and mining of gold, covers an area of some 240km^2, with a validity period from 22.07.04 to 30.09.09.

The co-ordinates of the licence area are given in Table 5.25 below:

Table 5.25: Adamikha Licence Co-ordinates		
Co-ordinate	Latitude (N)	Longitude (E)
1	55°59'46"	129°13'21"
2	55°33'40"	129°17'45"
3	55°36'40"	129°27'09"
4	55°37'00"	129°24'09"

5.12.3 Geology and Mineralisation

Exploration continues within two mineralised areas within this licence, Adminkha and Galenitovaya.

The Adamikha licence area contains two contrasting geological regimes with two separate areas of mineralisation. Placer mining has taken place in the area for over 100 years, but with no previous indication of hard rock mineralisation. However, a bulk sample of placer material revealed gold associated with galena.

The northern part is underlain by Palaeozoic sandstones and other sediments, cut by dioritic dykes. Geochemical, geophysical surveys and geological mapping have been carried out in this area, and trench exploration started this year. The most significant, NW-SE trending, geochemical Au anomaly has been identified at Taborniy. This has been explored initially in two trenches, where gold occurs together with galena. There are also possible ore structures trending NW-SE below the valley, which hosts significant placer gold, to the south of this area.

The southern part of the Adamikha area is underlain by Cretaceous rocks, and is known as the Galenitovaya block after a known and previously worked lead deposit. Lead ores in this area contain up to 4-7% Pb. Geochemical mapping in the north and east of this area (not studied before) shows strong E-W and ENE-WSW gold anomalies with geochemical samples up to 7g/t Au and commonly 2-3g/t Au. Trenches are planned across the best of these anomalies, and geochemical surveying will be extended over a previously explored area. There is also a large silver anomaly around the diorite stock, which has not yet been investigated.

Galena also appears to be also associated with Au/chalcopyrite which in other parts of the deposit produced grades up to 6.8g/t Au. However, PHM could not do a full investigation in the summer as the conditions were too wet. Further exploration will take place this winter.

A further area approximately 9km away is another galena occurrence, comprising fine disseminations in beresite, but not assayed for gold. Silicified and quartz-tourmaline diluvium fragments also occur, although Au grades did not exceed 2g/t Au. A pre-strip is taking place over the beresite zone which is uncovering tourmaline, sulphides, quartzites and alunites. Although this area is low lying and boggy, there is a need to investigate this further.

It appears that the total zoned mineralisation area is around 2-3km long.

5.12.4 Mineral Resources

The Russian Standard Prognostic resource estimate for Adamikha, as estimated by PHM, is summarised in Table 5.26 below.

Table 5.26: Adamikha Prognostic Russian Standard Resources (PHM as at 01.01.08)

Ore Zone	P_2				P_3			
	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)
Adamikha	1,600	1.25	2,000	64	6,100	1.30	8,000	257
Galenitovaya	4,000	2.50	10,000	322	12,000	2.50	30,000	965
TOTAL:	**5,600**	**2.10**	**12,000**	**386**	**18,100**	**2.10**	**38,000**	**1,220**

WAI Comment: The Adamikha licence represents an early stage exploration play with good targets to follow-up. The more positive indications at Galenitovaya are encouraging and form an area for more detailed exploration of gold potential during 2008.

5.13 Aprelskiy

5.13.1 Introduction

The Aprelskiy licence is situated some 15km west of Pioneer and some 19km northeast of the Trans-Siberian railway (Figure 5.10). The licence forms part of a group of exploration assets close to the Pokrovskiy-Pioneer ore cluster.

5.13.2 Mineral Rights & Permitting

The Aprelskiy Licence No BLG 13995BR (100% PHM Holdings) for the geological prospecting, exploration and mining of gold covers an area of 46km^2 and is valid from 13.03.07 to 30.12.31. The coordinates of the licence area are given in Table 5.27 below:

Table 5.27: Aprelskiy Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	53°32'20"	126°12'40"
2	53°32'20"	126°20'40"
3	53°31'20"	126°20'20"
4	53°28'30"	126°16'40"
5	53°28'30"	126°13'30"

Figure 5.10: Location of Aprelskiy

5.13.3 Geology and Mineralisation

The Aprelskiy area represents an early Cretaceous igneous dome structure intruded by numerous dykes, with many alluvial gold-bearing streams draining the area.

Some exploration during the 1960s revealed some narrow veins (<0.5m) with grades up to 10g/t Au.

Most of the rocks in the Aprelskiy area are biotite-hornblende granodiorites of the central part of the Pioneer massif. This is a multi-phase intrusion and also includes granites and aplites.

Exploration has started with geophysical and geochemical surveys, followed up by trenching across identified anomalies. This has intersected a number of ore zones, and there are geological indications of at least two phases of gold mineralisation, associated with metasomatic alteration of acid volcanic rocks, and with quartz veins and stockworks. A small exploration camp has been established and trench exploration is continuing, with three bulldozers in use on the site.

The most important mineralisation known is gold in hydrothermal metasomatic linear zones, particularly in "bleached granites" which contain a higher proportion of potash feldspar and quartz, and in association with pyrite and quartz in intensely silicified and sericitised zones. These zones have been defined by geophysics, but have not yet been sampled.

Exploration has found gold in trenches, up to 14g/t Au over intersection thicknesses of 4-8m. A second type of mineralisation has also been noted, namely quartz veinlets in quartz diorite dykes.

5.13.4 Mineral Resources

Prognostic resources have been estimated by PHM in accordance with Russian standards methodology and are presented in Table 5.28 below.

Table 5.28: Aprelskiy Prognostic Russian Standard Resources (PHM as at 01.01.08)

Block	P_2				P_3			
	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)
Apprelskiy	3,000	1.50	5,000	161	30,000	1.50	50,000	1,608

WAI Comment: Aprelskiy represents an early stage project that requires a considerable exploration initiative to define the potential target.

5.14 Gar–II

5.14.1 Introduction

The Gar-II exploration area (100% PHM Holdings) lies some 100km east of Pokrovskiy.

Trenching in this area in 2007 intersected several zones of gold-bearing veinlet silicification and pyritisation, as well as serpentinised ultrabasic rocks. Surface samples identified chromite with PGM grains found in microscopic examination of these samples. The relationships of the mineralised zones are not yet clear, and detailed exploration work will continue through 2008 using trenches and both shallow and deep drill holes.

Initial exploration work has concentrated on the southeast area of this licence, where greenstones strike north-south. Gold has been found in mapping holes and in two trenches (1g/t Au over 2m intersection and up to 6g/t Au over 3-5m), on the east bank of the river Gar-2. The mineralised zones trend N-S and NE-SW in quartz metasomatites, adjacent to serpentinites, with a N-S strike.

Geochemical data are awaited from the north-western area, which although unexplored, is considered prospective as it seems to be the source area for rich placer deposits.

5.14.2 *Mineral Rights and Permitting*

The Gar-II Licence No BLG01551BA for exploration, and mining of gold, covers an area of 470.7km^2, and has a validity period from 24.05.04 to 01.06.26.

The co-ordinates of the licence area are given in Table 5.29 below.

Table 5.29: Gar-II Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	53°09'40"	128°06'00"
2	53°12'40"	128°09'30"
3	53°10'35"	128°16'00"
4	53°05'40"	128°16'00"
5	53°05'40"	128°10'20"

5.14.3 *Mineral Resources*

Prognostic resources have been estimated by PHM in accordance with Russian standard methodology and are presented in Table 5.30 below.

Table 5.30: Gar-II Russian Prognostic Russian Standard Resources (PHM as at 01.01.08)

	P_2				P_3			
	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)	Tonnage (kt)	Grade Au (g/t)	Au (kg)	Au (koz)
Zones of silicification	11,250	1.20	13,500	434	13,500	2.00	27,000	868

WAI Comment: Limited data have been viewed on this prospect and therefore WAI is unable to make a definitive comment on the prospectivity of this licence.

5.15 Osipkan

This licence area (100% PHM Holdings) covers 24.5km^2 and is located close to the south of the Tokur licence area (and west of Tokur village) in the NE Amur Region. There are two main areas of interest within this licence: the Osipkan deposit in the north-west, and Priisk Glubokiy in the south-east (Figure 5.11).

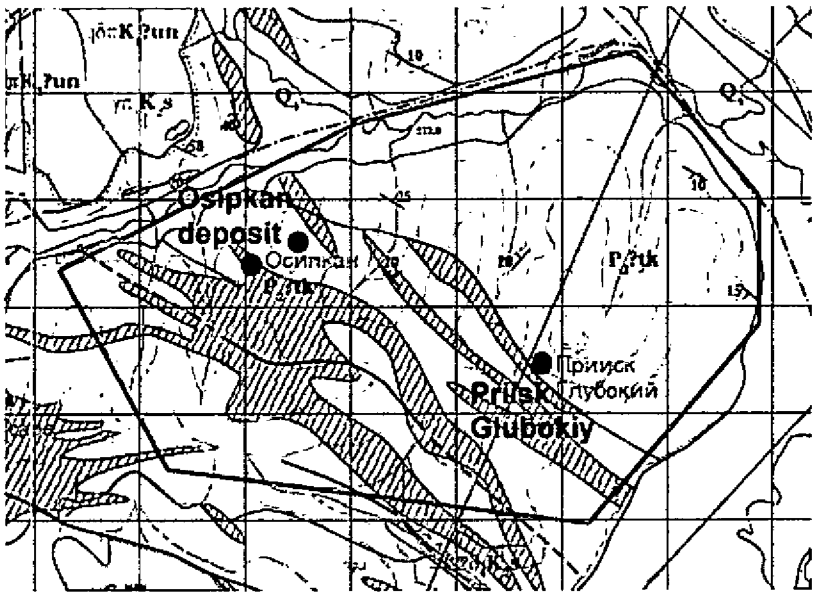


Figure 5.11: Geology and Mineralisation in the Osipkan Licence Area

5.15.1 Geology and Mineralisation

Tokur is underlain by meta-sediments of the Tokur suite: Permian sandstones, intraformational breccias, phyllitic slates and siltstones. The main structural elements are two east-west trending anticlines with the Osipkan syncline between them. Folding is tight to isoclinal and the area has been subject to intense deformation. There are major fault zones trending E-W, shallow dipping, with tectonic breccias, crush zones, and silicification (zones 2.5-22m thick, 500-2,000m lateral extent). There is significant hydrothermal alteration (quartz metasomatism) associated with the fault zones, with some development of quartz veins and stockworks. Gold mineralisation is controlled by these major E-W faults, with gold-quartz veins most frequently in the hanging-wall of the controlling faults.

The Osipkan-Alekseevskaya mineralised zone is located in a linear WNW zone on the SW limb of the Osipkan syncline, with gold in quartz veins and stockworks within meta-quartzites. Minerals include quartz and carbonates (ankerite), galena, sphalerite, rarely arsenopyrite and even more rarely pyrite. Gold grades recorded previously are generally in the range 0.1 to 0.9g/t Au; maximum grade is 1.6g/t Au over a 5m interval.

The Priisk Glubokiy area was first explored in 1914 and later in 1968-70, with 3 trenches. Gold grades were reported at 6.8g/t and 2.8g/t Au.

The Osipkan area has been estimated to contain 15t gold (P_3 resource).

6.0 PLACER DEPOSITS

6.1 General

In 2005, PHM expanded their placer holding through consideration of the most prospective placer gold areas within the Oblast. This study delineated a number of prospective areas.

The main focus was the Salejinsky area in Eastern Amur where a P_1 resource of 16t of Au (514koz) has been estimated. Currently, PHM has five dredges operating in the area.

The aim of PHM is to transfer resources into higher categories through well executed exploration programmes. Within the region, some 98 operators hold licences, but only 55 carried out successful plans.

WAI has not visited any of the placer operations so bases any conclusions and observations on data supplied by PHM and verbal communications.

Photo 6.1 shows an active placer deposit near Tokur in the north east of the Amur region.

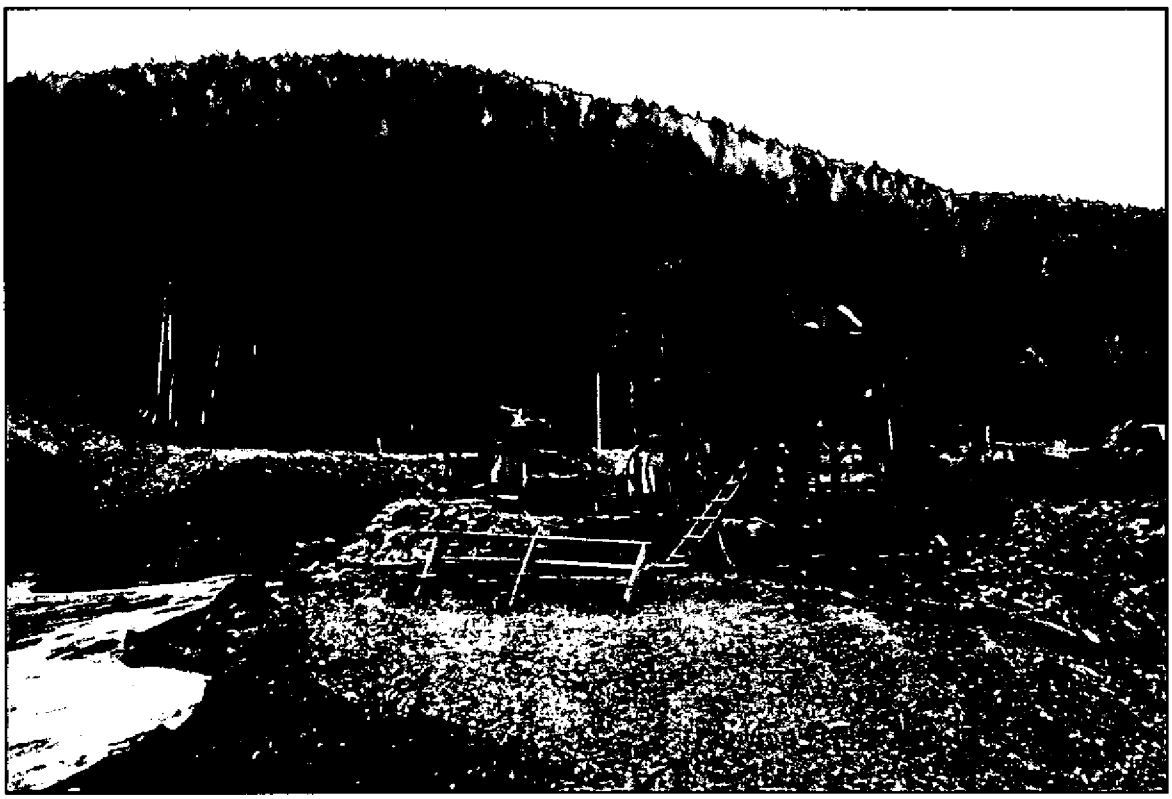


Photo 6.1: Placer Mining near Tokur

To show the level of increase achievable, the gold production figures for the two PHM properties in the Selemdjinskiy Region are given below:

- Amur – Dore (100% owned by PHM including Tokur) - produced 119kg to 01/09/05, 106kg to 01/09/06 and 134kg to 01/09/07; and
- Koboldo (91% owned by PHM) - produced 40kg to 01/09/05, 65kg to 01/09/06, and 127.5kg to 01/09/07.

As PHM expands in the Amur Region, they are seeking to expand its placer production through tender acquisition and exploration expansion. PHM has a plan to acquire 1.8t Au through auction and 0.8t through exploration upgrade by 2010.

In addition, PHM is looking at new technologies to improve recoveries.

Within the Selemdjinskiy and Zeya regions, PHM expects to produce 650kg of Au in 2008, 1,500kg in 2009 and 2,000kg in 2010.

The current dredging operations are earmarked for expansion. New dredges are to be brought from New Zealand, whilst the sluices are to be replaced by Chinese copies of IHC jigs.

The placer operations are not year round due to seasonal constraints. The sluice operations work for approximately 220 days/year and the dredges a little longer.

During the exploration drilling phase, a centrifugal vessel (similar to a 'Knelson' concentrator) is used to help with fine gold recovery.

From past production, the operating cost per gram (of gold) appears similar for dredge and dozer/sluice and monitoring.

Table 6.1 below provides details of the current licence holdings.

Table 6.1: Subsoil Use Licences Placer Gold

Site	Licence Holder	Licence No	Area km²	Date of issue	Expiry date	Subject	Basic licence conditions: Submission of report	Start of exploitation	First year mining output (kg Au)	Mining output in following years
Selemja river valley with tributary Kera riv.	Koboldo OJSC (95.7% PHM Holding)	BLG 01142 BE	20.2	16.10.2000	31.12.2013	Mining			100	100
Big Karaurak upstream basin		BLG 01842 BR	27.2	13.07.2006	31.12.2017	Exploration and mining	II quarter 2011	2012	40	40
Lower reach basin of Big Karaurak (terrace+drag)		BLG 01841 BR	35.6	13.07.2006	31.12.2021	Exploration and mining	IV qu. 2009	2007	90	90
Valleys of Levy, Murzilka, Pobeda, Zonalny, Zavershayushy, Reshayushy, Platinovy – tributaries of Gar-2		BLG 01843 BR	18.8	13.07.2006	31.12.2019	Exploration and mining	II qu. 2010	2011	50	50
Valley of Chelogor brook, right-hand tributary of Small Karaurak.		BLG 01832 BR	2	13.06.2006	31.12.2012	Exploration and mining	IV qu. 2008	2009	15	15
Gar – 2		BLG 01885 BR	15	14.12.2006	31.12.2017	Exploration and mining	30.11.2009	2010	80	80
Kenurakh river, right-hand tributary of Selemdja		BLG 13959 BE	7	21.02.2007	30.12.2026	Mining		2009	100	100
Ima river, left-hand tributary of Kera		BLG 01139 BE	0.695	16.10.2000	31.12.2012	Mining				
Sashin stream, Natashin		BLG 01990 BR	5.7	05.02.2008	31.12.2016	Exploration and mining				
Maliy Lukachek stream		BLG 01991 BR	1.2	05.02.2008	31.12.2014	Exploration and mining				
Small Karaurak right-hand trib. Of Selemja		BLG 13973 BE	23	02.03.2007	30.12.2031	Exploration and mining	Till 30.12.2012	2014	70	70
Valley of brook Osipkan, r.-h. trib. Of Big Karaurak and its r.-h. trib. Nikolayevsky brook	Amur-Dore CJSC (100% PHM Holding)	BLG 01720 BR	9	17.08.2005	31.12.2015	Exploration and mining	IV qu. 2007	till 30.12.2008r.	30	30
Uspenskiy river		BLG 01637 BR	15	05.03.2005	31.12.2010	Exploration and mining				
Djeltulak Bolshoy		BLG 01960 BE	2.1	12.11.2007	31.12.2020	Mining				
Pikan stream, Cheremushkiniy		BLG 01961 BE	2.7	12.11.2007	31.12.2019	Mining				
Valleys of brooks Sagur, Motor, Berkachan, Selemja riv. Basin		BLG 01613 BR	1.4	14.01.2005	31.12.2014	Exploration and mining	II qu. 2008	Not specified	20	20
Valley of riv. Gar-1 with Levy brook, Gar riv. basin		BLG 01950 BR	4	03.08.2007	31.12.2014	Exploration and mining	31.01.2010	30.10.2010 r.	40	40
Riv. Ulunga, middle reach		BLG 01951 BE	1	03.08.2007	31.12.2014	Exploration and mining	31.06.2009	31.06.2010 r.	70	70
Stream Igak, left tributary of river Urkan	Elga LLC (100% PHM Holding)	BLG 01634 BR	30	03.03.2005	31.12.2019	Exploration and mining				
River Obka		BLG 01635 BE	1.18	03.03.2005	31.12.2012	Mining				
Streams: Talga-Makit, Ulagir (Ulegir, Uligir, Maliy and Bolshoy, right of the river Juvasit)		BLG 01636 BR	1.18	03.03.2005	31.12.2008 *	Exploration				
Brianta river	GDK Odolgo LLC (50% PHM Holding)	BLG 01563 BR	53.2	23.08.2004	31.12.2010	Exploration and mining				
Des river		BLG 01962 BR	255.1	15.11.2007	31.12.2021	Exploration and mining				
Sergeevskiy Stream	Pokrovskiy Rudnik OJSC (100% PHM Holding)	BLG 01061 BE	5.837	07.04.2000	31.12.2015	Mining				

(*The documents for extension of the licence are usually filed two-three months before the expiry date, PHM have not filed these yet.)

6.2 Osipkan

WAI has examined data for the Osipkan placer deposit, and at the present time, the property does not have GKZ approved reserves, but has been tested by drill traverses, usually to C_1 when GKZ allows different drill spacing dependent on the width of the placer. For <50m wide, traverses should be 100m apart with holes 10m apart along the traverse to give C_1. For 50-100m wide placers, spacing would be 200 x 20m and for >100m width, spacing would be 400 x 20-40m or 200 x 20m where uncertainties prevail. Grades are calculated on an average block grade dependent on a COG and block average dependent on the width of the placer and the strip ratio and thickness of the placer horizon.

At Osipkan, the centre of the deposit has been previously worked out and PHM has tested the flanks and is now mining them.

Current production records from the property show up to 20% more Au produced than predicted, a theme which PHM believes is likely to continue given the difficulties in accurately predicting the grade distribution within a gold placer.

The resource table is updated every year and reported by Form 5GR for the State Balance.

WAI Comment: WAI has examined the corporate strategy and briefly reviewed a number of placer projects in Amur. From this, the rationale and projections appear sound and if successful, will provide PHM with significant and increasing gold income over time.

6.3 Amur-Dore

On the Leviy site (basin of the river Gar-I, licence BLG 01950 BR) the following exploration lines of drill holes have been completed:

- Leviy stream - lines 2, 10, 18
- Yagodniy stream - lines 2, 10
- Gar-I river - lines 270, 286
- On line 12 (from 2004) 4 control drill holes have been completed.

The total drilling length was 770m at a cost of 1,540,000 rubles.

As a result of the exploration, economic outlines of widths from 20-40m in the Gar-I valley (section lines 270, 286) have been obtained, and prognostic resources are provisionally 70kg gold in category P_1. Field work at the site is nearly completed.

On the Sagurskiy site (licence BLG 01613 BR), the final report has been completed. This report, with positive conclusions, has been approved by Amur TKZ.

6.4 Koboldo

OAO ZDP Koboldo, through the services of OOO NPGF Regis, has carried out exploration and evaluation of placer gold in the Selemdzhimskiy and Zeiskiy areas. However, work has been severely delayed by problems in obtaining the necessary permitting documentation. All the required documentation has now been obtained.

Table 6.2 shows the exploration activities undertaken in the first half-year.

Table 6.2: First-Half 2008 Exploration Activities

Site	Core drilling, m	Cable-tool drilling, m.	Expenditure, '000 rubles
OOO ZDP Koboldo - total			**10100.4**
Gar-II	1262.2		2524.4
Verkhnekaraurakskiy		2 598.4	5196.8
Nizhnekaraurakskiy		602.4	1204.8
Verkhnegarskiy-2	72.4		144.8
Verkhneosipkanskiy	514.8		1029.6

At the Nizhnekaraurakskiy site (r. Bolshoy Karaurak, right tributary of the river Selemdzha, lower reaches, licence BLG 01841 BR), exploration and evaluation was done on a 400-200m x 40-20-10m grid, using cable-tool drilling between section lines 46 and 72. Upon completion of this exploration, 602.4m was drilled at a total cost of 1,204,800 roubles. The results of the work are now being studied.

On the Verkhnekaraurakskiy site (basin of r. Bolshoy Karaurak, upper reaches, licence BLG 01842 BR) exploration was done by cable-tool drilling on grid 1400-80m x 20-10m in the valley of the r. Bolshoy Karaurak between lines 134 and 244. 10 section lines have been drilled, with a total length of drilling of 1490.8m. Along tributaries (Lavrovskiy, Razvedochniy, Yakovlevskiy, Maiskiy, Silniy, Boiskiy, Melkiy, Skalniy) 19 lines were drilled with a total length of 1101.6m. Altogether at this site, 29 lines with total length of 2592.4m have been completed. Total cost was 5,184,800 roubles. Field data and drilling logs are currently being studied.

At Gar-2 site (valley of r. Gar-2, licence BLG 01885 BR) exploration in the Gar-2 basin has been done by air percussion drilling on a grid of 1200m x 40-20-10m. 10 exploration lines of 1086.6m total length and 2,173,200 roubles total cost have been completed. Prognostic resources of category P_1 are estimated at 250kg gold. Field work on this site is continuing.

On the Verkhnegarskiy-2 site (tributary of r. Gar-2, licence BLG 01843 BR), due to delays in obtaining permitting documentation, work started only at the end of June 2008.

On Verkhneosipkanskiy site (licence BLG 01990 BR), information has been prepared on increased operational reserves for the valleys of Natashin and Trezub streams: additional reserves of category C_1 are 80kg. This report is undergoing examination by AmurTKZ.

6.5 Environmental Issues

6.5.1 Environmental Legislative Requirements

WAI understand from PHM that permitting for placer deposit exploitation is virtually identical to that required for normal mining operations. PHM has reported that 3 years of baseline environmental information are still required, but monitoring commenced as soon as the licence was obtained. Regional data will be used in the first instance, with permits updated at a later stage.

Reclamation is required on an annual basis, otherwise environmental penalties are high. The reclamation can be done every 3 years, but fines are very much higher at this stage. Penalties are calculated on the basis of tonnes of ore produced.

It was reported to WAI that bio-testing of waste materials is obligatory and very strict. A series of dams and ponds are built, and only recycled water, not the main stream flow, can be used to work the deposit. The river itself is diverted. Reclamation of the site is intended to return it to the original landscape profile.

If PHM situates the waste dumps in its own territory, they would only pay 30% of the total tax payable to the State. If progressive reclamation also takes place, in the third year of operation PHM would be reimbursed. If not, there would be no reimbursement but PHM would still be required to re-cultivate the site at the end of the licence term. If this condition is violated, total payments are increased five-fold.

PHM currently pays a fee for potential destruction of an area of river bed. Monitoring is subsequently carried out upstream and downstream of operations. If permitted discharge levels are exceeded, fines are high, and the government may retract the operating licence. Conditions of the mining permit for mining are required to be substantiated by analytical data, and PHM are in the process of preparing the required data.

WAI Comment: WAI has not visited any of PHM's alluvial mining operations. However, during the recent visit, the WAI team flew over a number of alluvial mining operations, some owned by PHM and others of unknown ownership. There was little indication of on site rehabilitation, however without a detailed site visit WAI can not comment further. It will be essential to ensure that legislative statutes are translated into on-site practices, to ensure that significant environmental degradation does not occur as a result of these operations.

6.6 Environmental Status and General Environmental Considerations

No environmental information regarding the PHM placer assets has been viewed by WAI.

Mining of alluvial gold deposits without appropriate planning and management can have significant physical and biological effects on the river and floodplain environment. The significance of these effects is dictated by various factors, including the location of the site, the nature of the sediments, fluvial processes, flood risk, design, method, rate, amount and intensity of extraction, and the sensitivity of habitats, biodiversity and other river users in the vicinity.

The predominant resulting impacts fall into three main categories:

- Physical impacts;
- Water impacts; and
- Biological impacts and ecosystem health.

Physical impacts can include dust generation, riverbank erosion, and altered river course. These in turn can cause flooding and damage to infrastructure (e.g. roads and bridges). Water issues are linked to increases in levels of suspended solids, and flooding. Ecological impacts can include disturbances in, and changes to the biodiversity of benthic macroinvertebrae fauna. There are also significant social impacts, both positive and negative, that result from alluvial mining. It will be important that adequate scoping and baseline data collection is carried out at new projects to adequately characterise potential environmental and social impacts, and that detailed impact assessment to mitigate and where possible eliminate negative impacts is carried out.

For existing operations rigorous environmental monitoring will be essential to ensure that appropriate environmental protection measures are put in place. If properties have previously been mined by other companies, it will also be important to clearly establish historic liabilities.

7.0 OTHER REGIONS – HARD ROCK ASSETS

7.1 Buryatia

7.1.1 Talikit Area

This licence area (100% PHM Holdings) is in the north east of the Buryatia region, within Alpine mountainous terrain, some 95km south of Taksimo station on the Trans-Siberian railway, close to the known Irokindinskoye deposit (which consists of multiple parallel quartz veins dipping southward at 30-40°).

The licence for the area, UDE 01039 BR, was issued on 19 April 2006 (and expires in 2026) for geological surveying and gold ore extraction on the Talikinskiy field in the Bauntovskiy Yevenkiiskiy region of the Republic of Buryatia and covers an area of 766.55km².

The geology of the Talikit area is simple, with Palaeozoic granitoids (quartz diorites) cutting Palaeozoic acid volcanics. Mineralisation consists of quartz veins and stockworks with gold grades (from limited previous studies) up to 19g/t Au. The area has not been systematically explored.

The co-ordinates of the licence are given in Table 7.1 below.

Table 7.1: Talikitskaya Licence Co-ordinates

Point	Northings	Eastings
1	55°29'00"	114°12'00"
2	55°38'00"	114°51'00"
3	55°34'00"	114°57'00"
4	55°16'00"	114°11' 00"
5	55°27'00"	114°57'00"

Geochemical surveying has identified NE-SW trending anomalies with grades up to 5g/t Au in geochemical samples. A trench intersecting one of the four main anomalies has confirmed 4g/t Au over a 15m intersection.

The following work was carried out in 2006-2007:

- Full area surveying (geophysical and geochemical) on the whole of the Talikit field;
- Detailed exploration in the Talikit area has consisted of 3,000m (160,000m^3) of bulldozer trenching and 400m (9,000m^3) of trenching using drilling and blasting methods; and

- 320 trench samples have been taken, which will be assayed at the laboratories at Irgiridmet.

Along the side of the valley to the north-west of the survey area, beretisation has been identified, associated with quartz veining, along an inferred fault line parallel with the river.

Within the licence are two further areas with quartz mineralisation to be explored.

Prognostic resources have been estimated by PHM to Russian standards and are quoted as 65.34Mt at a grade of 2.06g/t Au (P_2) and 71Mt at a grade of 2.1g/t Au (P_3).

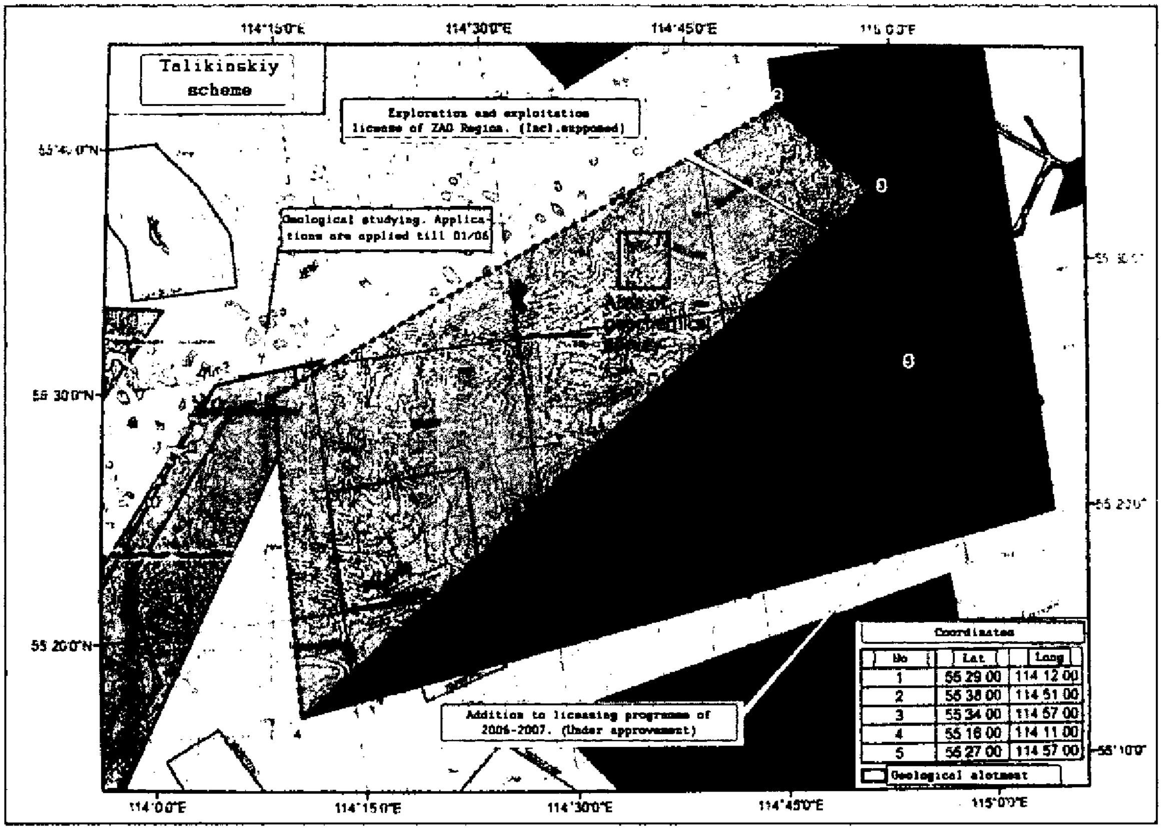


Figure 7.1: Talikit Licence and Potential Additional Licence Areas to South and East

Unconsolidated overburden makes it impractical to continue with exploration trenching. To date, for the 2008 programme of exploration, lines of shallow drill holes have been used instead to begin detailed delineation of the mineralised zones.

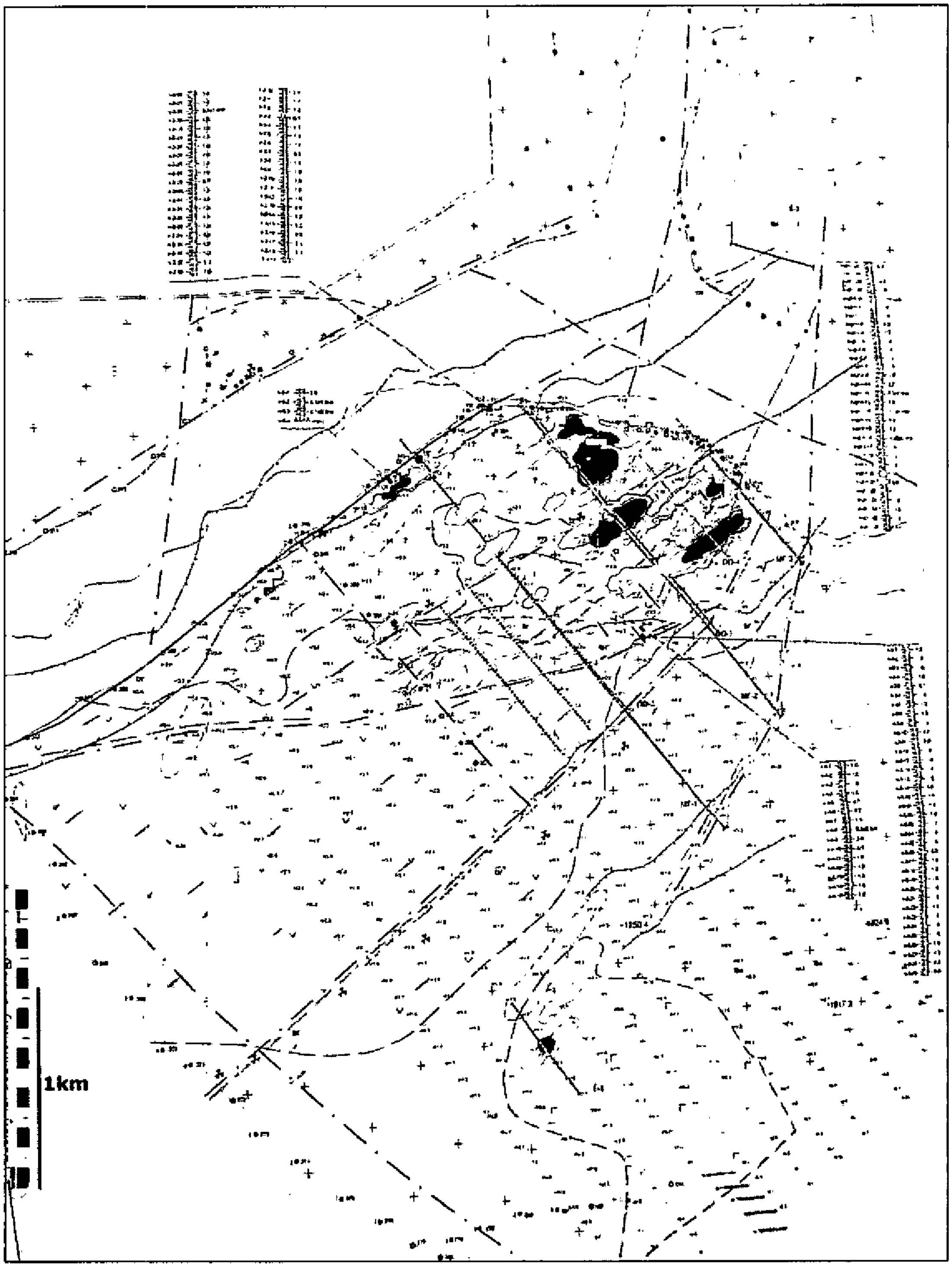


Figure 7.2: Talikitskaya Geochemical Survey

SECTION C: ASSETS HELD IN THE YAMAL REGION OF THE POLAR URALS

1.0 INTRODUCTION

The Yamal exploration licences held by PHM are located on the eastern side of the polar Ural Mountains, stretching over a distance of approximately 200km, which lie in the Yamalo-Nenetskiy Autonomous Region (Yamal) of the Russian Federation (as shown in Figure 1.1 and Figure 1.2 below).

The Yamal licences cover the area located in the middle of the region, which include the main assets of Novogodnee Monto and Petropavlovskoye.

Figure 1.1: Location of the Yamal Region within the Russian Federation

In April 2004, PHM acquired 90% of the share capital of OJSC Yamalzoloto for a total consideration of US$10.4M. On acquisition, the licence area covered 11 main mineral occurrences, one of which, Novogodnee Monto, was well explored and had significant geological data collected on it.

In September 2005, PHM subscribed for 74.9% of the shares of OAO "Yamalskaya Gornaya Kompania" ("Yamal Mining") which owned a number of attractive assets in the Yamal Region, as well as the remaining 10% of OAO "Yamalzoloto". The remaining 25.1% of the shares of Yamal Mining are owned by the local government. The principal licences held by Yamal Mining are for Ozernoye, which contains gold, platinum and palladium and copper mineralisation, Rudniye Gorki which contains copper-molybdenum and gold, with potentially porphyry copper type mineralisation and Yashor Laptayeganskaya which contains gold and PGM's in black shales.

There are, in addition, many other exploration targets and mineral deposits in this licence area. A few kilometres west of Novogodnee Monto, for example, lies the Zapadnoye chromite deposit, in which the Group has an interest.

1.1 Location, Access, Climate and Infrastructure

The main exploration areas lie at the northern end of the Urals, on the Yamal peninsula adjacent to the estuary of the River Ob. The licence area, which is west-northwest of the regional centre of Salekhard, is well serviced with infrastructure due to its location in the primary oil and gas region of the Russian Federation.

Salekhard has good communication links and infrastructure together with an airport which has internal flights to all the major centres in Russia. The airport is situated on the southern side of the River Ob. This river is frozen for the majority of the year and access across it is via an ice road to the township of Labytnangy, which lies directly opposite Salekhard on the northern bank. In the summer this link is maintained by numerous vehicle ferries. A rail link to the north via Harp and a port loading facility are located at Labytnangy.

A daily commercial flight operates between Salekhard and Moscow and takes approximately three hours. The same journey by train takes over 36 hours. The city of Harp is located in the foothills of the Urals on the western side of the River Ob. Salekhard and Harp are connected by a sealed road.

All of the deposits lie within the Arctic Circle (66°N); here the climate is extreme polar continental, where winters are very cold (September to May) with heavy snowfall and subfreezing temperatures down to minus 50°C. Snow falls throughout the winter and moderate rainfall may fall in summer. Spring and autumn are combined with summer into one season lasting only from June to August, when temperatures rise to a maximum of 20-25°C.

The physiography of the Yamalo-Nenetskiy region is characterised by subdued topography with abundant marshes, lakes and rivers. In contrast, the Polar Urals form an elevated mountain chain which reaches a maximum height of almost 1,900m. In the region of Salekhard, they form low-lying rounded hills, which are generally below 100m in height.

WAI Comment: Although more difficult operationally, WAI has observed several deposits being mined in this area throughout the winter months and do not believe that climatic conditions will significantly impact on the development of these projects.

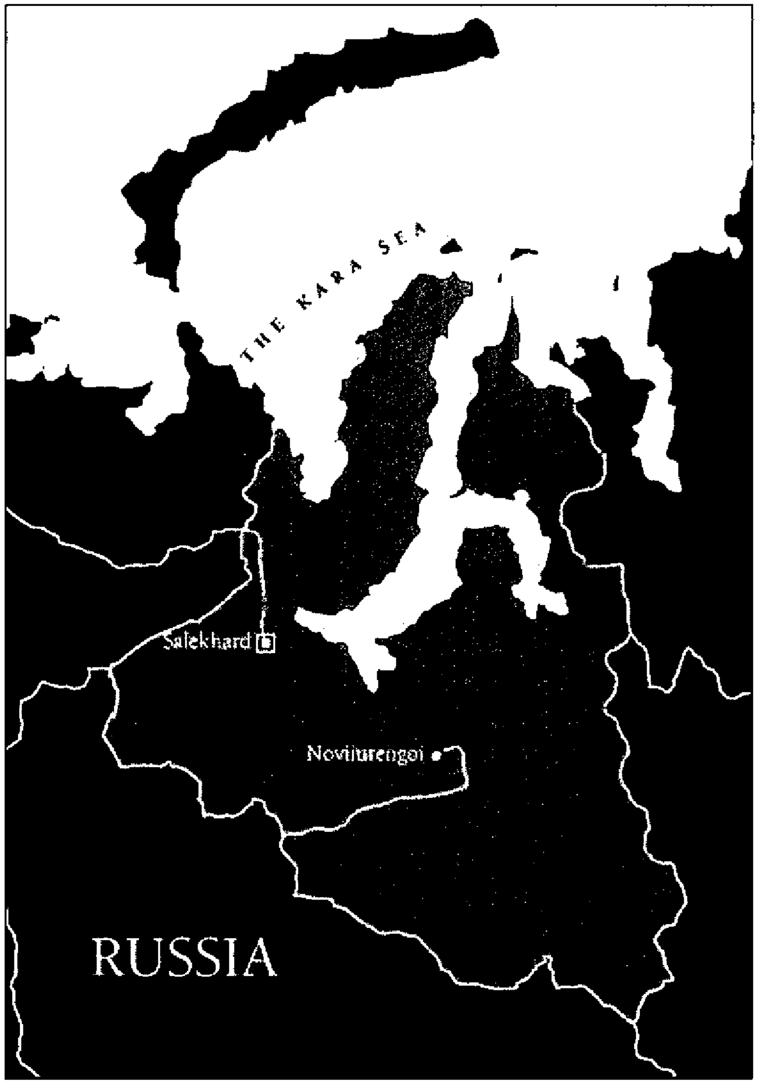


Figure 1.2: Location of Salekhard Regional Centre of the Yamal Region

1.2 Mineral Rights and Permitting

The co-ordinates of the main sites within the licence area are given below and illustrated in Figure 1.3 below.

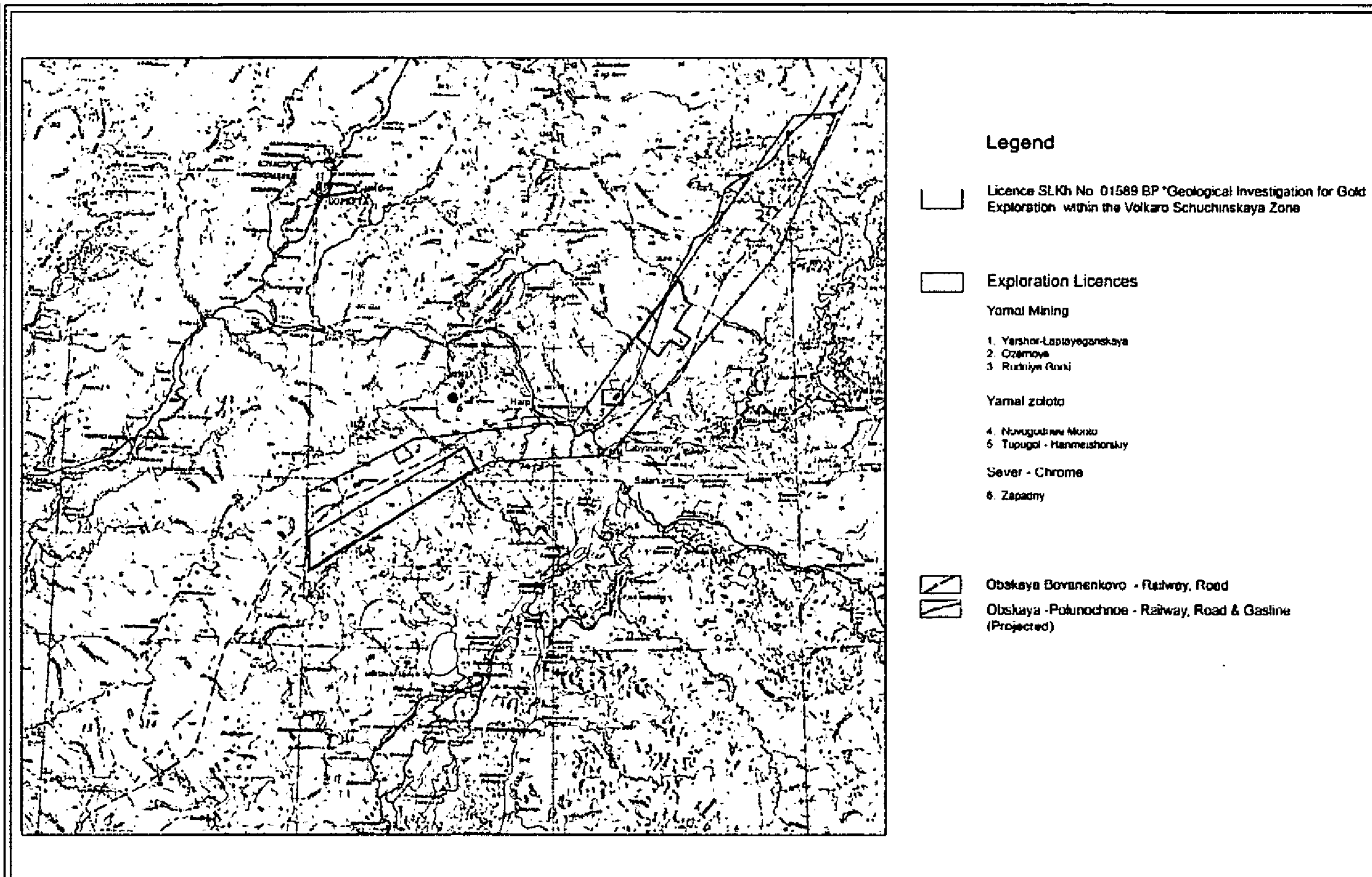


Figure 1.3: Location of PHM Licences in the Yamal Region

1.2.1 Voykaro-Shuchinskaya Gold Exploration Licence No SLKh 01589 BP

The licence covers an area of 4,800km^2 and is valid for the period from 06.05.04 to 31.12.09. It is located between 80km north and 85km south-west of the town of Labytnangy. It lies within the Priuralsky and Shuryshkarsky districts of Yamalo-Nenetskiy Region of Tyumen Oblast.

1.2.1.1 Ozernoye-Pyatirechensky

This licence held by Yamal Mining covers an area of 105km^2, the co-ordinates of which are given in Table 1.1 below.

Table 1.1: Ozernoye-Pyatirechensky Licence Co-ordinates		
Co-ordinate	**Latitude (N)**	**Longitude (E)**
1	66°30'20"	64°15'00"
2	66°31'12"	64°23'22"
3	66°37'47"	64°35'13"
4	66°40'50"	64°49'55"
5	66°41'39"	64°55'39"
6	66°36'23"	64°36'17"

1.2.1.2 Rudniye Gorki 1

This licence held by Yamal Mining covers an area of 20km^2, the co-ordinates of which are given in Table 1.2 below.

Table 1.2: Rudniye Gorki 1 Licence Co-ordinates		
Co-ordinate	**Latitude (N)**	**Longitude (E)**
1	66°36'12"	65°13'26"
2	66°37'20"	65°10'30"
3	66°39'16"	65°15'32"
4	66°40'39"	65°15'24"
5	66°38'28"	65°18'23"

1.2.1.3 Rudniye Gorki 3

This licence held by Yamal Mining covers an area of 32km^2, the co-ordinates of which are given in Table 1.3 below.

Table 1.3: Rudniye Gorki 3 Licence Co-ordinates		
Co-ordinate	**Latitude (N)**	**Longitude (E)**
1	66°21'33"	64°14'03"
2	66°21'54"	64°13'03"
3	66°23'29"	64°17'03"
4	66°22'45"	64°17'03"

1.2.1.4 Manukuyu

This licence held by Yamal Mining covers an area of 12km^2, the co-ordinates of which are given in Table 1.4 below.

Table 1.4: Manukuyu Licence Co-ordinates		
Co-ordinate	**Latitude (N)**	**Longitude (E)**
1	66°15'44"	64°03'46"
2	66°16'11"	64°02'49"
3	66°17'46"	64°09'01"
4	66°17'17"	64°09'05"
5	66°38'28"	65°18'23"

1.2.2 Yarshor-Laptayeganskaya Licence No.SLKh 01588

This licence held by Yamal Mining is valid for a period from 6 May 2004 to 31 December 2009, and is a permit for gold and PGM exploration within the black shale stratum (Malomir style) of the Yashor-Laptayeganaskaya zone, which covers an area of 163.11km^2. The site is located in the Priuralsky district, Yamalo-Nenetskiy Region, Tyumen Oblast, 50km north from Labytnangy town.

The co-ordinates of the licence are given in Table 1.5 below.

Table 1.5: Yashor-Laptayeganaskaya Licence Co-ordinates		
Co-ordinate	**Latitude (N)**	**Longitude (E)**
1	66°56'41.92"	66°46'32.56"
2	67°04'31.24"	66°54'46.88"
3	67°08'50.32"	67°03'06.92"
4	67°08'48.72"	67°09'15.41"
5	67°06'49.00"	67°09'15.44"
6	66°55'46.40"	66°52'09.77"

1.2.3 Toupugol-Khanmeishorsky Licence No SLKh 01356

Yamalzoloto holds the exploration/evaluation licence for the Toupugol-Khanmeishorsky area, and within that area an evaluation/development/production licence for the Novogodnee Monto deposit. The exploration licence (98.74% PHM Holding) expires in December 2009, therefore evaluation/mining licences should be secured for areas where positive results have been identified before that time. WAI do not perceive that this will present a risk to the project. The licence is located 15km north from Labytnangy and 1km west of Obskaya-Bovanenkovo railroad which is under construction (being 18km from Obskaya station).

This licence is for gold exploration, and is valid from 4 March 2003 to December 2009 and covers an area of 42.22km^2 excluding the Novogodnee Monto licence area which lies within it.

The co-ordinates of the licence are given in Table 1.6 below:

Table 1.6: Toupugol-Khanmeishorsky Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	66°47'08"	66°21'48"
2	66°50'30"	66°21'26"
3	66°50'41"	66°30'58"
4	66°47'16"	66°31'18"

1.2.4 Novogodnee-Monto Licence No SLKh 01212

This licence held by Yamalzaloto lies within the Toupugol-Khanmeishorsky Licence which is for gold exploration and mining and is valid from 31 January 2002 to 30 January 2020, and covers an area of 0.48km^2. It is located within the Priuralsky district, Yamalo-Nenetskiy Region approximately 15km north of the town of Labytnangy and is less than 1km north of the Obskaya-Bovanenkovo railway, which is currently under construction.

This licence was first explored and evaluated as an iron ore deposit, initially iron not gold being targeted.

The co-ordinates of the licence are given in Table 1.7 below.

Table 1.7: Novogodnee Monto Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	66°48'59.45"	66°28'34.09"
2	66°48'59.50"	66°29'31.12"
3	66°48'38.80"	66°29'31.30"
4	66°48'36.70"	66°28'34.20"

1.2.5 Zapadnoye Licence No SLKh 013779

This licence held by Server Chrome is for exploration and mining of chromium ores and is valid from 10 October 2006 to 10 March 2026, and covers an area of 0.45km^2.

The co-ordinates of the licence are given in Table 1.8 below.

Table 1.8: Zapadnoye Licence Co-ordinates

Co-ordinate	Latitude (N)	Longitude (E)
1	66°49'58.8"	65°09'23.8"
2	66°50'00.4"	65°09'20.6"
3	66°50'02.6"	65°09'18.1"
4	66°50'14.1"	65°10'05.5"
5	66°50'17.7"	65°10'02.7"
6	66°50'38.8"	65°11'00.8"
7	66°50'32.1"	65°11'07.0"
8	66°50'24.7"	65°11'06.4"
9	66°50'05.4"	65°10'19.1"

WAI Comment: WAI has inspected each of the licences and has no reason to believe that they are not in good order or that the co-ordinates are incorrect.

2.0 RESOURCE SUMMARY

A summary of the Russian standard classified resources and reserves estimated by PHM in accordance with Russian standards in the Yamal Region is given in Table 2.1 (Au), Table 2.2 (Fe), Table 2.3 (Au) and Table 2.4 (Chomite) below.

Table 2.1: Novogodnee Monto and Petropavlovskoye (Au) Russian Standard Classified Resources and Reserves (PHM as at 01/01/08)

Category	$B + C_1$				C_2				P_1			
Deposit	Tonnes (kt)	Grade (g/t)	Metal (kg)	Metal (koz)	Tonnes (kt)	Grade (g/t)	Metal (kg)	Metal (koz)	Tonnes (kt)	Grade (g/t)	Metal (kg)	Metal (koz)
Novogodnee Monto	4,878	1.14	5,568	179	817	2.02	1,648	53	1,960	4.67	9,144	294
Novogodnee Monto (Out of Balance)					185	1.01	187	6				
Petropavlovskoye	7,630	1.40	10,668	343	6,661	1.53	10,171	327	5,000	6.00	30,015	965
Total	**12,508**	**1.30**	**16,236**	**522**	**7,663**	**1.57**	**12,006**	**386**	**6,960**	**5.63**	**39,159**	**1,259**

These resources are also summarised in Table 1.1 where some rounding has occurred.

Table 2.2: Novogodnee Monto (Fe) Russian Standard Classified Resources and Reserves (PHM as at 01/01/08)

Category	C_1			C_2		
Deposit	Tonnes (kt)	Grade (Fe_{Mgt}%)	Metal (kt)	Tonnes (kt)	Grade (Fe_{Mgt}%)	Metal (kt)
Novogodnee Monto	4,814	41.16	1,981	529	41.61	220
Total	**4,814**	**41.16**	**1,981**	**529**	**41.61**	**220**

Table 2.3: Other Regions (Au) Russian Standard Classified Resources and Reserves (PHM as at 01/01/08)

Category	P_1			
Deposit	Tonnes (kt)	Grade (g/t Au)	Metal (kg Au)	Metal (koz Au)
Toupugol-Khanmeishorskiy	2,900	5.63	16,332	508
Ozernoye	2,300	1.03	2,377	74
Other exploration areas	1,667	1.50	2,584	80
Total	**6,867**	**3.10**	**21,293**	**662**

Table 2.4: Russian Standard Resources and Reserves Summary of Sever-Chrome (PHM as at 01.01.08)

Category	C_1		C_2	
Deposit	Tonnes (kt)	Grade (Cr_2O_3%)	Tonnes (kt)	Grade (Cr_2O_3%)
Zapadnoye Chromite	492.2	38.71	1,164.4	37.77
Total	**492.2**	**38.71**	**1,164.4**	**37.77**

3.0 TOUPUGOL-KHANMEISHORSKAYA AND NOVOGODNEE MONTO

3.1 Introduction

The Toupugol-Khanmeishorskaya exploration licence covers an area of 42.22km^2 (excluding Novogodnee Monto) and is located at the northern end of the Urals, on the Yamal peninsula adjacent to the estuary of the River Ob (as shown in Figure 3.1 below). On acquisition, the licence area covered eleven anomalies, one of which, Novogodnee Monto was well explored and had a significant amount of historical exploration data on it and can be considered the most advanced project in the Yamal portfolio. The Novogodnee Monto prospect lies within a commercial production licence for hard rock gold which covers an area of 0.48km^2 and which is completely surrounded by the Toupugol-Khanmeishorskaya exploration licence.

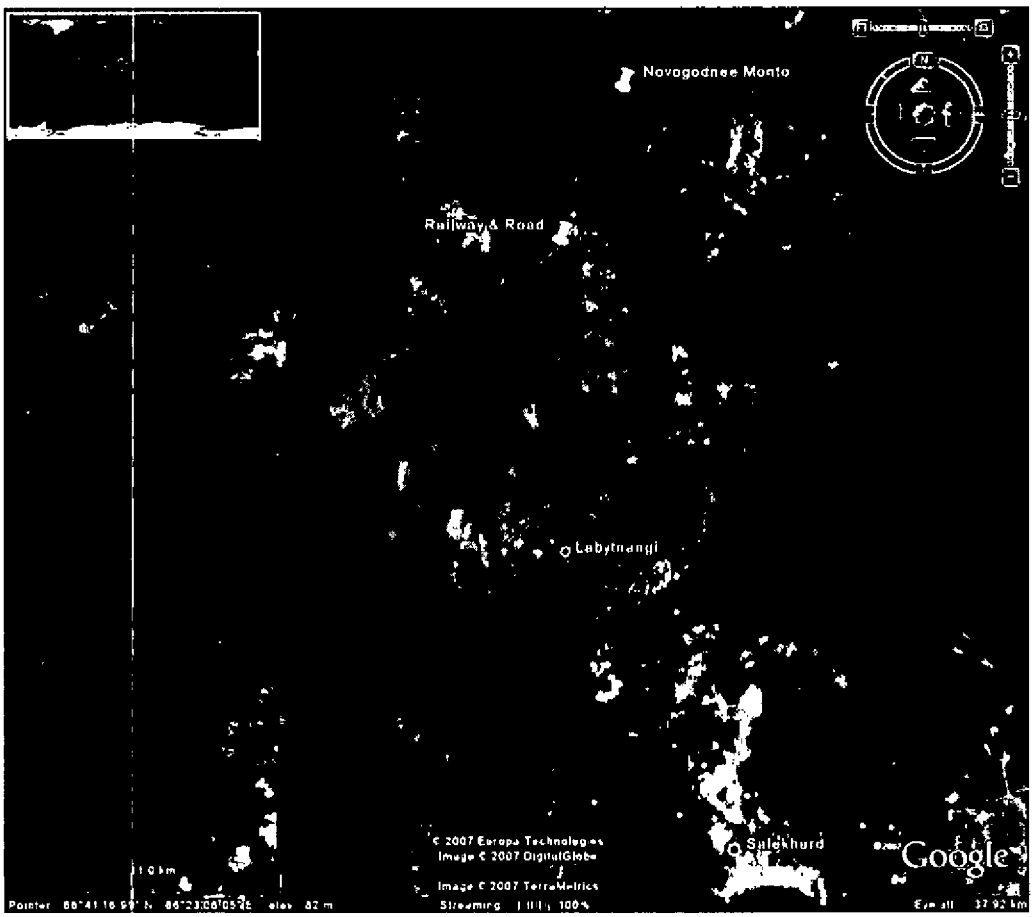


Figure 3.1: Location of Novogodnee Monto in Relation to Railway & Road Access, Labytnangy and Salekhard

The Novogodnee Monto deposit is located approximately 20km north of Salekhard and 20km east of Harp. The licence area is well serviced with infrastructure, lying within 1km of both a new railway and good access road.

The topography of the immediate licence area is relatively flat and probably represents a palaeo-flood plain of the River Ob. Vegetation is sparse and consists predominantly of grass and low shrubs, and occasional sparse stands of small pine trees. The site is cut by several large streams which have incised steep-sided valleys that are tens of metres deep.

Novogodnee Monto was originally explored and evaluated as a potential underground mining operation. A TEO (Pre-feasibility study) and mine development plan for Novogodnee Monto, was carried out and completed by FGUP TsNIGRI in 2007. Work to date suggests that Novogodnee Monto may be reclassified as an open pit mineable deposit. This study has not only taken gold into account, but also the silver, copper and iron potential.

3.2 Geology of Toupugol-Khanmeishorskaya

The geology of the Toupugol-Khanmeishorskaya exploration licence is dominated by basalts and andesitic basalts and minor marbleised limestones of the Tan'urskaya Formation and sandstones and conglomerates of the Khanmeishorskaya Formation. Together these formations crop out throughout the central and eastern portions of the licence where they form a broad syncline with a southwest-northeast trending axis. The core of the syncline is marked by outcropping reefal limestones, sandstone and conglomerates of the Silurian-Devonian Musiurskaya Formation.

The western portion of the exploration licence and the areas immediately to the north are dominated by diorites and lesser gabbros, quartz-diorites and tonalites of the Soboiskii Complex. Small stocks of diorite also crop out to the west and south of the Novogdnee Monto deposit.

Subcalcic gabbros and granodiorites of the Kongorskii complex crop out in an east-west to northeast-southwest trending arcuate zone in the southeast of the exploration licence.

The location of the main occurrences within the Toupugol-Khanmeishorskaya exploration licence are illustrated Figure 3.2 below.

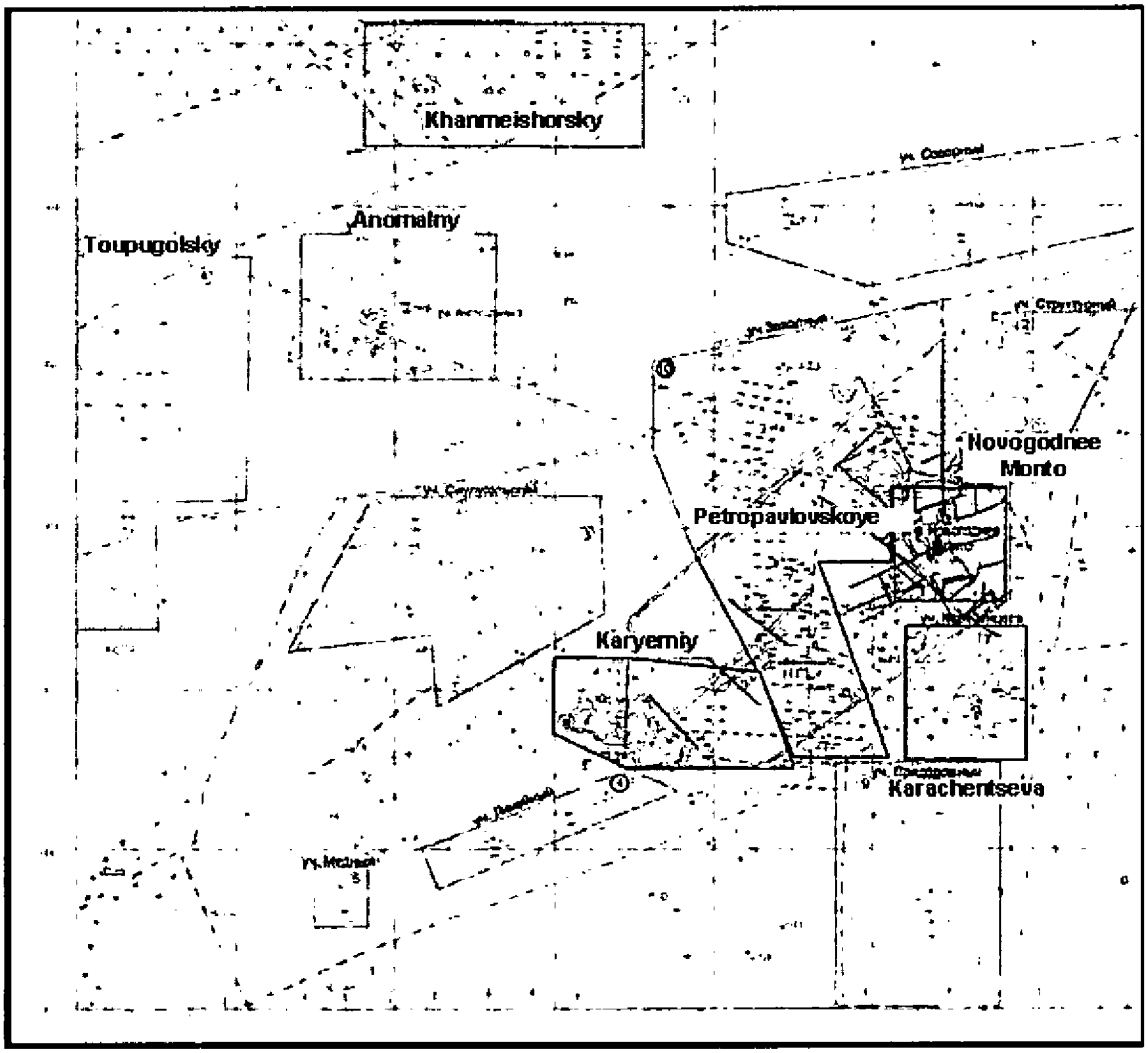


Figure 3.2: Location of the Main Gold Occurrences in the Toupugol-Khanmeishorskaya Exploration Licence

3.3 Geology of Novogodnee Monto

Mineralisation in the Novogodnee Monto deposit and surrounding areas occurs principally in skarns (metasomatically altered rocks) associated with igneous intrusions of Devonian-Carboniferous age within a Silurian-Devonian volcanic and sedimentary sequence. There are two main types of mineralisation: massive magnetite-bearing bodies and quartz / carbonate / sulphide stockworks. It is believed that these were formed during two discrete and significantly different mineralising events *viz.* an early magnetite skarn event and a later metasomatic quartz-pyrite event.

The key features of the mineralisation are:

- The mineralisation is hosted in an intercalated sequence of basalt and basaltic andesite lavas, porphyritic basalt and basaltic andesite lavas, and tuffaceous sandstones and siltsones with occasional marbleised limestone lenses. The sequence is folded into a broad open syncline with a northeast-southwest axial trend;

- Bituminous limestone and variably marbleised reefal limestone with rare jasperoids crop out in a series of fault blocks in the north of the licence. Except for occasional weakly developed metasomatic zones associated with major faults, these units are unmineralised;
- Three main intrusive lithologies have been mapped within the licence area. The oldest is a quartz dolerite stock which crops out throughout the southern part of the licence and probably predates mineralisation. Broadly northwest-southeast trending monzonite dykes crop out in the north of the licence and along the eastern margin of the Novogdnee Monto skarn. A porphyritic gabbroic dolerite crops out immediately to the east of the Novogdnee Monto deposit. Both the monzonites and the gabbroic dolerite appear to post-date mineralisation; and
- Narrow lamprophyre and porphyritic dolerite and microdolerite dykes are the latest igneous events and cross cut all lithologies.

Two styles of mineralisation are present namely; magnetite-sulphide skarn with localised gold-rich zones and metasomatic-quartz-pyrite vein zones with localised quartz stockwork development. PHM describes the metasomatites as structurally controlled zones of strong quartz-sericite alteration and it is likely that quartz veins are end members of metasomatic zones where dilation has allowed deposition of quartz as a discrete vein.

A geological plan and typical cross section through the deposit are shown in Figure 3.3 and Figure 3.5 below.

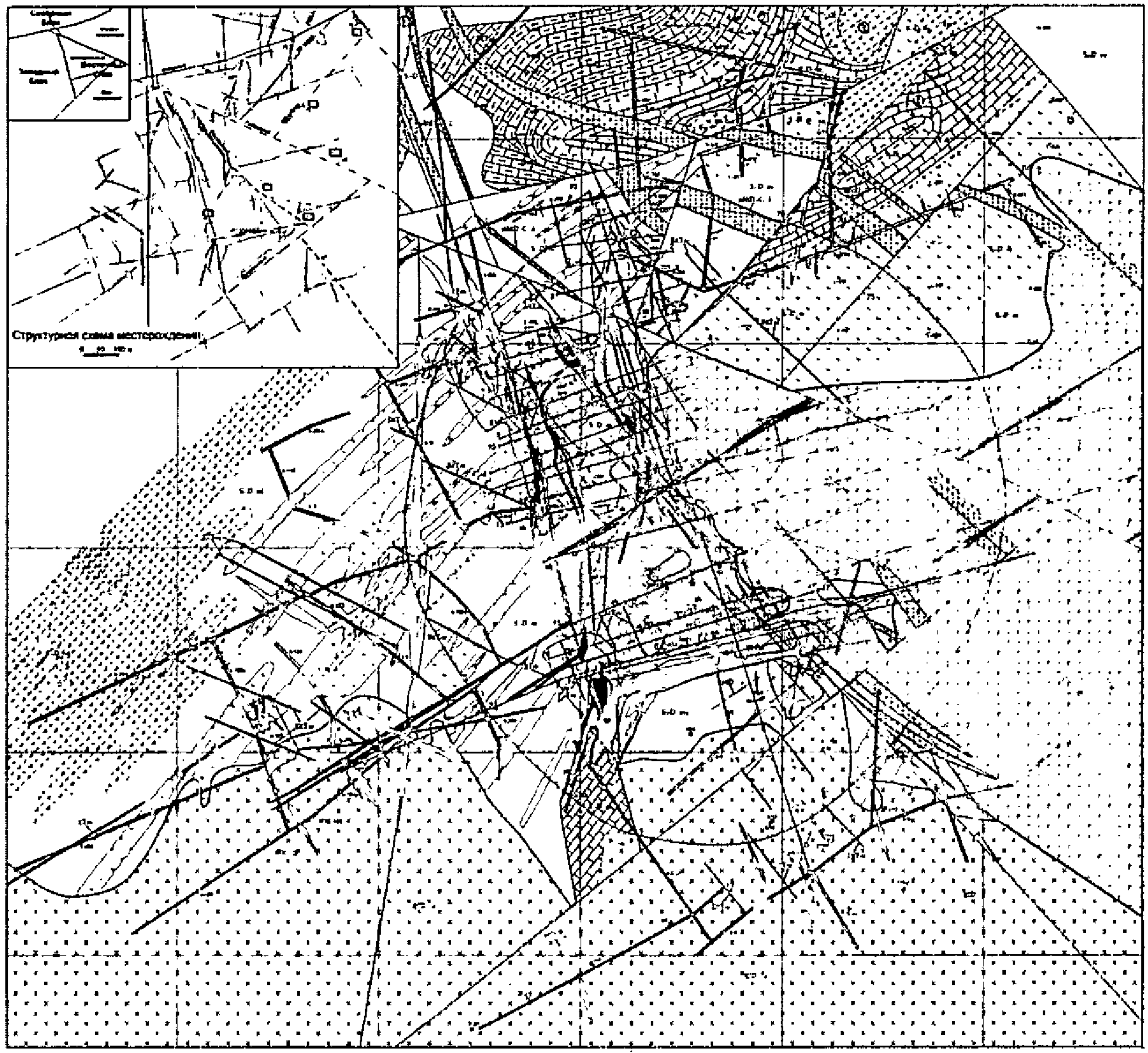


Figure 3.3: Geological Plan of the Novogodnee Monto Deposit

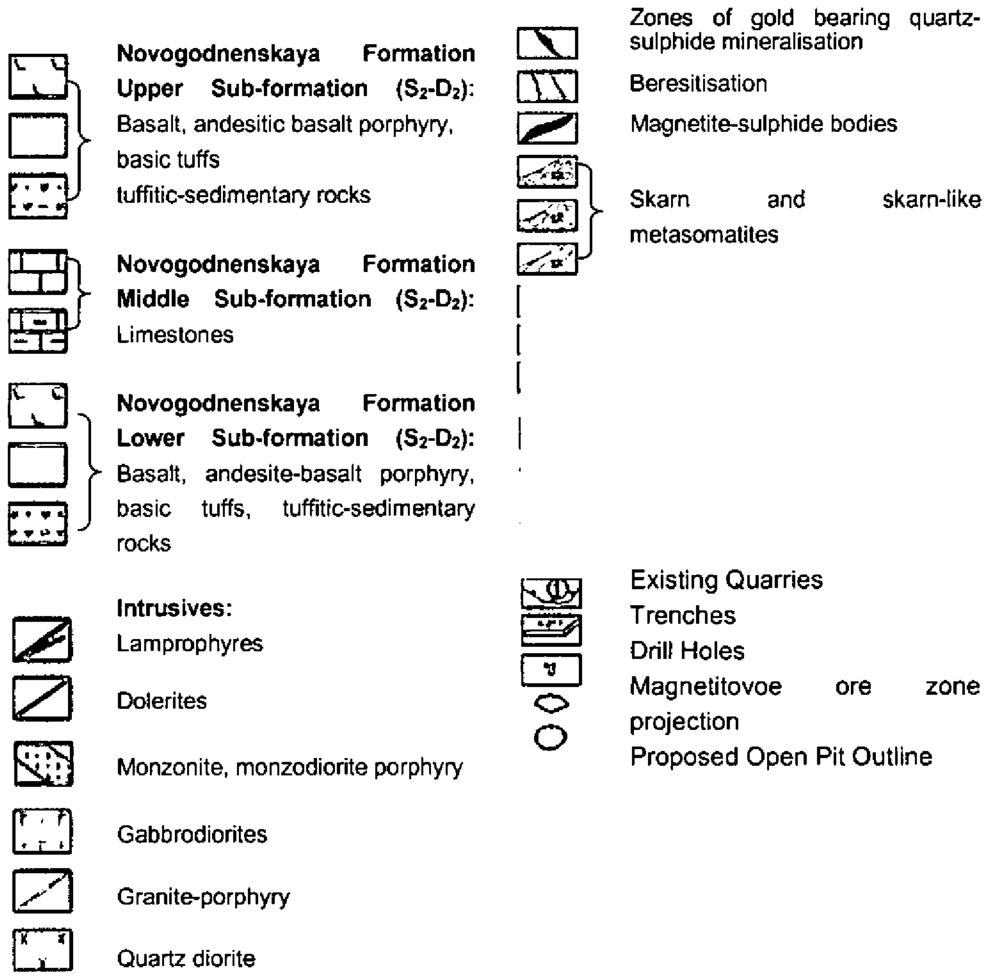


Figure 3.4: Legend for Figure 3.3 & Figure 3.5

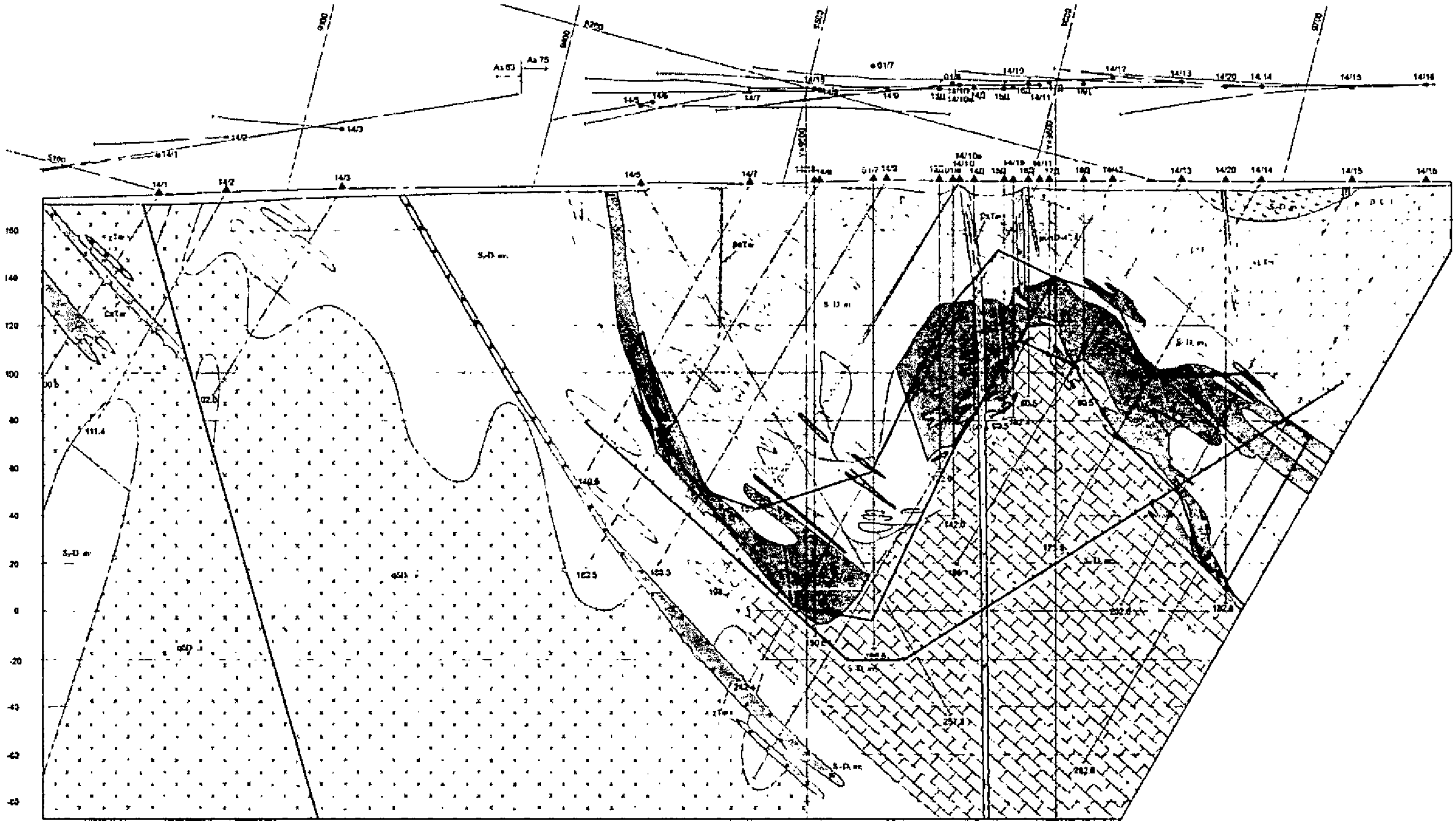


Figure 3.5: Typical Cross Section through the Southern Part of Novogodnee Monto

3.3.1 Magnetite Skarn

The magnetite-sulphide skarns crop out as narrow lenses which are generally less than 5.0m wide and 100m long. Most outcrops strike broadly north-south, are often slightly sinuous and may bifurcate. Less commonly magnetite skarns strike northeast-southwest. At the south of the Novogodnee Monto deposit a magnetite skarn crops out at the contact between tuffaceous sediments and the footwall of a reefal limestone unit. However, in general the outcropping magnetite skarns are hosted entirely within tuffaceous sediments.

Diamond drilling indicates that the magnetite skarn is preferentially developed at the contact between reefal limestones and a sequence of basalt and basaltic andesite lavas, and tuffaceous sandstones and siltsones. The skarn has a maximum thickness of approximately 100m, but is generally less than 40m thick. The lavas and intercalated sediments have been variably altered to calcareous pyroxene-epidote-garnet skarn and skarnoid facies. The boundary between the reefal limestones and volcanoclastics is probably a facies boundary between a limestone shelf to the southeast and a basinal volcanoclastic sequence to the northwest. The entire sequence has been tilted to the southeast by approximately 40-45°.

Thinner extensions of the magnetite skarn are developed at the upper contact of the limestone and along a controlling footwall structure where they extend towards the surface and occasionally form localised outcrops. The skarns at the upper contact dip at approximately 45° to the southeast, which is broadly consistent with the dip of bedding.

The magnetite skarns along the footwall fault dip at between 55-75° to the southeast which is generally steeper than bedding.

In section the magnetite skarn presents as a open syncline and anticline. This is not due to post-mineralisation folding, but to the fact that the facies boundary between limestones and volcanoclastics is normal to the dip of the stratigraphy, such that the skarns developed at this boundary form a lenticular to tabular shaped body that dips to the northwest. The magnetite skarns in the footwall fault and along the upper limestone contact dip towards the southeast, such that the overall distribution of magnetite skarn resembles that of a fold set.

Overall the magnetite skarn is massive, although lenses of pyroxene-epidote-garnet skarn and skarnoid volcanoclastics are present as localised pods within magnetite. Cross-sections showing the 0.5g/t Au and 2.0g/t Au grades shells indicate that gold mineralisation occurs as a thin layer (<10 metres thick) towards the base of the magnetite skarn. Occasionally gold mineralisation extends into the underlying limestones where it is not associated with magnetite skarn. The 0.5g/t Au and 2.0g/t Au grade shells have almost identical shape and distribution which indicates a rapid transition from gold-bearing into non gold-bearing magnetite ores. This may simplify metallurgy, but conversely indicates that much of the magnetite skarn will not benefit from a gold credit.

3.3.2 Metasomatic - Quartz-Pyrite Vein Zones

Quartz-pyrite vein mineralisation crops out primarily to the north of the Novogdnee Monto skarn where it is associated with quartz-sericite metasomatic zones. Similar metasomatic zones lacking quartz-pyrite veins have also been mapped to the north, west and south of the Novogdnee Monto deposit where they are dominantly hosted in intercalated basaltic and basaltic andesite lavas and tuffs. Metasomatic zones are weakly developed within the bituminous and reefal limestones in the north of the Novogdnee Monto licence and within the quartz dolerites in the south of the licence.

Metasomatic / quartz-pyrite vein zones generally strike north-south to north northwest-south southeast and cross-cut volcanoclastic and skarn lithologies. Less commonly metasomatic zones strike northwest-southeast and northeast-southwest. Both quartz-pyrite veins and metasomatic zones are gold mineralised, although the more robust grades are associated with quartz-pyrite veins. PHM indicated that gold grades in some drill hole intercepts may exceed 50g/t Au although grades may change quickly over short distances. Gold grades are generally higher in trench intercepts than diamond drill intercepts in the same veins, indicating that some supergene enrichment has occurred. For example, the trenches range from 2.32m at 2.03g/t to 2.2m at 8.52g/t Au, whilst diamond drill intercepts in the same veins are all below 2g/t Au and many are below 1g/t Au.

3.3.3 Ore Genesis

PHM believes that the Novogodnee Monto deposit formed during two discrete and significantly different mineralising events: an early magnetite skarn event and a later metasomatic / quartz-pyrite vein event. Understanding the genetic controls on each style of mineralisation has been fundamental in evaluating the deposit.

The magnetite skarn is developed at the facies boundary of reefal limestones and a volcanoclastic sequence. Field and paragenetic relationships proposed by PHM suggest that volcanoclastic sequence was initially altered to pyroxene-epidote-garnet skarn and skarnoid facies which would form an effective permeability seal above the limestones. Fluids responsible for the formation of the magnetite were localised in porous reefal limestones immediately below the pyroxene-epidote-garnet skarn and skarnoid units where they reacted with the carbonate host. Fluids trapped at this boundary also moved down-dip along the top contact of the limestone to form narrow tabular magnetite skarn bodies. Patchy thin magnetite skarn also formed along the lower limestone / tuff contact and may extend to surface along a footwall feeder structure.

Metasomatic and quartz-pyrite veins cross-cut magnetite and pyroxene-epidote-garnet skarns, skarnoid and volcanoclastic units and to a lesser extent the quartz-dolerites, which outcrop throughout the southern area of the licence. The metasomatic-quartz-pyrite vein zones dip steeply to the east and southeast and clearly postdate the skarn mineralising event.

The mineralising event responsible for the formation of gold bearing metasomatic zones and quartz-pyrite veins was probably also responsible for introducing gold into the magnetite skarn. This interpretation is consistent with the distribution of gold in the basal portion of the magnetite skarn and occasionally the underlying limestone. Since much of the gold is locked within pyrite it has been assumed that gold mineralisation also postdates the formation of the magnetite skarn.

It is suggested that some of the structures hosting the metasomatic and quartz-pyrite vein mineralisation cross-cut the magnetite skarn and formed feeders for gold-pyrite mineralisation. Gold-bearing sulphide fluids were not constrained to where the structures are hosted in the volcanoclastic sequence and the resultant veins have a significant vertical extent. In contrast, the magnetite skarn formed an effective barrier to ascending fluids and provided iron which reacted with sulphide fluids to precipitate pyrite and gold.

3.4 Exploration & Development at Novogodnee Monto

A TEO (Pre-feasibility Study) and mine development plan for Novogodnee Monto, was carried out by FGUP TsNIGRI and submitted to the Regional Committee for Reserves under Regional Agency for Subsoil Use of Ural Federal District (TKZ Uralnedra) at the end of March 2007. PHM do not envisage that mining operations will start in the next two years, however work would commence with pre-stripping of the gravel overburden, which it is anticipated will be sold locally as construction material and aggregate for concrete.

During the first half of 2007, the Pre-feasibility Study was finalised. The conditions for the economic study to define production reserves have been confirmed by UralGKZ and, with the Petropavlovskoye exploration programme near completion, a Mining Study by PHM to develop both mines simultaneously is under way.

Only 80% of explored reserves of magnetite ore and 58% of the gold-pyrite-sulphide ore were included in the designed pit (though this is subject to revision at the detailed mine planning stage).

3.5 Mineral Resource & Reserve Estimation at Novogodnee Monto

On 14 July 2007, the Mineral Reserve statement for gold, magnetite ore and construction stone reserves was submitted to GKZ for an "Expert" opinion. These have been included in the PHM Annual Report 2007 with resources dated 01/01/08.

The provisional resources and reserves as estimated in accordance to Russian standards are presented in Table 2.1, Table 2.2 and Table 2.3. In addition to these, there is a building stone reserve of (C_1+C_2) 24,037.5 thousands of m^3 which consists of igneous rock totalling 14,084.2 thousands of m^3 (consisting of C_1 – 10,157.3; and C_2 – 3,926.9 thousands of m^3); is metasomatites of 5,844.7 thousands of m^3 and limestones for gravel and other purposes of 4,108.6 thousands of m^3.

WAI Comment: WAI has reviewed the exploration work undertaken by PHM (density of drilling and trenching over the project as a whole) and considers that this deposit potentially has a large resource base which may well support a mining project. WAI considers that there is sufficient information to compare all C_1 category resources with *Indicated* resource category and C_2 quoted resources with *Inferred* resource category, both in accordance with the guidelines of the JORC Code (2004).

Clearly the sale of the aggregates from the deposit considerably enhances the project economics, although without the benefit of actual signed contracts to prove that both product demand and price are realistic, the sales value of the aggregate must be treated with a degree of caution. Given the position of the deposit in relation to the railway line and the vast increase in the need for construction materials as a result of the oil and gas boom, the opening of this operation for aggregates would indeed be timely and the price proposed for aggregates sales appears reasonable.

WAI believes that there is considerable potential to improve the resource position, given the level of prognostic resources that have been identified.

3.6 Exploration & Development at Petropavlovskoye

This deposit lies at an elevation of approximately 200m within gently rolling hills, within the Zapadnaya (western) exploration area, 1km to the west of Novogodnee Monto and parallel to it, with an N-S orientation (see Figure 3.8 and Figure 3.9). It has been identified along a total strike length of approximately 2.8km and is structurally cut out by approximately E-W trending faults.

Exploration continued here throughout 2008, and identified a central area stockwork, with quartz vein zone mineralisation lying to the north of it and a combination of stockwork and east-west trending quartz veins to the south. A Pre-feasibilty study is currently being prepared by TsNIGRI, in order to define the open pit optimisation parameters. These will then be sent to the local TKZ for approval of production conditions.

The central part of Petropavlovskoye deposit consists of a gold-bearing quartz stockwork (extensional ladder-veins in an N-S orientated shear zone) deposit approximately 50-120m thick, which can be traced continuously along strike for a distance of approximately 500m and to a depth of at least 200m. Beyond the 500m zone explored in detail, mineralisation has been established to continue northwards for a further 1,500m (with the central quartz vein intersected in three drill holes here also), and southwards for a further 850m. The structure outcrops at surface along its northward extension, but southwards it plunges at an angle of about 30-35°, so that it can be traced only in drill holes.

Exploration drilling, with inclined holes to intersect the steeply dipping structure as well as the steeply dipping veinlets, has been undertaken within the central stockwork area.

A shallow open cut to expose the central part of the ore zone was excavated in 2006, in order to confirm the continuity and style of mineralisation (including east-west quartz "ladder" veins across the north-south trend of the ore body). The stockwork itself has been found to be larger than expected in surface area, and the open-cut has been extended to the north and west during the 2007 summer exploration season, over an area three times larger than excavated in 2006. WAI has observed the exploration works undertaken within this exposure; here channel sampling (on traverses in an E-W direction) across the entire ore zone has been conducted every 10.0m along strike, with samples spaced at 1.0m intervals. The works appeared to be undertaken in a professional and diligent manner.

As a result of the drilling, open-pit, and trenching investigations, three phases of mineralisation have been identified:

1) Vein quartz with disseminated pyrite, chalcopyrite, and other sulphides;
2) Stockwork of veinlets: quartz, calcite, and pyrite; and
3) White quartz veins and veinlets with gold/silver, minor sulphides and tellurium mineralisation. This phase is found only on the margins of the stockwork.

Mineralisation occurs in Upper Silurian and Lower Devonian tuffs, diorites and metasomatites, i.e. it is not confined to any single lithology. There is no weathering zone; hence sulphides are found at surface.

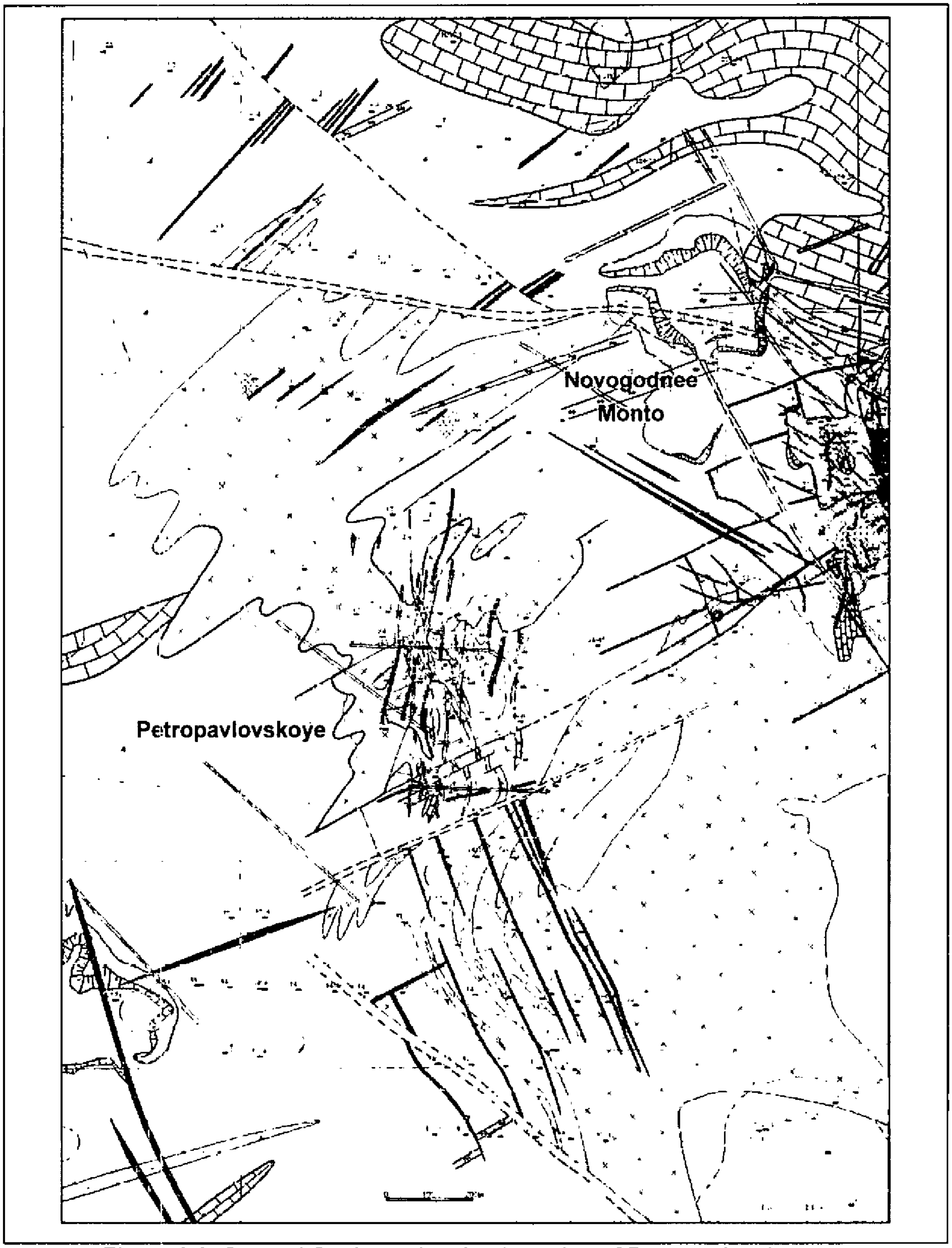


Figure 3.6: General Geology showing Location of Petropavlovskoye and Novogodnee Monto

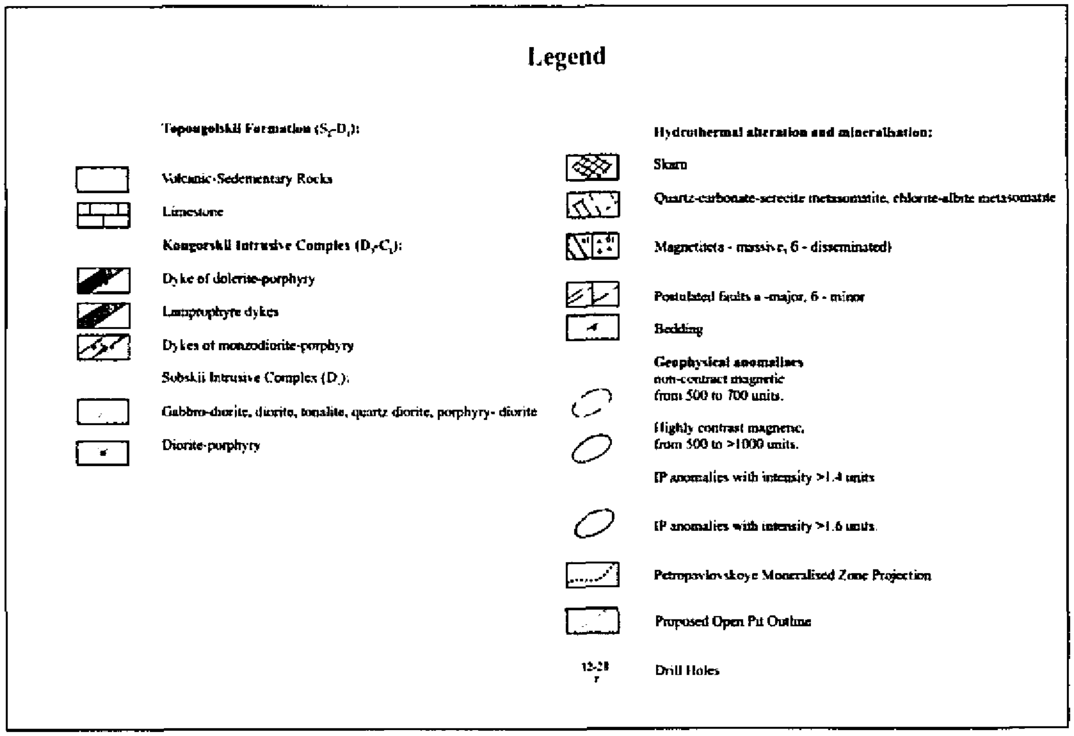


Figure 3.7: Legend for Figure 3.6

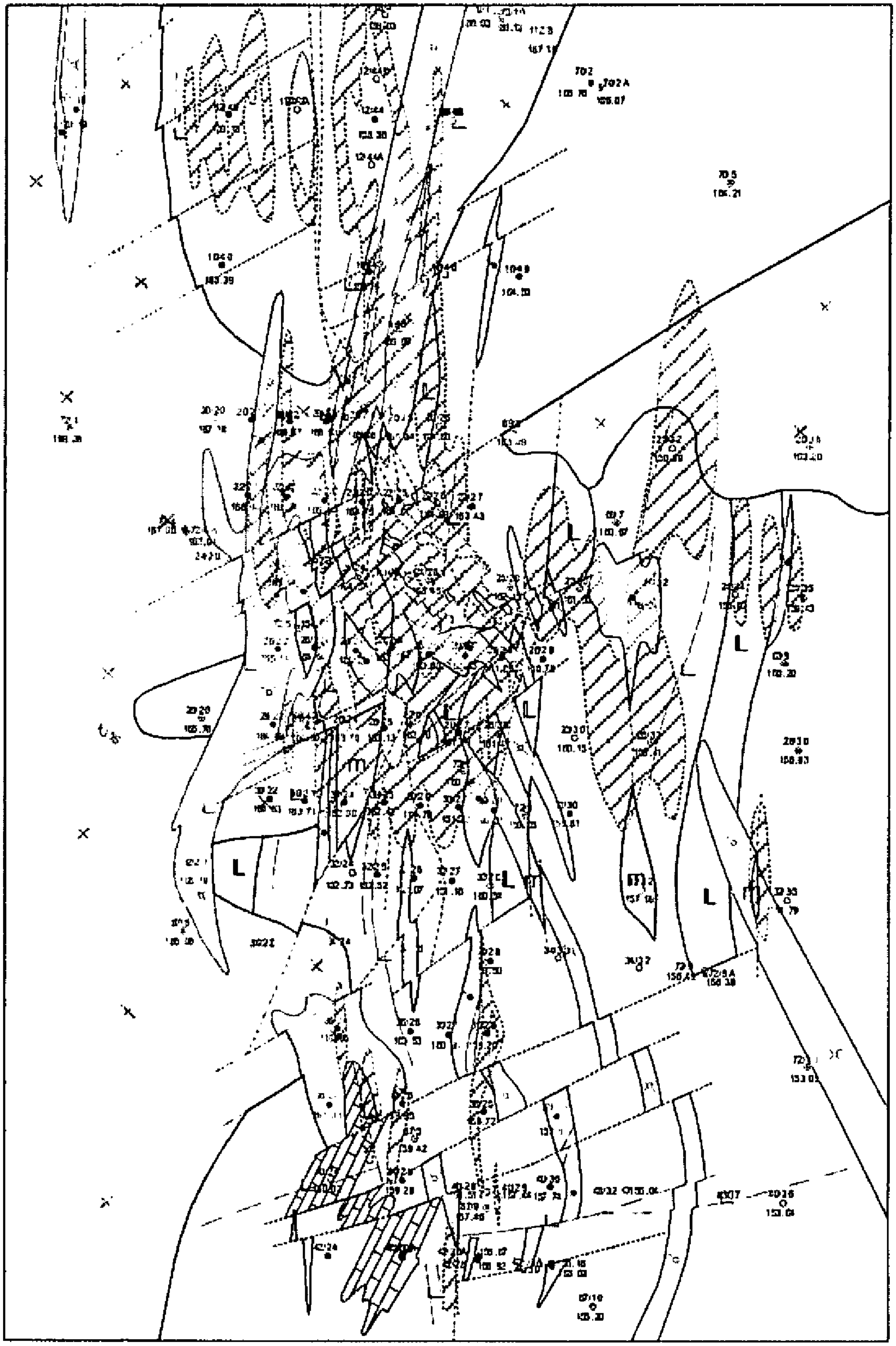


Figure 3.8: Detailed Geological Plan of Petropavlovskoye showing Location of Drill Holes

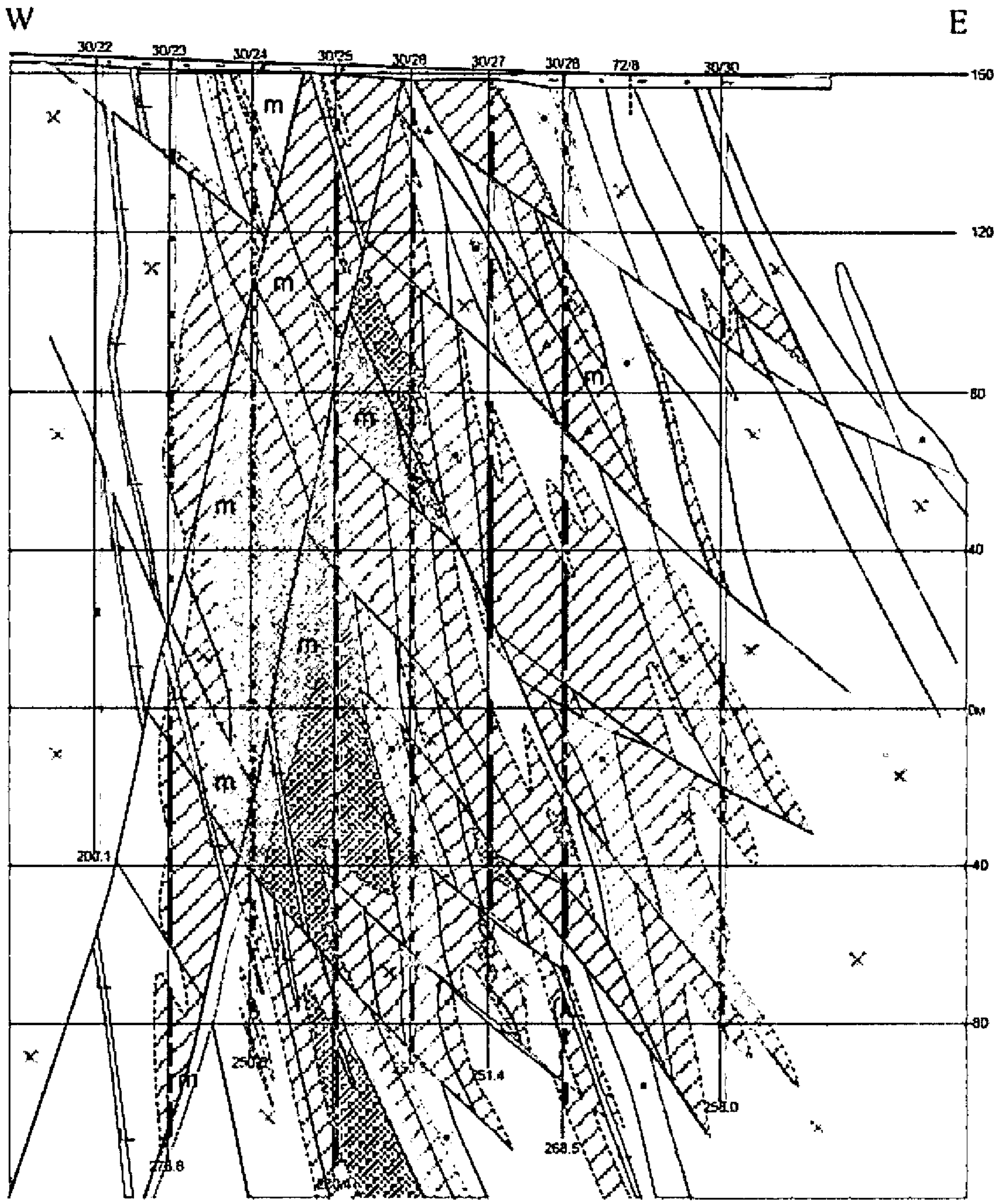


Figure 3.9: Typical Cross Section through the Central Zone of Petropavlovskoye

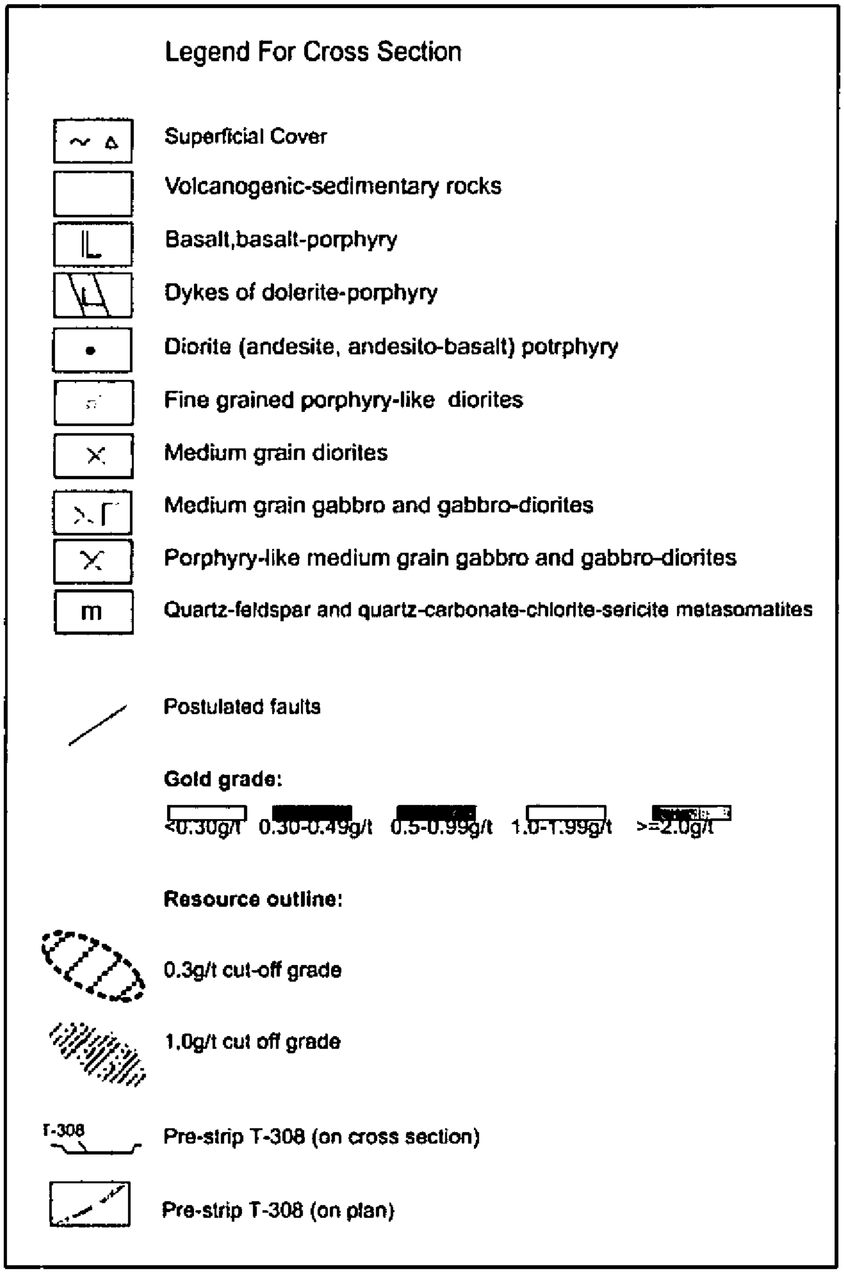


Figure 3.10: Legend for Figure 3.8 and Figure 3.9

Drilling has been conducted to a depth of 150-320m along a 2.7km north-south strike length on a 40-20 x 40-20m and an 80 x 80-160m grid. The explored depth is 150-320m and in one drill hole, mineralisation was traced to a depth of 627.0m. Mineralisation is hosted by (up to 150-300m) thick zones of beresite-like metasomatite with pyrite, chalcopyrite and galena (sulphides up to 10-15%, with gold grades ranging from 0.5-2.5g/t). These zones are intersected by transverse steeply dipping quartz veins 0.5-12.0m thick containing much higher gold grades (typically 6-12g/t, and very rarely reaching 69.6-94.0g/t); in a deep drill hole an intersection over a 0.50m interval reported a gold grade of 430.0g/t. In the margins of these veins, gold grades are typically 2.0-3.50g/t over thicknesses of 5-7.0m. As a rule, the extent of these veins is limited to the thickness of the metasomatic zone (150-300m), but on the southern flank of the deposit such transverse structures have been traced for over 600m. These transverse structures occur at intervals of 30-40m.

In 2006, drilling on the Petropavlovskoye deposit and Toupugol-Khanmeishorsky flanks included 40,500m of deep drill holes, plus 11,700m^3 of trenching. All assay work for reserve estimates of gold have been undertaken by fire assay for this project. Assaying was carried out at the accredited Yamal Mining laboratory located at Harp (approximately 25km NW from Labytnangy).

Preliminary metallurgical testwork has been undertaken on a sample of Petropavlovskoye mineralisation (3-T) with a gold head grade of 1.02g/t and 3.6g/t of silver, in a fine association with pyrite. Gold has been identified at >50 microns. The sample was first ground to 90% passing -0.071mm size. Concentration by a combined method of grinding followed by flotation and cyanidation of the flotation concentrate has shown a gold recovery of 76.1% with very low grade tails - 0.2g/t Au, accompanied by silver recovery of 46.6%.

WAI Comment: WAI visited this laboratory as part of the recent site visit and found it to be run to a very high standard employing rigorous QA/QC controls, including external check sampling protocols. It is understood that results obtained from this laboratory will satisfy the requirements of GKZ technical regulations.

WAI are satisfied that sample preparation, analyses and security adopted by PHM would be in accordance with the JORC Code (2004).

3.7 Mineral Resources

3.7.1 Resources Estimated in accordance with the Guidelines of the JORC Code (2004) - Micromine® Resource Estimate

A Micromine® resource estimate for Petropavlovskoye was competed in September 2007 by Miramine (Moscow) under instruction from PHM.

Statistical plots generated by Miromine based on all of the Petropavlovskiy samples (Figure 3.11) showed that there is a natural threshold at 0.26g/t Au.

A complicated single wireframe was created at 0.26g/t Au COG as shown in Figure 3.12 below. A second wireframe (green) was constructed around pre-strip channel samples at the same 0.26g/t Au COG limit. Both wireframes were subsequently combined with the master wireframe forming a single model for the sample search and grade interpolation.

Miromine assumed that mineralisation was dipping to the east at 30-65° as shown in Figure 3.13 below. No minimum mining width was applied to the wireframe and therefore the model thickness is constrained only by sample length, and can be as narrow as 0.5m. Subsequent geostatistical analysis and grade interpolation was carried out for all samples captured by the mineralised envelope wireframe.

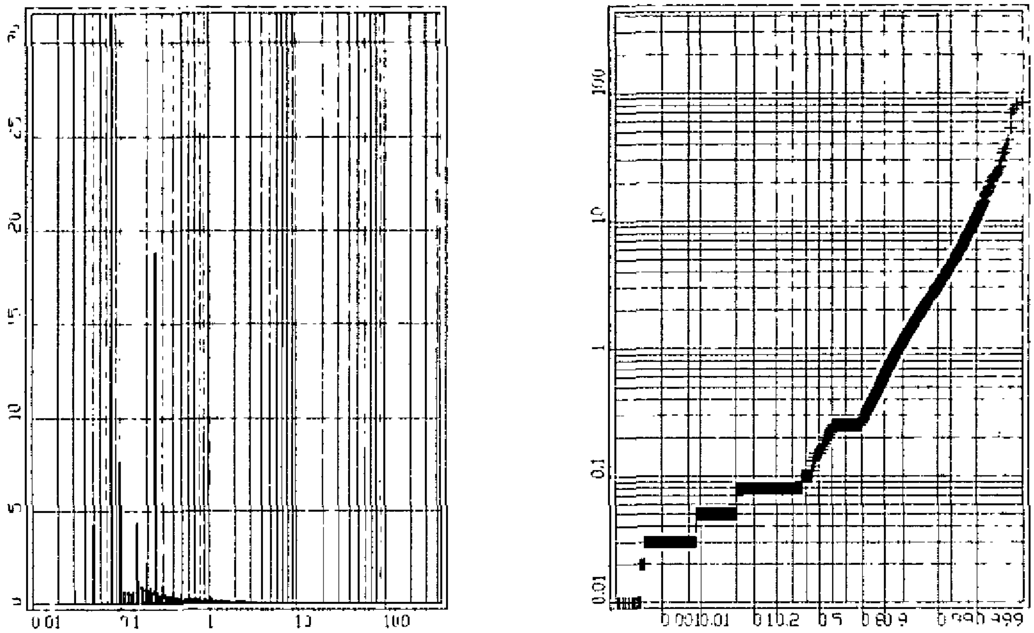


Figure 3.11: Petropavlovskoye Log Histogram and Log Probability Plot (WAI 2007 Miramine Database)

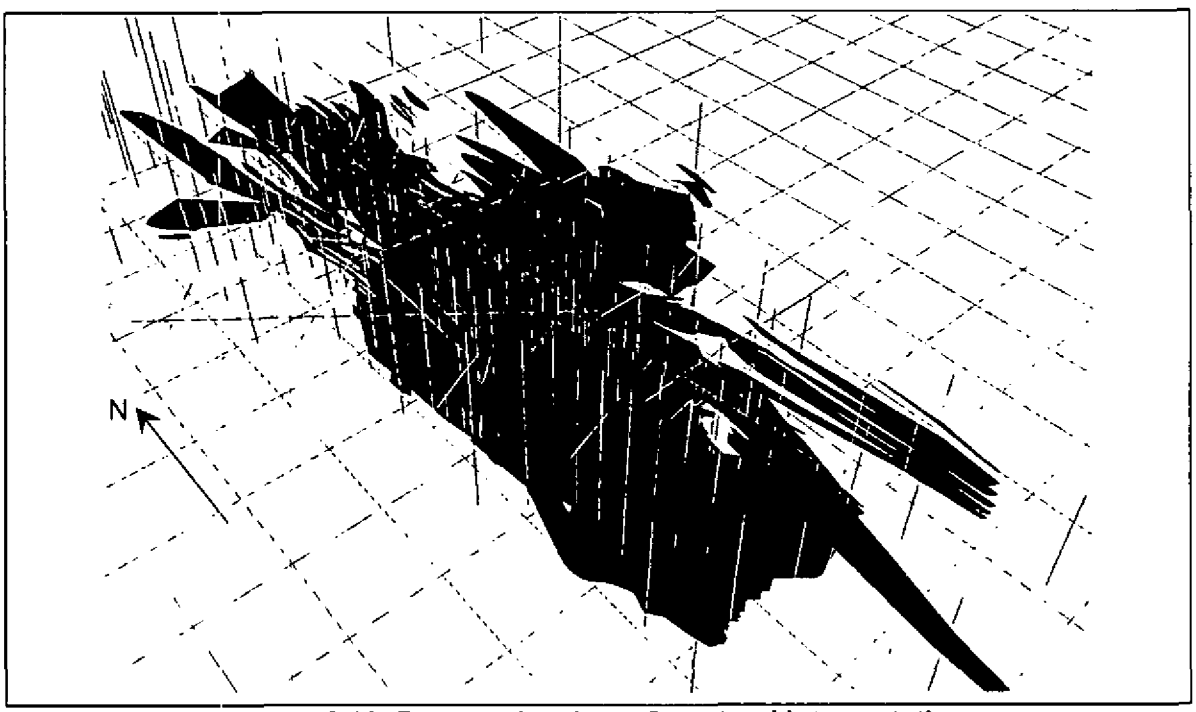


Figure 3.12: Petropavlovskoye Structural Interpretation (100×100m Grid, WAI Miramine Model 2007)

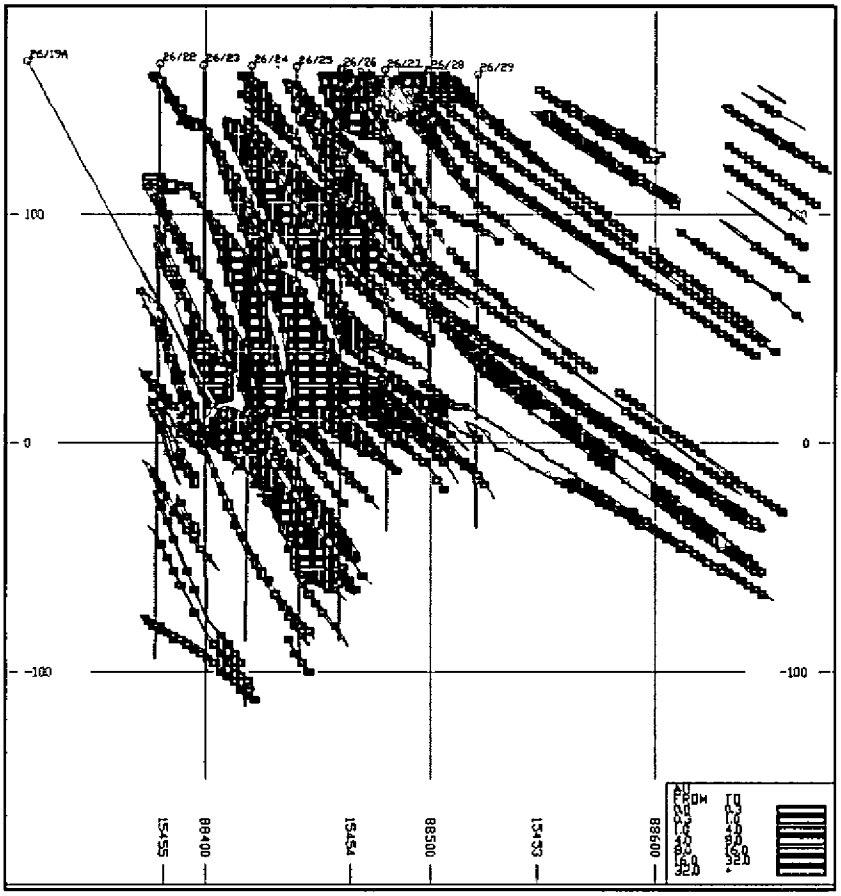


Figure 3.13: Petropavlovskoye Model - Typical Cross-Section (WAI: Miramine Model 2007)

Basic statistics and top cutting levels used by Miromine are summarised in Table 3.1 below.

Table 3.1: Petropavlovskoye Statistical Summary (Miromine May 2007)						
Sample Set	**No of Samples**	**Minimum (g/t Au)**	**Maximum (g/t Au)**	**Mean (g/t Au)**	**Standard deviation (g/t Au)**	**Variation coefficient**
All	65,785	0.01	431.0	0.33	1.62	4.91
0.26g/t Au Resource Envelope	12,731	0.03	431.0	1.03	3.48	3.38

A capping level for high grades of 13.02g/t Au was obtained from Miromine log probability plots. As a result of top cutting the mean sample Au grade has dropped by 6% (rel) from 1.03 to 0.97g/t Au.

After top cutting and compositing samples to 1.0m lengths, relative experimental directional semi-variograms were calculated and directional anisotropy was established. Anisotropic semi-variogram models were fitted as shown in Figure 3.14 below.

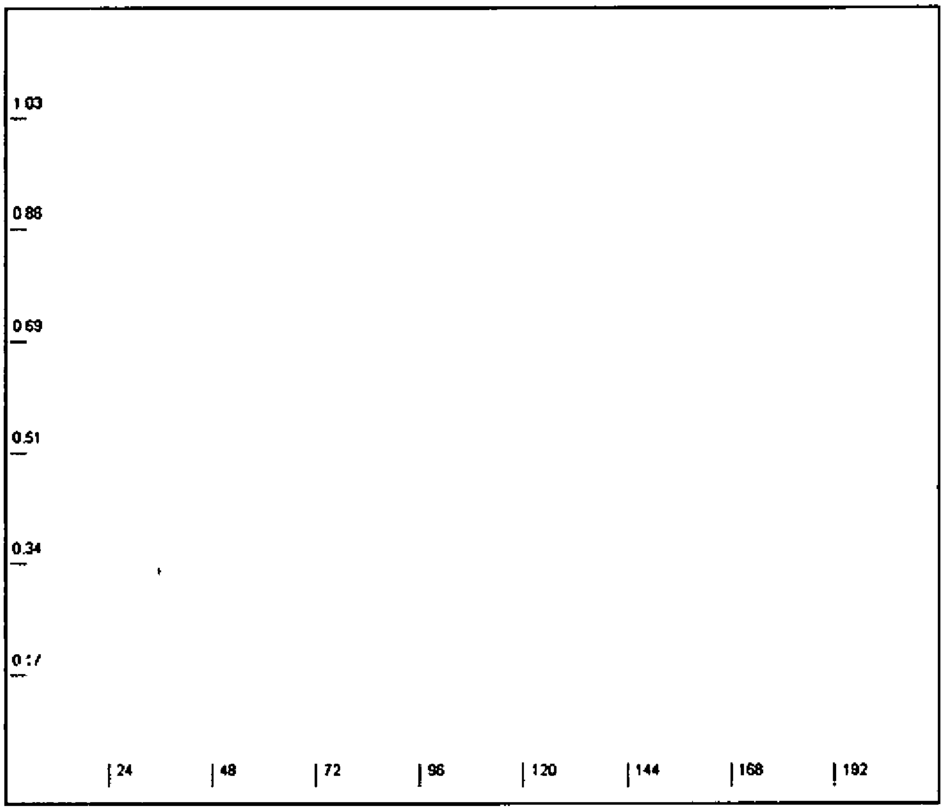


Figure 3.14: Example of Petropavlovskoye Experimental Semi-Variogram and Variogram Model, Main Anisotropy Direction (Miramine 2007)

A summary of the directional semi-variogram model, fitted by Miromine is provided in Table 3.2 below.

Table 3.2: Petropavlovskoye Au Variogram Parameters (Miromine 2007)

	1st Axis	2nd Axis	3rd Axis
Azimuth	132°	223°	159°
Dip	-12°	-6°	77°
Nugget	0.17	0.17	0.17
Sill	0.29	0.29	0.29
Range, m	90	73	30

Wireframes were filled with 15×10×10m (X×Y×Z) parent cells with a minimum subcell size of 3×2×2m.

Grades were interpolated into the volumetric model using Ordinary Kriging (OK), based on semi-variogram models described in Table 3.2 and composite search parameters as summarised in Table 3.3 below.

Table 3.3: Petropavlovskoye Composite Search Parameters (Miramine 2007)				
Search*	Radii (m)	Minimum No of Composites	Maximum No Of Composites	Min. No of Holes
1st	60×49×20m	3	12	2
2nd	90×73×30m	3	12	2
3rd	180×146×60m	1	12	1
Note: Elliptical search, search ellipsoid is orientated parallel to the anisotropy identified from variography as summarised in the Table 3.2; maximum 3 composites per quadrant.				

Miramine classified resources in accordance with the JORC Code (2004). Resources have been classified into three groups, *Measured, Indicated and Inferred*, on the basis of the search ellipsoid parameters and semi-variogram model ranges as quoted in Table 3.2 and Table 3.3. All small wireframes, intersected by one or two drill holes were subsequently "manually" downgraded to the Inferred category.

The Miramine resource statement for Petropavlovskoye is provided in Table 3.4 below.

Table 3.4: Petropavlovskoye Mineral Resources at Different COG (Miramine 2007)				
Category	Tonnage (kt)	Grade Au (g/t)	Metal Au (kg)	Metal Au (koz)
0.26g/t Au COG				
Measured	23,048	0.99	22,732	731
Indicated	919	1.06	978	31
Measured + Indicated	**23,967**	**0.99**	**23,709**	**762**
Inferred	6,813	0.59	3,986	128
0.5 g/t Au COG				
Measured	18,931	1.11	21,057	677
Indicated	736	1.23	904	29
Measured + Indicated	**19,667**	**1.12**	**21,960**	**706**
Inferred	2,905	0.87	2,523	81
1.0 g/t Au COG				
Measured	8,265	1.61	13,306	428
Indicated	325	1.87	608	20
Measured + Indicated	**8,590**	**1.62**	**13,913**	**448**
Inferred	710	1.48	1,050	34

3.7.2 WAI Audit of the Miramine Resource Model and Estimate

WAI has concerns regarding the Miramine structural interpretation for Petropavlovskoye. It appears that Petropavlovskoye comprises one or two pipe-like zones, plunging south at approximately 30° as shown in Figure 3.13 below. However, Miramine has assumed that mineralisation is dipping to the east; semi-variograms and search ellipsoid parameters do not respect either of these concepts.

Therefore, WAI considers that the current Micromine® Block Model resource estimate for Petropavlovskoye cannot be classified as any better than the *Inferred* category under the guidelines of the JORC Code 2004 until issues surrounding the structural interpretation are resolved.

At the time of this report, WAI has greater confidence in those resource and reserve estimates that have been calculated by the more robust methods employed utilising the Russian standard classification scheme.

3.7.3 Russian Standard Classification System Resource Estimate

Conventional estimate techniques (cross sectional method utilising 17 sections over a strike length of 1.04km) have been utilised internally by PHM to produce a (unapproved) resource estimate. The resources within categories C_1 and C_2 have not yet officially been approved, as the associated technical and economic studies have not yet been completed.

The resources and reserves estimated by PHM in accordance with Russian standards for Petropavlovskoye (at a 0.5g/t Au Cut-off Grade) are provided in Table 2.1 (C_1 + C_2 = 14Mt at 1.46g/t Au for 20,839kg or 670koz plus an additional 5Mt P_1 resource at 6.00g/t Au for 30,015kg or 965koz), whilst a first pass pit design has been prepared to illustrate the potential mining reserves, given in Table 3.5 below.

In-pit reserve envelopes have been identified based on a minimum mining width of 10.0m and a maximum thickness of internal waste of 10.0m. Mining dilution was assumed at 5.0% with mining losses of 1.2%. An average density of 2.7t/m^3 has been used in the evaluation. WAI consider that this is appropriate at this stage, but would expect further specific gravity determinations to be made to ensure that individual lithological units are quantified separately. The Pre-feasibility study for Petropavlovskoye suggests that the project has a 16 year life-of-mine.

Table 3.5: In-pit Reserves at Petropavlovskoye from PFS (Provisional and not approved by GKZ)

Section Line	Category	Tonnage (kt)	Au Grade (g/t)	Au Metal (kg)	Au Metal (koz)
0-20	C_2	2,627	1.78	4673	150
21-34	C_1	7,630	1.40	10,665	343
35-42	C_2	4,034	1.36	5,483	176
Total	**C_1**	**7,630**	**1.40**	**10,665**	**343**
	C_2	**6,661**	**1.52**	**10,156**	**326**

A report is currently being prepared by TsNIGRI with C_1 and C_2 resource and reserve figures, for COG at 0.7, 1.0, 1.3 and 1.5g/t Au, and definition of the mining parameters. This will be submitted to TKZ/GKZ (depending on reserve tonnage) in Q1 2009. There will also be included a section on the building stone reserves (similar to those of Novogodnee

Monto), as well as sections on hydrogeological and geotechnical investigations. It is envisaged that a mining licence would then be issued by the first quarter of 2010.

WAI Comment: WAI has reviewed the density of drilling and trenching over the project as a whole and considers that there is sufficient information to classify all C_1 category resources into the *Indicated* resource category, whilst those C_2 quoted resources would lie in the *Inferred* resource category in accordance with the guidelines of the JORC Code (2004).

3.8 Other Exploration in the Toupugol-Khanmeishorsky Licence Area

3.8.1 Karyerniy

This gold (plus copper) showing lies to the south west of Petropavlovskoye and has been identified at the northern end of an existing construction stone open pit (not owned by PHM). Here similar transverse E-W trending structures (quartz-gold veins) to those at Petropavlovskoye have been identified.

Old data indicating gold mineralisation has been confirmed by new channel sampling in a pre-stripped area to the north of the open pit. Samples indicate two sub parallel WSW-ENE trending quartz-pyrite zones with consistently high grade gold grades (up to 25g/t). The vein zones are up to 12m wide at surface and returned channel sample assays of 4m at 2.2g/t Au, 4m at 7.5g/t Au and 4m at 94.9g/t Au. Fourteen vertical diamond drill holes have tested the veins to a depth of 140m; located to the north-east of the quarry they have intersected gold mineralisation over 2-6.0m intervals with grades from 1.0-12.4g/t Au. The Karyerniy veins extend eastwards across the southern end of the Petropavlovskoye deposit and possibly into the Karachenseva area, south of Novogodnee Monto.

WAI Comment: Clearly Karyerniy has considerable potential to host high grade vein mineralisation. PHM reports P_1 resources of 1Mt at a grade of 1.0g/t Au in metasomatic-quartz vein zones. WAI agrees that the area has good potential, though recommends that this resource only be used as a guide to exploration, due to insufficient drill density and the fact that all holes were drilled vertically, which is not an appropriate orientation for a steeply dipping veins.

Those resources classified in the prognostic P_1 category under the Russian guidelines would be classified under *Exploration Results*, in accordance with the JORC Code (2004), as WAI believes that the quantity and quality of the data are not sufficient to allow any reasonable estimates of Mineral Resource to be made at this time.

3.8.2 Toupugol Khanmeishorsky

Within the Toupugol exploration area (near the western margin of the licence area, 5km west of Novogodnee Monto), exploration works in 2006 discovered a completely new N-S trending structure similar to that at Petropavlovskoye, which has been traced over a distance of approximately 2.0km, but is known to be truncated at its extremities by E-W trending faults. Gold grades up to 2.3-6g/t Au have been found within the zone, but to date no detailed exploration has been undertaken.

3.8.3 Anomalniy

Geological mapping and geophysics (magnetic, resistivity and induced polarisation) have identified an anomaly in the north-west of the main licence area. Anomalniy is a magnetite skarn target with possible quartz-pyrite veins. The magnetic anomaly comprises two circular anomalies with a combined length of approximately 700m which have a similar signature to Novogodnee Monto. Five historic diamond drill holes targeted the magnetic anomaly and returned maximum assays of up to 3.44g/t Au. A diamond hole drilled in 2004 intercepted a metasomatic zone which assayed to a maximum 64g/t Au.

Recent work by PHM has identified a structure that appears to be trending in a N-S direction similar to that seen at Petropavlovskoye. Drilling undertaken during 2007, along a single line orientated in a SW-NE direction has intersected several promising gold structures (one borehole intersecting grades of 1-17g/t Au), although these have not yet been reported in detail.

A Prognostic resource has been estimated by PHM to Russian Standard Classification System which quotes a P_1 resource of 833.3kt at a grade of 6.0g/t Au.

WAI Comment: Based on the signature of the magnetic anomaly and presence of metasomatic zones with very robust gold grades together with the positive early results from the recent drilling, WAI considers that Anomalniy represents an exciting target with considerable potential. A review of the recent exploration results, which are not yet reported, will determine the next stage of drilling required.

Those resources classified in the Prognostic P_1 category under the Russian guidelines would be classified under *Exploration Results*, in accordance with the JORC Code (2004), as WAI believes that the quantity and quality of the data are not sufficient at this time to allow any reasonable estimates of Mineral Resource to be made.

3.8.4 Karachentseva

Karachentseva has a positive magnetic anomaly of approximately 500m diameter and gold anomalous quartz-pyrite veins in the northwest of the exploration area which are proximal to the southern flank of Novogodnee Monto. The area has very good potential to host gold mineralisation in quartz veins and moderate potential for economic magnetite skarn mineralisation.

16 drillholes totalling 3,300m of drilling have been completed in this area during 2007, which have located gold-bearing intersections within quartz veins and quartz-sulphide veinlets in zones of beresite and skarn. Exploration will continue through 2008 to identify structural continuous units.

PHM has estimated Prognostic P_1 resource to Russian standards of 666.7kt at a grade of 4.50g/t Au.

WAI Comment: WAI believes that this is another excellent target that requires further follow-up diamond drilling. Drill holes should be angled sufficiently to intersect the steeply dipping mineralised vein zone at more appropriate angles to better ascertain true vein thickness.

Those resources classified in the Prognostic P_1 category under the Russian guidelines would compare to *Exploration Results*, in accordance with the guidelines of the JORC Code (2004), as WAI believes that the quantity and quality of the data are not sufficient at this time to allow any reasonable estimates of Mineral Resource to be made.

3.9 Process Testwork

3.9.1 Novogodnee Monto

A review of previous metallurgical test work and proposed flowsheets has been undertaken by WAI.

PHM proposes to exact gold and magnetite from the Novogodnee Monto deposit using traditional metallurgical processing routes. Reportedly, 405ktpa of Run-of-Mine ore will be treated at a head grade of 1.06g/t Au and 42.3% Fe. Principally, gold will be processed by leaching flotation concentrates with cyanide. The gold content within the leached solutions will be further upgraded by electro-winning and smelted to produce a gold and silver alloy (doré) containing 70% Au and 30% Ag. It is intended that magnetite will be concentrated to produce a product containing 68.9% Fe using magnetic separation technology.

3.9.1.1 Metallurgical Test Work

Metallurgical investigations have been undertaken by TSNIGRI (Central Scientific Research Geological Survey Institute) between 2004 and 2006. The flowsheet has been designed to treat a head sample containing 1.06g/t Au and 42.3% Fe. The head grade is an average of three mineralisation types, where the gold varied from 0.4g/t to 4.59g/t, as shown in Table 3.6. Cyanide leach tests were undertaken on two of the types where gold recoveries varied from 75% to 81%. Sample "4-T/I+II" contained limited gold and is therefore seen as a source of magnetite.

Table 3.6: Head Grades and Cyanide Recoveries			
Sample	Head Grade		Cyanide Recoverable Gold %
	Au g/t	Fe %	
TL-2	4.59	49.6	81.0
4-TM	1.45	48.0	74.8
4-T/I+II	0.4	47.7	-

3.9.1.2 Flowsheet Description

It is proposed that the Run-of-Mine ore (405ktpa) will be crushed and milled (Semi-Autogenous mill) prior to wet magnetic separation. Gold is to be removed from the magnetic and non-magnetic product using two separate froth flotation circuits. Both gold "rich" froth flotation concentrates are to be subjected to cyanide leaching (resin-in-leach technology) where the gold will be deposited on to resin. In a separate process, the gold will be stripped from the resin forming a highly concentrated gold solution. This solution will pass to an electro-winning circuit where gold will be taken from the solution and deposited as a solid (cathode gold). The cathode gold product will be smelted to produce doré. The flotation tailing from the magnetic circuit will be de-watered to produce the magnetite product, reportedly containing 68.9% Fe.

3.9.1.3 Saleable Products

It is proposed that 465kg of doré will be produced each year, containing 70% Au and 30% Ag. These figures are based on a gold recovery of 75.6%.

Approximately 212kt (88.6% recovery) of magnetite, assaying 68.9% Fe, is expected to be produced yearly. Reportedly the magnetite product contains acceptable levels of calcium oxide (CaO), magnesium oxide (MgO), silica dioxide (SiO_2) and alumina (Al_2O_3) for blast furnace smelting.

WAI Comment: WAI recommends that a further study is required to determine the saleability and marketability of the magnetite concentrate.

3.9.1.4 Capital and Operating Costs

No capital or operating costs have been provided for WAI review as the project is currently in its infancy.

3.9.2 Petropavlovskoye

In 2005 metallurgical testwork was undertaken on sample 3-T from the Petropavlovskoye deposit. The sample contained 3.02% total sulphur and 2.96% sulphide sulphur. The sample assayed at 1.02g/t Au.

Flotation testing gave a gold recovery of 84.5% to a concentrate assaying 25.5g/t Au. The flotation concentrate was leached with cyanide to obtain an overall recovery of 76.1%. Overall silver recovery was 46.6%.

In 2006, sample TP-5 from the Petropavlovskoye deposits was tested by the TSNIGRI Institute in Moscow. The sample was described as being a quartz-sulphide gold ore type.

The majority of the ore minerals consist of gold-containing sulphides (11%), among which pyrite, finely dispersed within the host rock, was the most prevalent. The host rock was quartz, together with carbonates, micas and amphiboles. The sample assayed 2.74g/t Au and 4.1g/t Ag. The contained gold was mostly associated with pyrite but was also finely disseminated in the host rock.

After fine grinding (94% passing 0.071mm) only 20% of the gold was liberated, 53% was present as composite particles and 25% was locked in sulphides.

Flotation testing gave a gold recovery of 91.1% to a concentrate assaying 26.6g/t Au. The flotation concentrate was leached with cyanide to obtain overall recoveries of gold and silver of 82% and 61.5% respectively.

Based on these results, TSNIGRI recommended that the Petropavlovskoye ore should be treated using flotation with subsequent cyanidation of the flotation concentrate.

Pilot scale testwork using X-ray radiometric sorting was carried out by "Technogen" CJSC under agreement with Yamalzoloto OJSC. The results were generally poor.

3.10 Environmental Issues

The environmental protection section and preliminary Environmental Impact Assessment (EIA) has been reviewed for Novogodnee Monto, one of the Yamal assets.

The area is defined by its position at the eastern edge of the Polar Ural, and by plains of sub arctic south-tundra and forest-tundra landscapes. Given the distance of the site from other developed areas, air pollution may potentially impact the local air quality. Background soil metal content is already elevated, due to natural geochemical anomalies, but it will be important to ensure that low pH in natural water reservoirs does not lead to higher mobility of metal ions in the soil and potential leaching to surface and groundwater streams.

It is stated in the study that the local flora has degraded as a result of industrial activity in the region. It will therefore be critical that minimum disturbance is caused to vegetation, with particular consideration of protected species, or species of local importance, such as lichen and Sphagnum moss, for reindeer grazing.

Another risk is the human influence on the permafrost system which currently exists at the site, and the potential issues regarding risks to future physical stability.

3.10.1 Environmental/Social Studies

Since the assets at Yamal are currently in the exploration and prospecting stage, the environmental studies are also in their early stages. Currently environmental baseline data, as part of the 3 year programme, are being collected at the site.

Topugol-Hanmeshor, one of PHM assets is scheduled to come into production by the end of 2009 and the permitting process is ongoing. The baseline data will provide a benchmark against which potential environmental and social impacts can be predicted and assessed, as part of the OVOS process. As part of this process management and mitigation measures will be implemented to deal with potential impacts.

3.10.2 Environmental Management

A full-time environmental engineer is based at the Yamal site. General environmental reports are sent to the main office in Blagoveschensk. The Blagoveschensk office is also sent all State required documents for Yamal and provides training for the Yamal site team.

The environmental studies at Yamal are currently not very advanced, since the project is at the exploration and prospecting stage. When the project advances further, there will be closer collaboration between the on-site team and the Blagoveschensk office.

Currently, the PHM Moscow office is responsible for assisting Yamal with permitting issues.

3.10.3 Water Management

Monitoring permafrost behaviour at the site will be an important exercise in order that the correct technical design measures are taken to ensure the minimum possible impact from the permafrost.

Water protection measures will also be very important at the site. It is proposed to source industrial water from the Glubokoye lake, and it will be necessary to carry out sufficient monitoring and analysis to ascertain that this lake has the potential to meet project needs without detriment to fish or other aquatic organisms, due to changes in water quality or volumes. This will form part of the technical project as required under Russian law. Technical studies to gather monitoring data and comment on proposed mitigation measures will be required by state authorities. It is also proposed to dispose of mine waste, including neutralised tails on the left bank of the Novogodnee brook. Water protection measures will be required, to prevent leaching from these piles, and to prevent suspended solids entering the local water courses. Similarly, it is planned to construct the concentration plant, diesel storage and the mine camp on the bank of the Topogolyegard brook. Sanitary protection buffer zones, to protect water quality will be required in addition to engineering solutions.

Proposed environmental protection measures, such as sewage treatment, and cleaning of open pit waters, are considered to be adequate, but it will be critical to ensure that these are borne out in practice, and also to ensure that equal importance is given to environmental protection at the exploration and construction stages.

A full ESIA and OVOS study should be carried out, to ensure that all environmental and social impacts have been identified and adequately addressed at the site.

4.0 OZERNOYE

This licence is held by Yamal Mining, which PHM has a 74.87% holding in.

4.1 Geology

The Ozernoye deposit lies approximately 70km south-west of Novogodnee Monto and covers an area of approximately 1,540km^2 (22x70km).

It lies at the axis of the Ural Mountains within mountainous terrain with very little vegetation, consisting of steep slopes dissected by incised streams. Access to the site is by all-terrain vehicles (tracked) only.

Mineral occurrences are located within a Bushveld-style layered ultrabasic body with a sequence of dunite, wehrlite, clinopyroxenites and gabbro-amphibolites and gabbro-pyroxenites layers. Three parallel zones/reefs of disseminated sulphide-magnetite (titanomagnetite) have been identified (southern, central, and northern), with a strike length of 1,600-2,500m all trending SW-NE, and thickness up to 22.0m (see Figure 4.1).

The mineralisation is associated with the main Ural SW-NE trending thrust zones. The sequence across the thrust belt from NW to SE consists of:

- Serpentinite;
- Thrust Melange;
- Gabbro;
- Foliated intrusive complexes of pyroxenite-werhlite;
- Gabbro and gabbro-amphibolites; and
- Diorites.

The content of the polymetallic sulphides (chalcopyrite, bornite, cubanite, chalcocite, pyrite) varies between 3-40% with disseminated titanomagnetite from 7-10%. Associated with these are also free gold and tellurides, arsenides and bismuthides of palladium and platinum. Gold grades mainly vary within the range of 0.1-0.4g/t, rarely 1-2.1g/t; platinum 0.07-0.3g/t, rarely 0.7-1.6g/t; palladium 0.1-0.7g/t, rarely 1.0-3.66g/t and silver 1.0-6.0g/t. In addition copper is consistently present 0.1-2.5% with nickel (0.01-0.3%); cobalt (0.1-0.8%) and iron (10.0-32.0%).

Distribution of the metals is not yet known in detail, and it appears that the copper-bearing layers cannot in general be assumed to coincide with the PGM layers. The PGM reefs are typically 2-8m thick. The reefs generally dip south-eastward at 40-45°. However, it appears that the structure is not simple, and the layers are both folded and faulted.

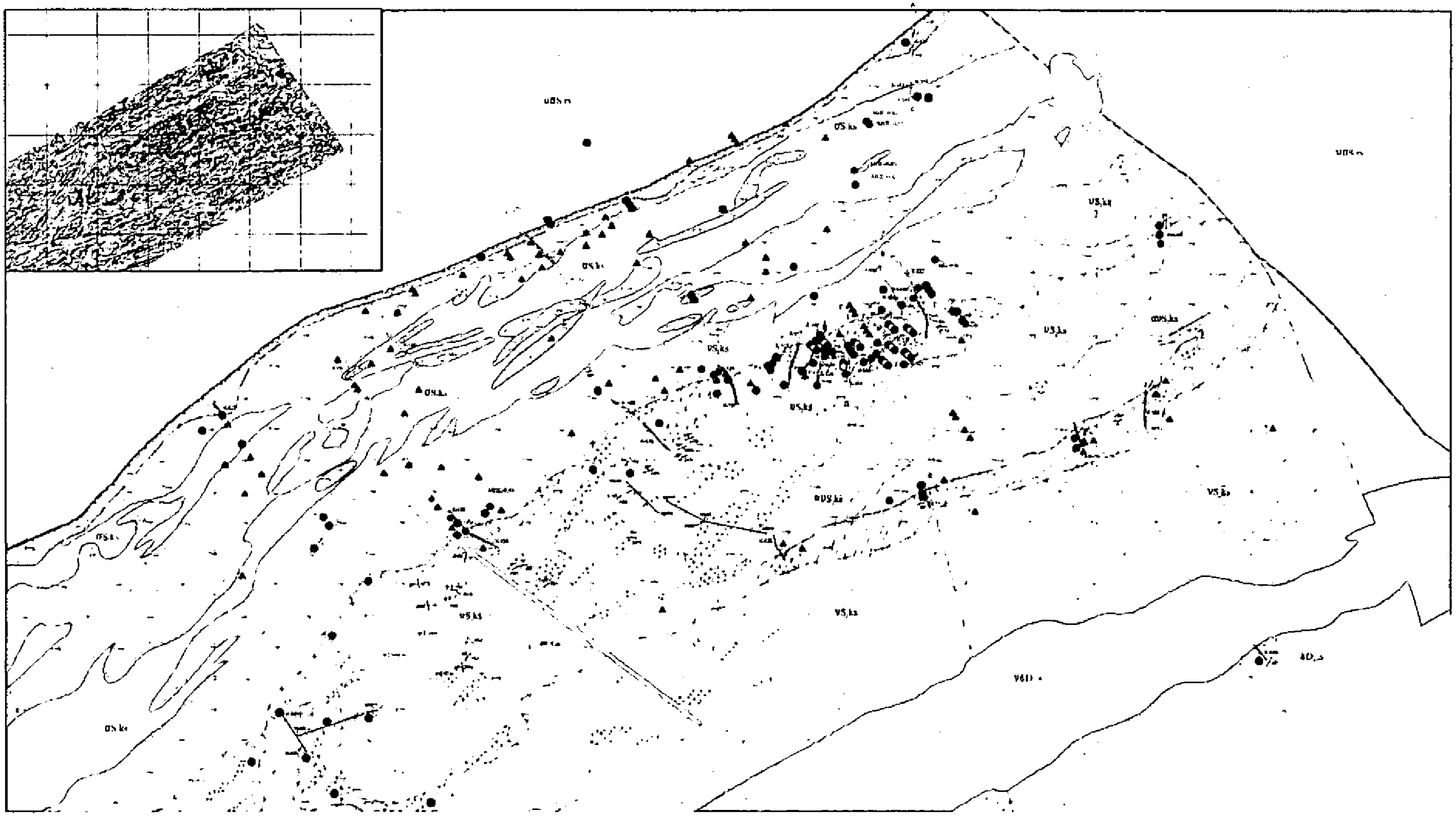


Figure 4.1: Simplified Geological Map of Ozernoye showing Location of Main Cu-Au-PGM Anomalies (Not to Scale)

Dolerite	Disseminated magnetite
Gabbro-diorite	Regional faults: a- thrust; b – steep fault
Diorite	Minor faults: a- thrust; b – steep fault
Dunite, hartzburgite	Zones of chalcopyrite-bornite mineralisation
Dunite	Points of copper mineralisation
Pyroxenite	Points of MPG mineralisation (>0.2g/t MPG)
Amphibole pyroxenite	Points of Au mineralisation (>0.5g/t Au)
Gabbro	
Gabbro-amphibolite	

Figure 4.2: Legend for Figure 4.1

Because the grain size of the PGMs is very small, and associated black magnetite cannot be visually identified in the black pyroxenite rock, layers can only be identified with certainty from assaying.

Exploration so far has included;

- 2005 – 2,000m of drilling (70 shallow holes), and 2,500m trenching;
- 2006 – 2,000m of trenching; and
- 2007 – 3,100m of drilling and 8,000m of trenching.

Drilling in 2007 confirmed three steeply dipping zones within a pyroxenite layered complex with PGM and gold grades in the range of 0.5 to 1.5g/t Au as well as associated base metal sulphides. Only approximately 1km of this 5km ultrabasic complex has been studied in any detail to date.

In 2006, another parallel mineralisation zone was identified as a result of geophysical interpretation. This is in intrusive diorites to the south of the pyroxenites, and consists of magnetite with copper and associated skarns (i.e. some possible similarity with Novogodnee Monto).

Also in 2006, within the ultrabasic sequence, some quartz-sulphide veins were found, with sulphides up to 10% and copper grades of up to 0.93%, as well as associated Pt and Pd. A 15m wide zone of these veins has been traced for more than 200m in the northern ore zone. Exploration of these continued through 2007.

The Pyatirechenskoye deposit, further to the south west, is very similar to Ozernoye, but is less well explored ore occurrence with PGM's, copper, cobalt, and nickel. No new systematic exploration has yet been carried out by PHM in this area. However, very similar quartz-sulphide veins to those found at Ozernoye have been discovered.

Metallurgical test results of samples taken in 2007 have been received from Igiredment report that the 'ore' is difficult to process, and that the precious metal grades are not sufficient to allow economic processing with currently available technology. A Prognostic resource potential of 22t palladium equivalent has been estimated, plus 6,000t copper equivalent.

5.0 RUDNIYE GORKI

This licence is held by Yamal Mining.

5.1 Geology

Rudniye Gorki lies adjacent to and to the south-east of Ozernoye and consists of a line of four small exploration licence areas. Prospecting of the region started in 1950-1961. Work has been carried out on the two western-most licences, namely "Manyukuyu" and "Rudniye-Gorki-3" (which also encompass the Elkashore mineralisation, comprising showings at Osenneye, and Mokry-Log).

The geology of this area is similar to Novogodnee Monto with several different styles of mineralisation present. Geophysical surveys (IP, magnetic) were carried out in 2006.

5.1.1 Manyukuyu

In the westernmost area is Manyukuyu (52km^2), which lies approximately 17km southwest of Rudniye Gorki-3/Elkashore; here geological mapping, geochemistry and geophysics (magnetic and IP) have been completed. The area contains an intrusive diorite and volcanic tuff sequence similar to that at Novogodnee Monto, with local development of skarns in the north and the south-west of the area (see Figure 5.1 and Figure 5.2 below).

Sulphide and skarn mineralisation, localised polymetallic mineralisation, geophysical anomalies and geochemical anomalies of Co-Cu-Zn-Pb-Ag-Ba can be found within a single metasomatic aureole, which includes a number of alteration types (including pyritisation, biotitisation, chloritisation, sericitisation, silicification, albititisation, carbonatisation, zeolitisation). Sulphide mineralisation is limited to altered volcanoclastic rock, diorites and uralite-plagioclastic porphyrites. The mineralisation has been traced over 450m across the strike of the aureole, within which 17 zones of high-grade pyrite mineralisation from 0.1-0.2 to 1-2m thick, located at a distance from 3 to 50m from each other, were identified.

Isolated samples have yielded copper grades of 0.3%-0.9% (copper in pyrite and chalcopyrite) and gold grades of 0.2-2.5g/t Au and silver to 42g/tAg. Three main zones of mineralisation in the contact zones between diorite and the volcanics have been identified; systematic exploration of these zones (trenching, drilling) is planned for 2007-2008, but as yet has not been started (Figure 5.3).

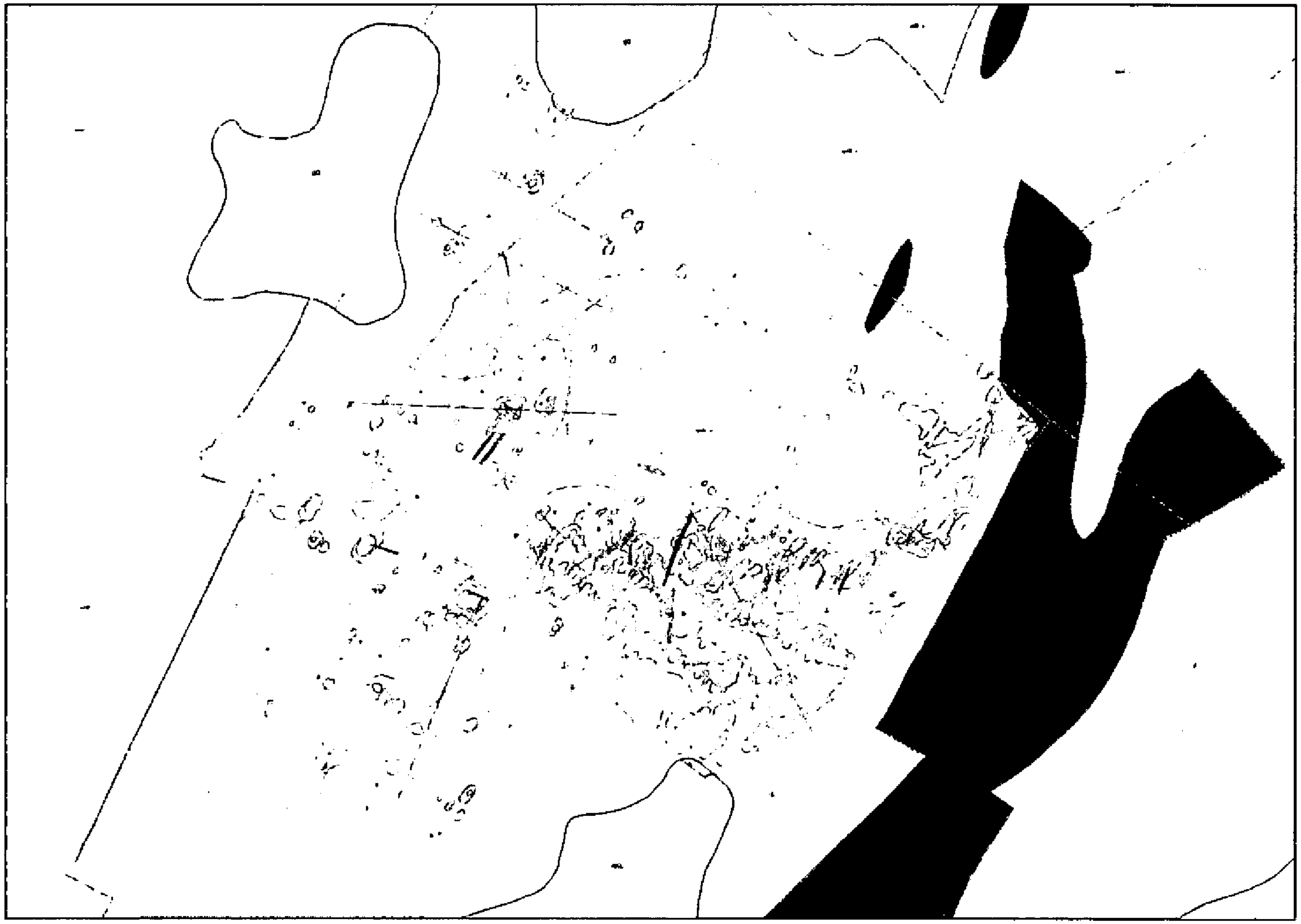


Figure 5.1: Schematic Geological Map of Manyukuyu showing Main Cu–Mo Anomalies (Not to Scale)

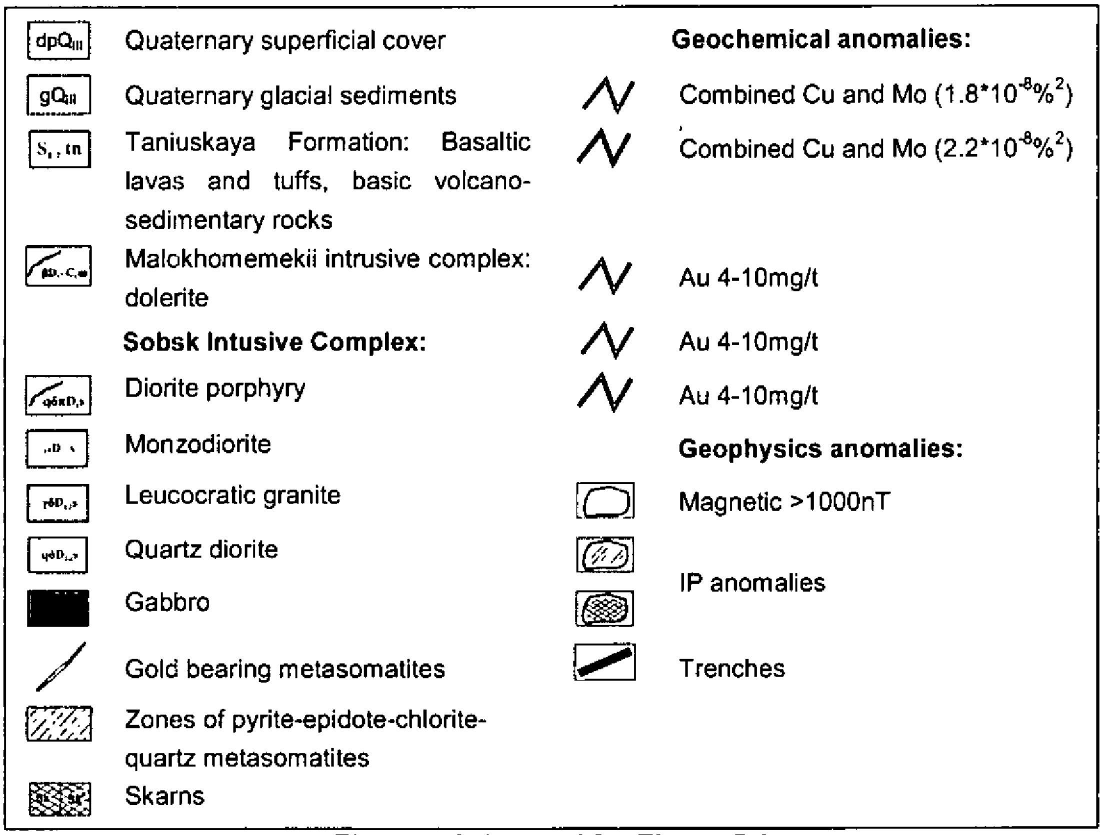


Figure 5.2: Legend for Figure 5.1

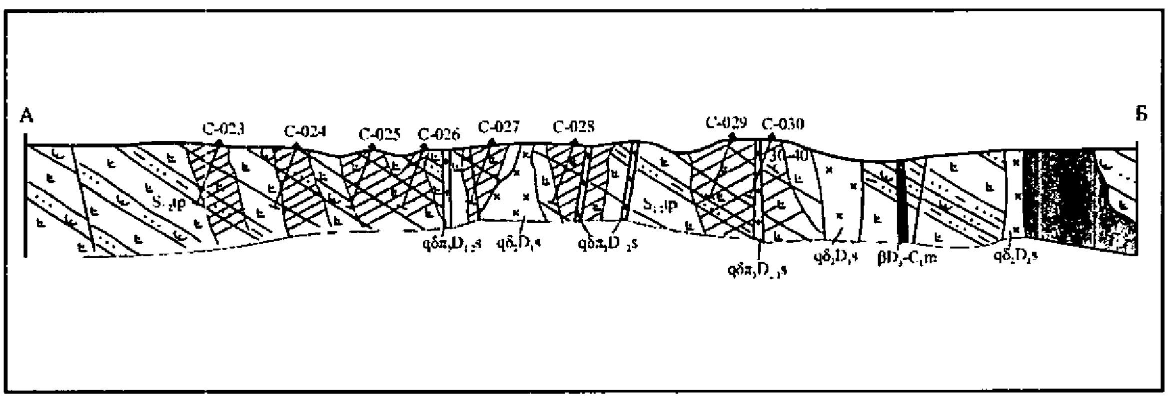


Figure 5.3: Schematic Cross Section through Manyukuyu showing Proposed Drill Hole Locations (Tuffs in green; Diorite in pink and Skarns shown in red cross hatch)

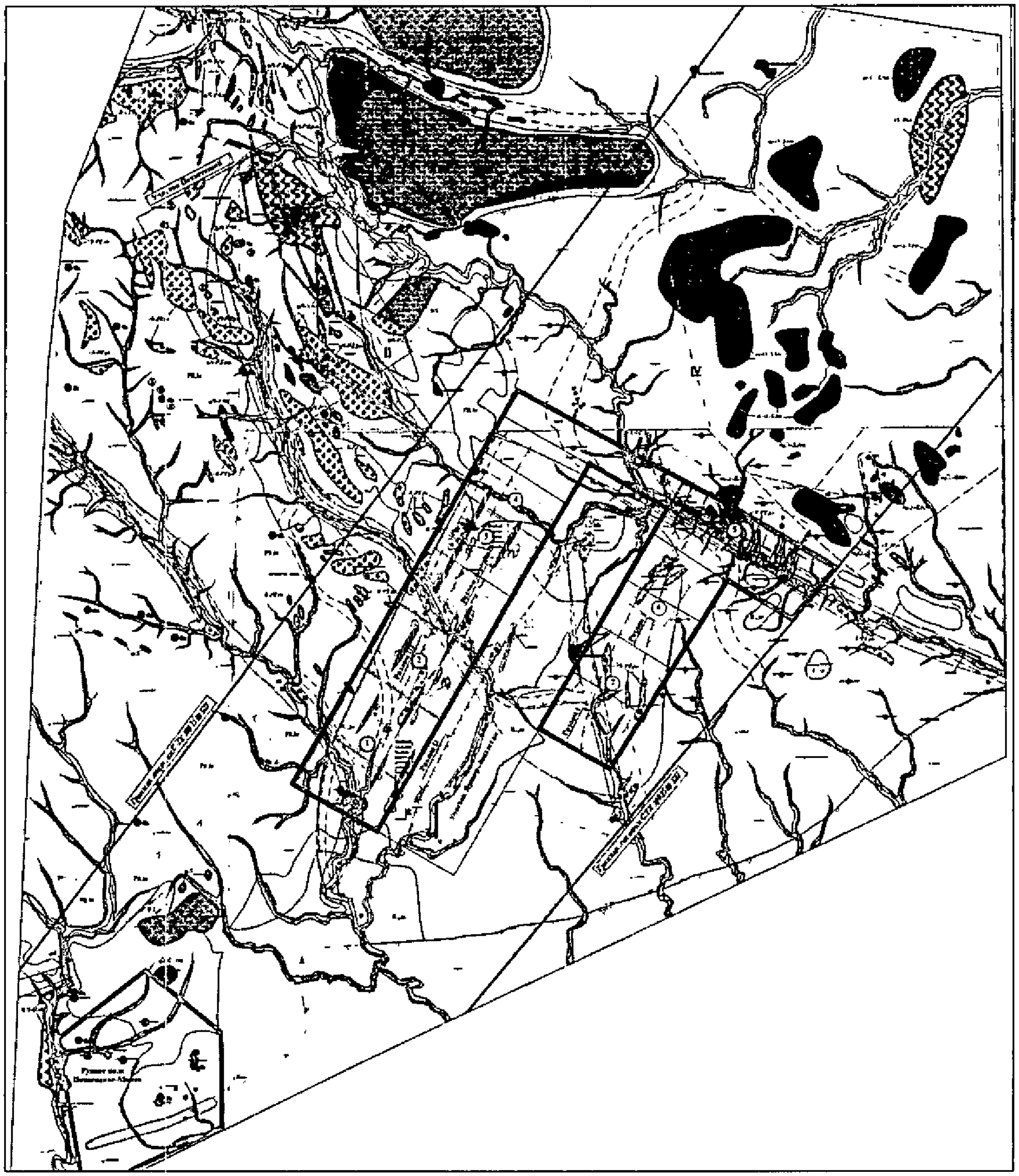
5.1.2 Rudniye-Gorki-3/Elkashore

In the adjacent area to the east of Manyukuyu, lies "Rudniye-Gorki-3" (located about 30km southwest of Ozernoye). This prospect has been known since 1970 for its epidote-magentite skarns, with the skarn zone in tuffs represented by a strong magnetic anomaly. These form two bodies, which like the host rock, have a north-east strike (dip 30-40° to the east) and a thickness of between 7-30m and a length of 135-150m. The mineralisation consists of massive magnetite skarns with overlying disseminated sulphide mineralisation (chalcopyrite and pyrite). Rhenium enrichment has also been reported.

Work carried out in 2006 has confirmed copper (0.02-2.84%); gold up to 6.4g/tAu; FeO (17.27-31.78%) and Fe_2O_3 (40.97-58.05%) in mineralised samples. Additionally, eight further metasomatic skarn zones 80-100m wide and 1,200m long have been identified, but have not yet been studied in detail (see Figure 5.4 below).

Old exploration work included 3,000m drilling to a depth of 250m; however, core recovery was poor, and the representativity of samples is suspect. Copper grades up to 0.2% were reported but there were no gold assays. In 2006, magnetic and IP surveys were completed, as well as geological mapping and geochemistry. In 2007 further drilling and trench sampling has been conducted over the most prospective gold bearing targets and geochemical sampling of secondary aureoles; as yet the results of these studies have not been reported.

Drilling in 2007 intersected low grade (up to 1.6g/t Au) gold-sulphide-skarn mineralisation in two zones, each approximately 500m long and 50-130m thick, situated 200-250m apart. Also a zone of gold-silver bearing molybdenum/copper porphyry stockwork mineralisation has been discovered. In 2007, the stockwork has been traced by trenches and drillholes northeastwards for 3km at a width of approximately 400-1,000m and to a depth of 200m.



Quaternary alluvial sediments	Dunite, Hartzburgite
Quaternary superficial cover	Gabbro, Gabbro-diabase
Ryphein chlorite-mica-albite-quartz shist	Mineralised tectonic zones
Lower Proterozoic amphibolites, gneiss,	Placer Gold Deposits
Granite, granodiorite	

Figure 6.2: Geological Map showing proposed Extension to the Yarshor-Laptayega Licence Area

Figure 6.1: Geological Map of the Yarshor-Laptayega Area showing Locations of Mineralised Samples Collected The orientation of this map area is NE (top) - SW (bottom)

6.0 YARSHOR-LAPTAYEGANSKAYA

This licence is held by Yamal Mining.

6.1 Exploration at Yarshor-Laptayeganskaya

The Yarshor-Laptayeganskaya exploration area lies within a north-east trending thrust zone with associated mineralisation (Au, PGM, Mo and Hg). This exploration licence area (26.5 x 6km) is located approximately 10-40km north-east of Novogodnee Monto and lies along a 30km-long zone of thrusting in Ordovician and Lower Proterozoic rocks. The thrust belt contains metasomatised black slates intruded by beresitised granitoids. The mineralisation is principally within black schists which lie below the thrust plane.

Previous studies identified thick (up to 500m) sections of quartz-sericite metasomatites with streaky and disseminated sulphide mineralisation. Gold grades in these formations were up to 1.99g/t. Microscopic studies showed the presence of PGMs.

The area trends SW-NE along the line of a thrust; where the Precambrian Karbeisky complex (to the west) overlies Ordovician black carbonaceous schists. The thrust itself is mineralised (with molybdenum shows along its length). There are four zones that are prospective for gold.

In 2006, 1:50,000 magnetic and IP geophysical surveys were completed on the structure, as well as trenches and lines of shallow mapping drill holes on a widely spaced grid of 500-1000m.

Simplified geological maps of the licence area, together with a proposed extension to this licence, are shown in Figure 6.1 and Figure 6.2 below.

Table 5.2: Resource Summary for Rudniye Gorki (Yamal Mining Company)							
		Gold			Other		
Site	Category	Tonnage (kt)	Grade (g/t)	Metal (kg)	Tonnage (Mt)	Grade (%)	Metal (kt)
Rudniye-Gorki-3	P_1	1,667	1.50	2,500			
Rudiniye Gorki - Elkashor	P_2	Copper			8.0	0.10	800
	P_2	Molybdenum			8.0	0.06	480

WAI Comment: WAI believes that there is considerable potential to improve the resource position, given the level of prognostic resources that have been identified. Those resources classified in the prognostic P_1 and P_2 category under the Russian guidelines would be reported under *Exploration Results* in accordance with the JORC Code (2004) as WAI believes that the quantity and quality of the data are not sufficient to allow any reasonable estimates of mineral resources to be made at this time.

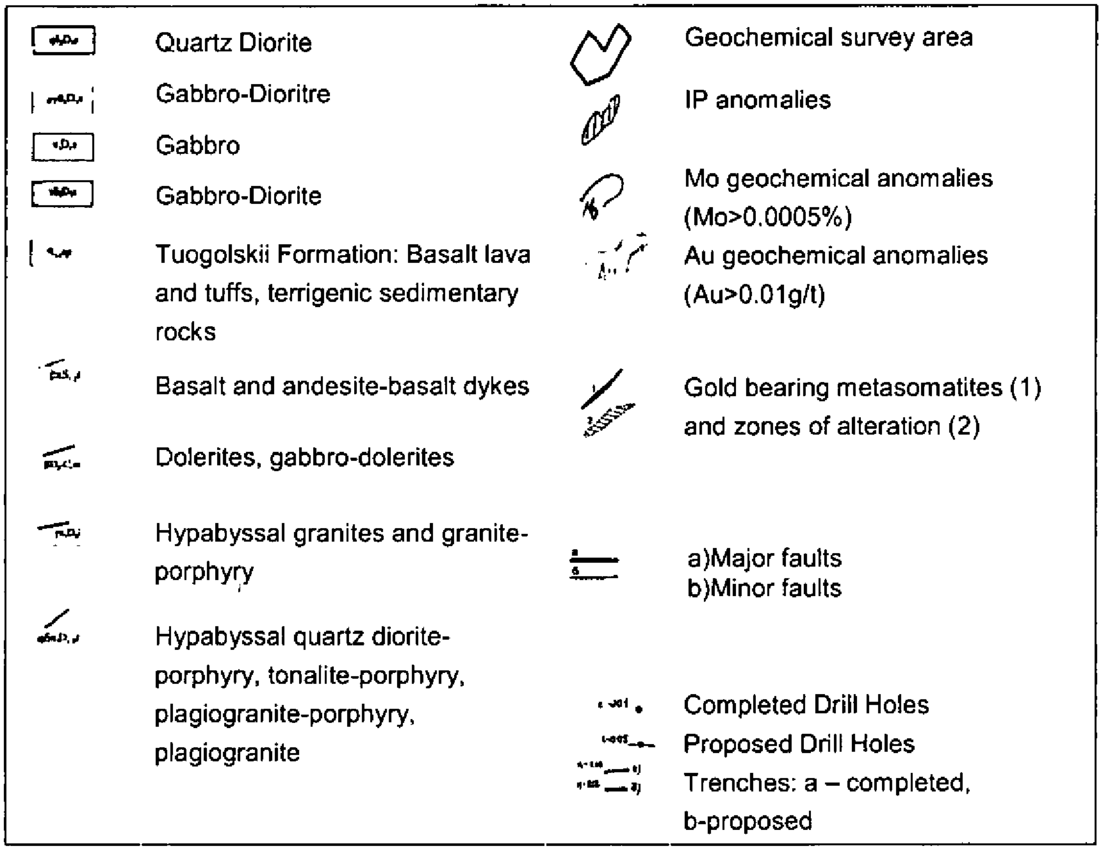


Figure 5.5: Legend for Figure 5.4

During 2007, exploration work has been undertaken on an anomaly lying between Rudniye-Gorki – 3/Elkashore and Manyukuyu. The work has included geochemistry and surface geophysics over a 34km^2 area.

Table 5.1: Perekhodny Site ("Transitional") 2007 (as of 01.09.07)		
Types of work	**Unit**	**Amount**
Geochemical sampling	sample	8,230
Surface geophysics		
IP	km^2	34
Magnetic survey	km^2	34

5.2 Resources

The P_1 and P_2 category prognostic resources estimated by Yamal Mining Company in accordance with Russian standards for Rudniye Gorki are given in Table 5.2 below.

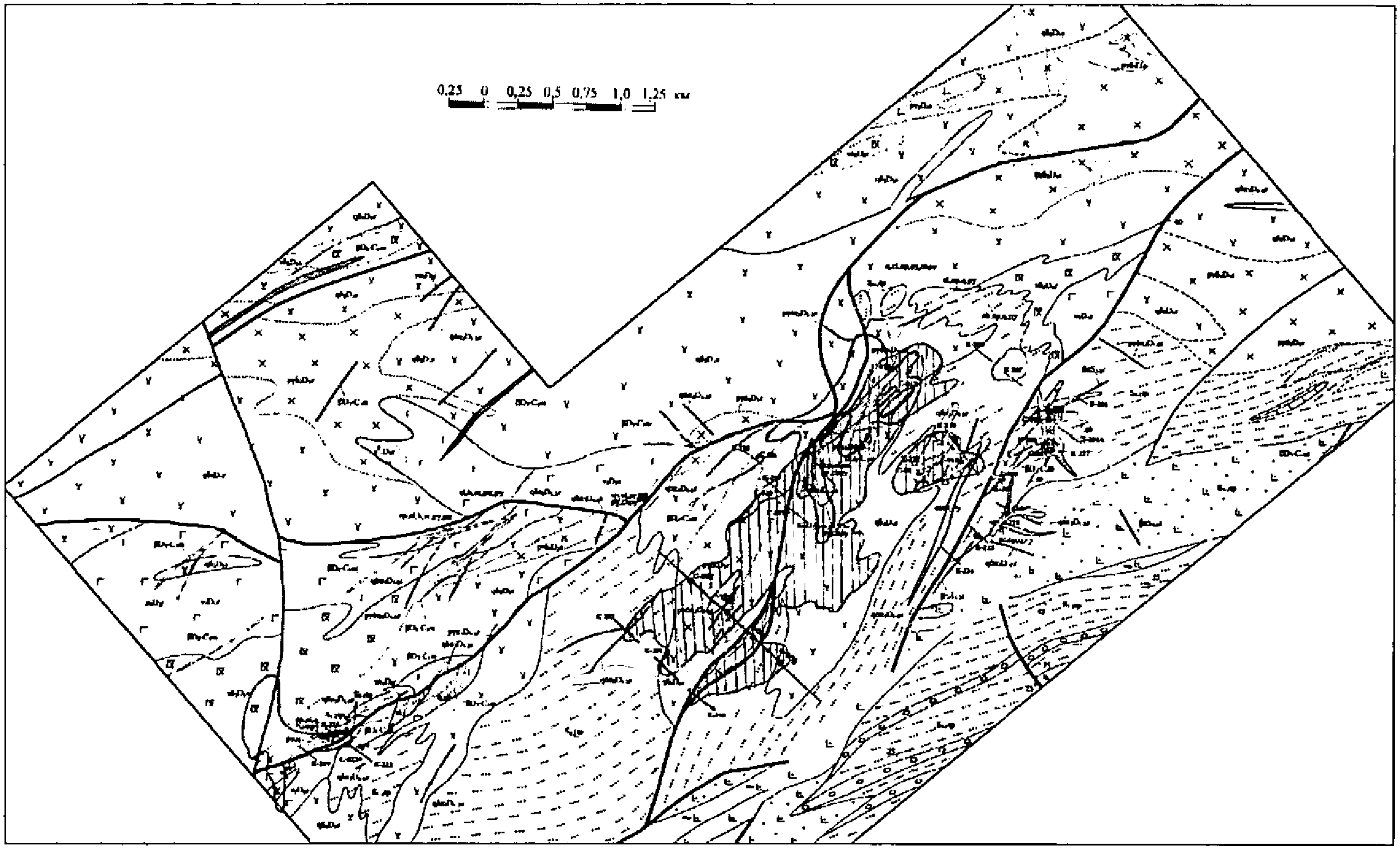


Figure 5.4: Geological Map of Rudniye Gorki-3 showing Main Au-Mo Geochemical Anomalies

6.1.1 Realgaroviy

This mineralisation is located near the southern end of the Yarshor-Laptayeganskaya licence area, around a granitoid mass intruded into the black schists, where an As-Hg-Bi anomaly associated with mineralisation occurs. Sulphide contents are low. Mercury is particularly enriched, and realgar and cinnabar are both found.

Metasomatism around the granitoid (granodirite boss) consists of albititisation associated with microcline and quartz, together with sulphides, and visible gold is present around the north-eastern margin of the intrusion.

Platinum has not previously been tested in this area, but along branch thrusts in the black schists to the south of the granitoid, there are serpentinites (possibly of tectonic/metasomatic rather than magmatic origin) which the PHM geologists consider are prospective for PGMs. Assays received so far include Au of up to 1g/t and PGM's of 0.1-0.2g/t.

Within the granitoid, mineralisation is present, but this is mainly as molybdenite with little or no gold.

6.1.2 Portsesoimskiy

This mineralisation lies along the main thrust, to the north-east of Realgaroviy. Here there is quartz-sericite metasomatism with sulphide-gold mineralisation. No detailed exploration has yet been done in this area. In 2007, an initial trenching programme (8,000m^3) has been undertaken, but no results have yet been reported.

6.1.3 Yarshor

At the very northern end of the area, the strike of the thrust turns through 90° and trends NW-SE for a few kilometres. Within this zone, gold mineralisation has been identified, though no detailed exploration has yet been carried out.

6.1.4 Pod-Yarshor

Close to Yarshor, a geochemical anomaly and a cluster of gold-bearing samples within the sediments beyond the thrust belt have been identified. These have not yet been explored.

Apart from these areas, there is also mineralisation in the Precambrian rocks above (to the west of) the thrust. Notably, around a plagiogranite massif at the southern end of the licence area, there is potassic alteration with associated sulphides. The high-grade gold assays previously reported were from such a mineralised zone to the west of the licence area - and not directly related to mineralisation in the thrust zone.

6.2 Resources

The P_1 category prognostic resources estimated by Yamal Mining Company in accordacnce with Russian strandards for the Yarshor-Laptayeganskaya exploration area are given in Table 6.1 below.

Table 6.1: Resource Summary for theYarshor-Laptayeganskaya Area					
Yamal Mining Company					
Site	Category	Tonnage (kt)	Grade (Au g/t)	Metal (kg)	Metal (koz)
Sandy Bay	P_1	1,000	10.0	10,000	322

WAI Comment: WAI believes that there is considerable potential to improve the resource position, given the level of prognostic resources that have been identified. Those resources classified in the prognostic P_1 category under the Russian guidelines would be reported under *Exploration Results* in accordance with the JORC Code (2004) as WAI believes that the quantity and quality of the data are not sufficient to allow any reasonable estimates of mineral resources to be made at this time.

7.0 ZAPADNOYE CHROMITE DEPOSIT

7.1 Background

The Zapadnoye deposit is located approximately 35km due west from the railhead township of Harp. Harp can be accessed direct from Salekhard, (a distance of approximately 43km) by metalled road. Another route exists to the deposit from the north, via a very poor road that runs through the Makar-Ruz valley, a distance of approximately 22km, to a second railhead terminal, Polar Ural Station.

This deposit is located within the Rai-Iz ophiolite (ultrabasic) massif, 5km south-west of the similar but larger Tsentralnoye deposit being worked currently by OAO Kongor-Chrome. There are considered to be four chromite-bearing zones within the Rai-Iz massif: 'South-western' (which includes Zapadnoye), 'Southern' (which includes Tsentralnoye), Yengaiskiy (to the north-west of the 'Southern' area), and a 'Northern' zone.

The terrain is mountainous and a river valley over 500m deep runs between the two deposits. To the north-east of the Tsentralnoye deposit, and to the south-west of Zapadnoye, are further smaller chromite deposits. Those to the south-west of Zapadnoye (i.e. all in the South-western zone) are in general of higher grade than those to the north and east.

One of the deposits in the south-west zone is particularly attractive: this is the "214" deposit, containing only 146,000t but with an exceptionally high grade of 47%. However, due to its small size, it is considered to be 'out-of-balance' and hence subject to reduced royalties. It is very close to Zapadnoye on the same hillside and material from "214" could very easily be combined with concentrate from Zapadnoye.

The Tsentralnoye (central) deposit (6Mt reserves) is already being exploited, with a 3Mt open-pit, producing at a rate of 600ktpy for supply to the smelter at Chelyabinsk. Run-of-mine grades of ore at Tsentralnoye are 32%, with upgrading on site to produce a concentrate at 36-37% Cr_2O_3. By comparison, at Zapadnoye (1.6Mt reserves, plus 5.5Mt resources) the run-of-mine grade will be 38% without any low-grade material, and hence no need to concentrate: it will merely need crushing to 50mm. However, if desired, to reduce transport volumes, the ore can be concentrated to 48%. There are no deleterious components in the Zapadnoye ore (i.e. no S, P, etc).

The geological setting of the deposit appears typical of podiform chromite formations. These are formed as a primary magmatic differentiate during olivine and chrome-spinel crystal fractionation of a basaltic liquid.

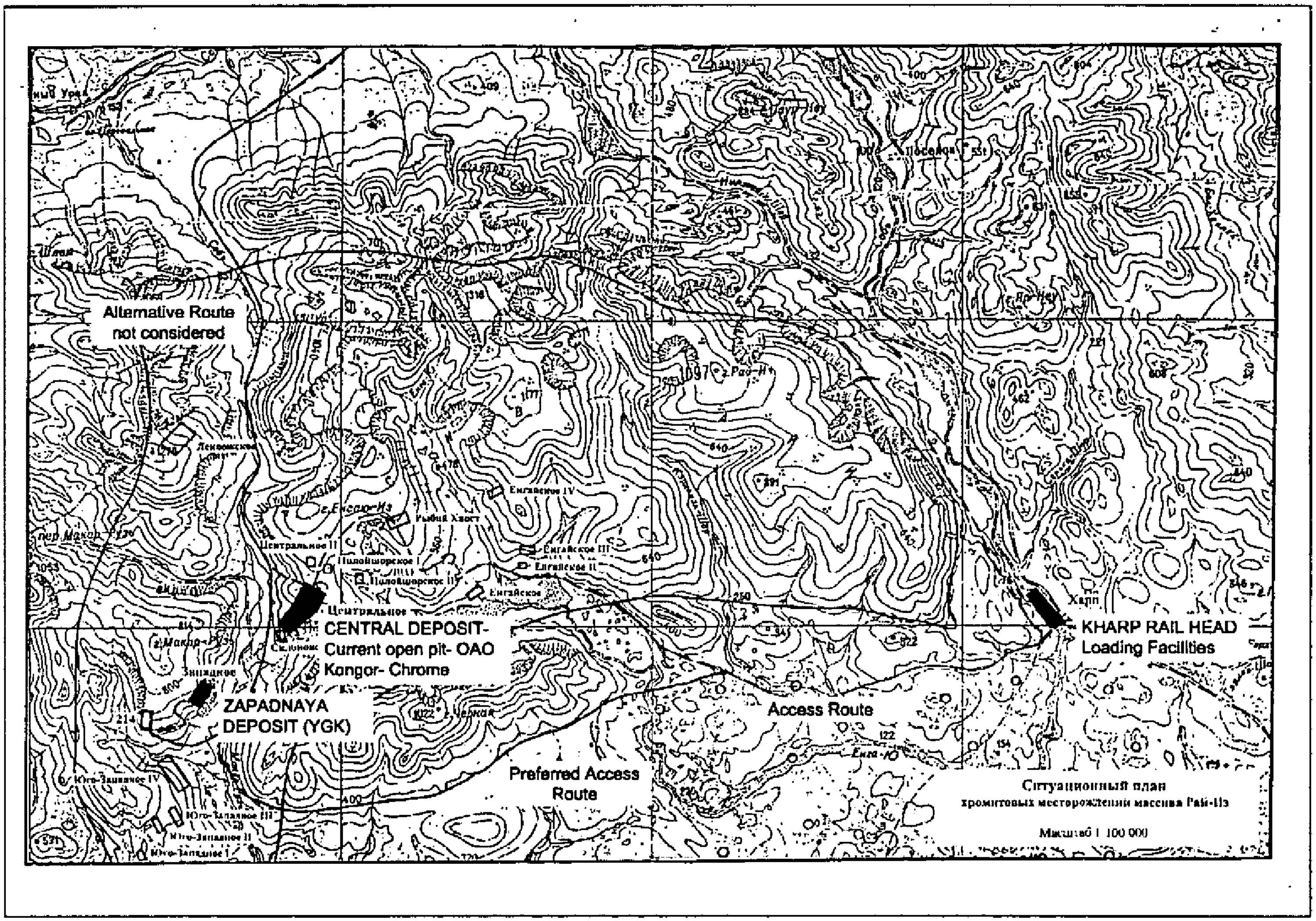


Figure 7.1: Location of Access Road to Zapadnoye from Kharp Railhead

The chromitite at Zapadnoye is exclusively hosted within dunite intrusives and consist of NE-SW striking, steeply dipping (80-90°) bodies. The mineralisation consists essentially of massive chrome-spinel (probably *picotite*) along with the gangue mineral olivine, occurring in thin reefs (03 - 4.0m in thickness) up to 550m in length, together with other lenses up to 50m in length.

Development of the deposit will be dependent upon logistics. In particular, a road will need to be constructed (see Figure 7.1 above). There are two potential routes: either 22km northwards to the railway line, or 38km eastwards to the public road. Part of the latter route would be adjacent to and parallel with the Kongor-chrome private road, but it cannot be assumed that there will be permission to use this. Because of the rugged terrain this route would also require the construction of two bridges. The northward route would clearly be preferred, except for the fact that it lies across the mountain-tops and would be subject to severe weather conditions.

WAI Comment: WAI considers that this deposit is still a greenfield site and although it shares some commonality with the central deposit nearby, it has no immediate infrastructure (power, water supply or suitable access road) associated with it.

7.2 Mineral Rights and Permitting

A mining licence for the mining of chromite has been granted to YKG for a period of 20 years as of 15 March 2006.

The licence covers an area of 0.45km^2, but it is understood that this could be extended along strike subject to the necessary approvals (see Figure 7.2).

The licence covers exploitation of the mineralised zones from surface (at a maximum elevation of 670masl) to a depth of 200m below surface. Particularly in a south-westerly direction, where P_1 and P_2 reserve extensions on the main ore zone PT205/2 are postulated.

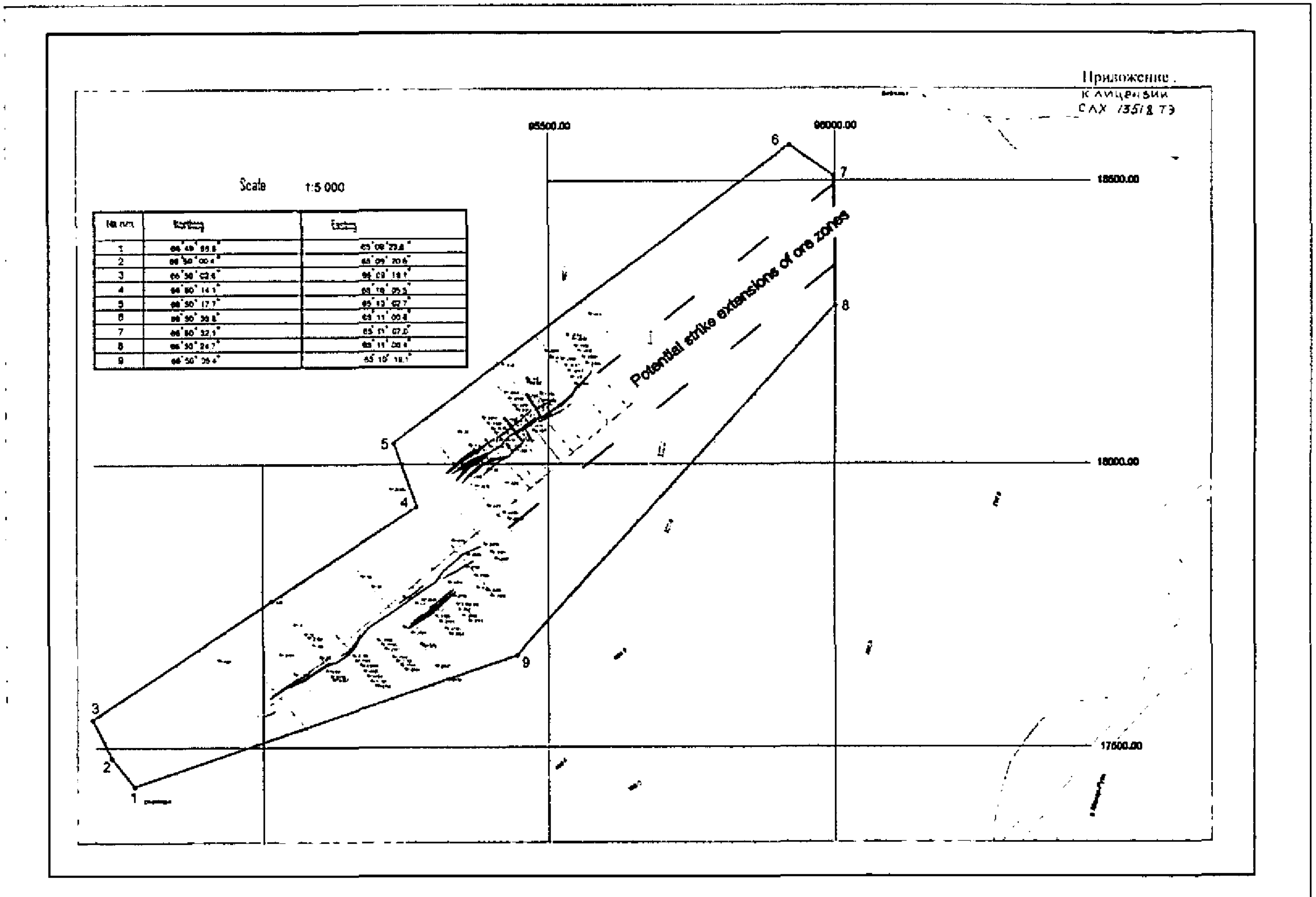


Figure 7.2: Yamal Mining - Exploration and Mining Licence Area and Location of Known Ore Zones

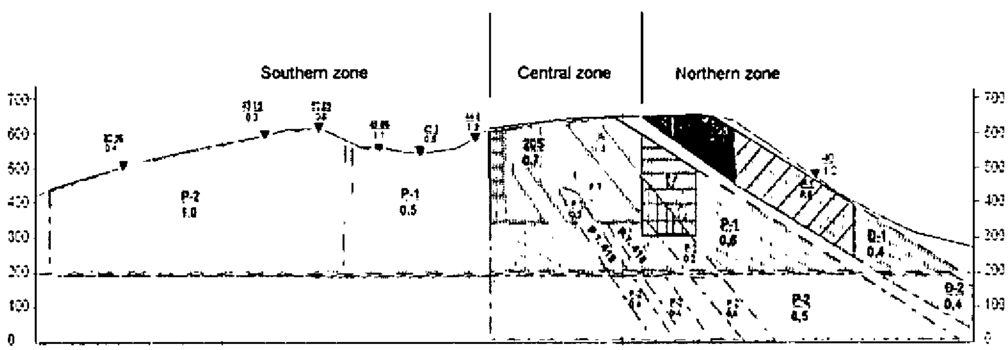
7.3 Deposit Geology

The deposit is tabular, with sub-vertical dip, and mineralised bodies plunge 35-45° sub-parallel to the slope of the hill. There are three major mineralised zones, which have been evaluated to a depth of 450m (i.e. down to river level). Mineralisation is continuous, and the deposit is open at depth as well as laterally (into the mountain-side). A simplified long section of the deposit is shown in Figure 7.3 below.

The mineralised bodies are open in all directions. They are essentially massive chrome-spinels occurring in thin reefs (0.3-4.0m) up to 550m in length, and lenses (up to 50m), which dip steeply (80-90°). Chromite of this deposit is of a metallurgical type which makes processing straightforward.

The deposit could be mined as an open pit but even though the rock is solid and would allow steep pit slopes, this would necessarily mean a high stripping ratio. As the geometry is simple, and the ore body has a near-vertical orientation, it is possible that underground production could actually be more economic.

Zapadnoye Chromite Deposit Projection into Vertical Plane



Key

Balance reserves of categories $C_1 + C_2$

Zones in which there is confirmed economic mineralisation

Prognostic resources of category P_1

Prognostic resources of category P_2

Figure 7.3: Longitudinal Projection of Zapadnoye Deposit showing Main Ore Bodies and Reserve/Resource Blocks

7.4 Chromite Mineralisation

Five mineralisation types have been recognised at Zapadnoye; the type and typical grade for each are given in Table 7.1 below.

Table 7.1: Classification of Types of Chromite Mineralisation				
Chromite Type	**% Chrome-Spinel**		**% Cr_2O_3**	
Poor/Highly Disseminated	10	30	5.92	17.28
Disseminated	30	50	17.28	29.90
Average Density	50	70	29.90	40.54
High Density	70	90	40.54	49.85
Massive	90	100	49.85	58.35

According to data supplied by Yamal Mining approximately 60% of the chrome mineralization is in the form of the "high density" type, which is particularly amenable to DMS separation, whilst a further 25% occurs as "average". The proportion of individual types is given in Table 7.2 below.

Table 7.2: Distribution of Ore Types	
Chromite Mineralisation Type	**% of Total**
Poor/Highly Disseminated Ore	7
Disseminated	10
Average Density	25
High Density	60
Massive	8

7.5 Resources and Reserves

In 2002, exploration works were completed on Zapadnoye deposit and GKZ approved the following resources and reserves (Table 7.3 below):

Table 7.3: Zadadnoye GKZ Approved Resources and Reserves (2002) PHM Annual Report as at 01/0//08		
Category	**Tonnage (t)**	**Grade (%Cr_2O_3)**
C_1	492,200	38.71
C_2	1,164,100	37.77

Beyond the original evaluation of 1.6Mt of C_1 and C_2 reserves, P_1 resources of 4.5Mt are now established, and a further 1Mt of P_2 resources (lateral extension and deeper levels).

In March 2006, OAO Yamal Mining received a 20-years exploration and mining licence on this deposit, to exploit chromite ores. Drilling of a further 20 boreholes, totalling 5000m was undertaken in 2006 to a depth of 530m. This concentrated on proving that the ore zones extended both to the east and west (flanks) of the deposit. Structural continuity and additional previously undefined ore zones have been confirmed from this drill programme, although drill spacing was not sufficiently closely spaced to allow estimation of further C_1 reserves.

7.6 Exploration Potential

WAI considers that there is considerable exploration potential, particularly for lateral strike extension to both existing structures and from blind as yet undiscovered targets. Clearly the potential extension of zones 205/2 and 201/2, on a north-eastwardly plunge (over the shoulder and down the side slope into the valley towards the Central deposit), have considerable merit. Similarly, at depth zone 238 may extend and plunge north-eastwards. All of these targets warrant drill investigation.

To the west, targets remain open-ended and P_l and P_2 resources have been identified on the lateral strike extension of zone 205/2. Drill investigation westwards may intersect additional new targets as yet undiscovered as a consequence. Zone thickening and mergence may occur at depth; this has clearly been seen at Central, but not identified at Zapadnoye.

However, WAI believes that there is a possibility that the lateral extensions (both to the east and west) to proven and probable mineralisation may well lie outside the limits of the current licence area.

SECTION D: IRGIREDMET LABORATORY RESEARCH & SCIENTIFIC INSTITUTE

1.0 INTRODUCTION

Irgiredmet is one of the best known Russian laboratory research and scientific institutes. It was established in 1871 and functioned as the leading State research centre for gold mining in Russia and the former Soviet Union. Irgiredmet provides R & D expertise, testwork and process optimisation for precious metals, base metals and diamonds. Activities range from preliminary investigations to process development and design, construction and commissioning of plants. With over 130 years of history, it has a wealth of information, intellectual capital, and expertise which gives it a leading position in the Russian gold mining industry.

Irgiredmet is located in the city of Irkutsk which is the major city of Eastern Siberia. The city is well connected by air to the key industrial cities in Russia and to PHM's operating mines in the Amur Region by air, road and the Trans-Siberian railway.

Irgiredmet was privatised in 1993, when 89% of the issued share capital was purchased by current and former employees.

At present PHM currently hold 99.84% equity holding in Irgiredmet, with the remainder owned by the OAO Irgiredmet. PHM intends to increase its stake in Irgiredmet to 100%, implying a total valuation of the business of US$50M.

1.1 Irgiredmet Structure

Irgiredmet's facilities consist of 10 specialised laboratories including a project design department, laboratory and pilot plant testing facilities, an analytical department, a commercial department and a marketing department.

Irgiredmet is governed by a Scientific and Technical Council consisting of the Chiefs of Departments and Senior Specialists. The Council is split into three divisions - Engineering and Technical, Minerals Processing and Mining and Geology. The purpose of the council is to approve all reports produced by the various departments, including project evaluation and design work. The Council also approves internal funding for postgraduate research projects.

1.2 The Business Areas

The facilities at Irgridment are divided into 14 separate business areas.

1.2.1 Laboratory No 1 – Minerals Processing Laboratory

Laboratory No 1 is the main minerals processing laboratory which includes physical testing, gravity, flotation, and dense media separation. Pilot plant facilities in this laboratory include SAG milling, ball milling and 6m high column leaching.

Gravity separation equipment includes spirals and tables together with six different types of centrifugal concentrators, including Knelson and Falcon equipment.

The laboratory can also undertake pilot scale flotation testwork and is equipped with pilot scale thickeners and filters for dry tailings disposal.

Physical testing equipment includes a Bond ball mill, rod mill and Abrasion Index, all of Chinese manufacture. A photograoh of the pilot flotation equipment is given as Photo 1.1.

Photo 1.1: Irgiredmet Pilot Plant Flotation Equipment

1.2.2 Laboratory No 7

Laboratory No 7 is involved with the testing of refractory concentrates using roasting, pressure oxidation (POX), bioleaching and pyrometallurgical methods. Pilot scale bioleach testwork can be undertaken and new autoclave equipment has recently been purchased. This laboratory also undertakes heap leach testwork.

1.2.3 Laboratory No 15

Laboratory No 15 undertakes hydrometallurgical testwork and has been responsible for the development of much of the resin in pulp (RIP) technology used in gold processing in the former Soviet Union. Irgiredmet had also developed carbon in pulp (CIP) technology using a coal derived material. Irgiredmet also developed the resin technology that will be used in the Pioneer plant.

Others area of metallurgical development with which Irgiredmet has been associated include thiourea leaching of gold bearing antimony concentrates, intensive cyanidation and in-situ gold leaching and the hydrometallurgical processing of manganese and zinc ores.

1.2.4 Laboratory No 20

Laboratory No 20 deals with environmental testing and specialist areas including the speciation and analysis of cyanide compounds, and the analysis of natural and sewage waters. The department is involved in EIA assessments, water decontamination and monitoring and has also developed expertise in methods of naturally degrading cyanide.

1.2.5 The Analytical Laboratory

The analytical laboratory is equipped with a range of equipment including fire assay, atomic adsorption spectrophotometry (AAS), ICP, spectrophotometers, X-ray fluorescence (XRF) and scanning electron microscopy.

As well as undertaking the analysis of test products from the various departments, the analytical laboratory undertakes umpire analysis and was responsible for developing many of the State approved methods for precious metal analysis. The laboratory also prepares and markets standard reference materials for quality control purposes.

The facility is one of a small number of laboratories licensed to analyse precious metal bearing concentrates which are exported from Russia.

The analytical laboratory operates a strict QA/QC procedure in accordance with State regulations.

1.2.6 Laboratory No 10

Laboratory No 10 is the alluvial testing laboratory for diamonds. As most testing is undertaken on site, the equipment located within the laboratory is rather limited. Specific expertise involves optical sorting and minimising breakage of diamonds during comminution.

1.2.7 Laboratory No 2

Laboratory No 2 is used for alluvial processing of all minerals other than diamonds. The main minerals tested include gold, tungsten, tin and titanium.

1.2.8 Laboratory No 12

Laboratory No 12 undertakes ore reserve assessments and is equipped with Micromine software.

1.2.9 Process Design Department

The Process Design Department is licensed by the State to develop flowsheets, prepare mass balances and undertake detailed engineering design Studies. The department also provides a third party consultancy service to advise clients on whether their project is compliant with State regulations.

1.2.10 Commerical Centre

The Commercial Centre is involved in the sale of mining and processing equipment and also cyanide. The vending of cyanide is undertaken in accordance with strict State monitoring and control of its transport and use. Irgiredmet can, and does, provide a complete turnkey package for the supply of cyanide to mining companies which complies with all State legislation.

1.2.11 Business Centre

The Business Centre is involved in the leasing of property owned by Irgiredmet. These properties are located on the other side of the river Irkut and are rented to various State Institutes, banks and other businesses. A recently constructed bridge will make these properties more accessible to Irgiredmet.

1.3 Personnel

A breakdown of the categories and typical numbers of personnel employed by Irgiredmet is given in Table 1.1.

Table 1.1: Irgiredmet Staffing Levels					
Area	**Research**	**Engineering**	**Technical**	**Non Operating**	**Total**
Senior Management				8	8
Lab. 1	20	2	8		30
Lab. 2	3	5	1		9
Analytical Centre	10	8	11		29
Lab. 7	18	3	3		24
Lab. 10	9	3	1		13
Lab. 12	10	7			17
Lab. 15	11	3			14
Lab. 16	6	4	2		12
Lab. 20	4	5	1		10
Process Design		7	5		12
Industrial. Safety	1				1
Project Design	1	1	1		3
Commercial Centre	1	2	10		13
Business Centre	1	2	18		21
Other businesses			2	52	54
Total	**95**	**52**	**63**	**60**	**270**

The work undertaken by Irgiredmet is licensed by the Ministry of Finance and the Ministry of Science and Education. Licences are also held for undertaking chemical and physical analyses (by the State Committee on Standards). Irgiredmet is also licensed to undertake Design Studies, Construction Management and Industrial Safety Studies.

Irgiredmet's detailed knowledge of State regulations with regards to mining project development also enables them to advise clients whether their projects are compliant with State legislation.

1.4 Finances

The Income and Profit for the various departments are given in Table 1.2. The distribution of Income is given in Figure 1.1 and Table 1.3.

Table 1.2: Irgiredmet 2006 Financial Performance (,000R)					
Area	**Income**	**Income Excluding Contractors**	**Expenses**	**Profit**	**Profit % Excluding Contractors**
Lab. 1	20,122	19,708	16,072	4,050	21
Lab. 2	10,738	5,271	11,025	-288	0
Analytical Centre	27,947	27,947	24,405	3,542	13
Lab. 7	105,047	40,214	94,724	10,323	26
Lab. 10	14,453	13,623	13,016	1,437	11
Lab. 12	17,980	16,978	14,050	3,930	23
Lab. 15	13,389	13,164	11,201	2,187	17
Lab. 16	14,075	10,717	12,508	1,568	15
Lab. 20	22,636	22,007	18,866	3,771	17
Process Design	27,342	23,963	22,037	5,305	22
Industrial Safety	4,937	4,467	4,382	554	12
Project Design	7,807	3,839	4,669	3,138	82
Commercial Centre	183,745	80,163	171,105	12,640	16
Business Centre	40,414	40,414	33,998	6,416	16
Other businesses	10,672	2,865	1,591	1,275	44
Total	**513,497**	**325,338**	**453,649**	**59,848**	**18**

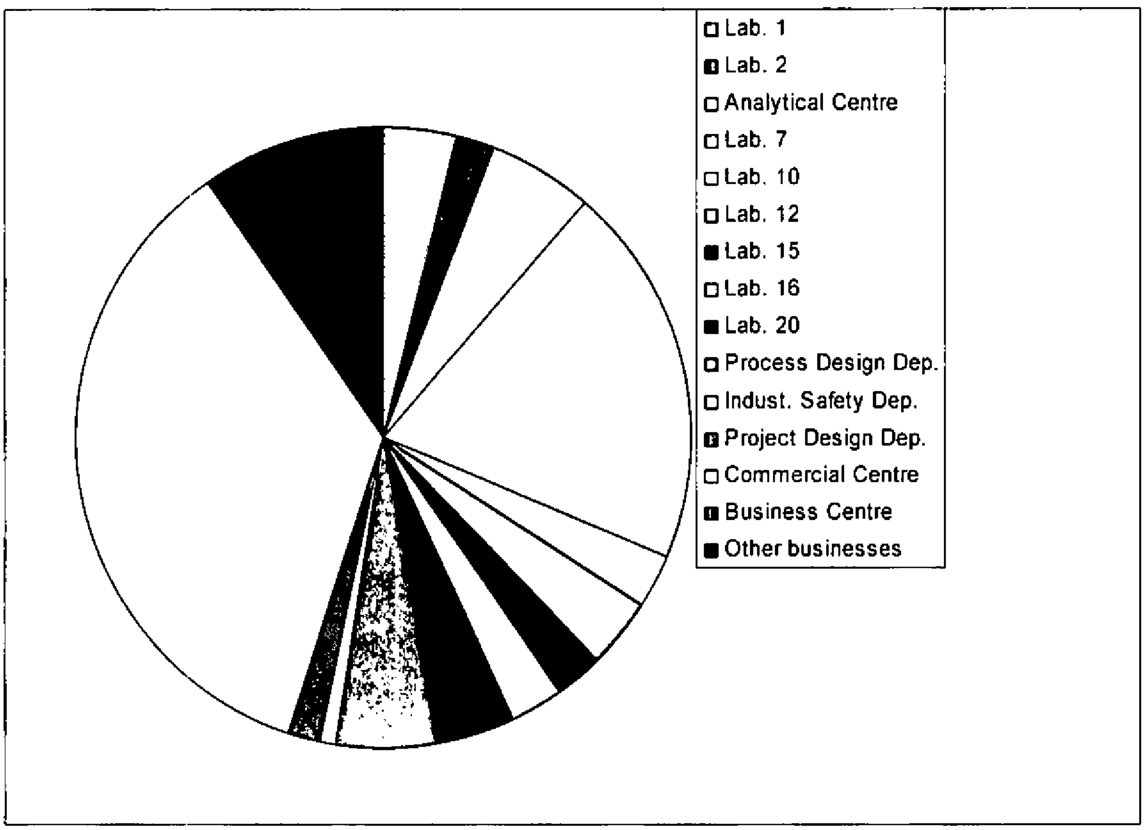


Figure 1.1: Irgiredmet Income by Area

1.5 Irgiredmet Income by Region

A summary of the income by Region for 2005-2006 is given in Table 1.3.

Table 1.3: Irgiredmet Institute Income by Region		
Region	**Income R ,000**	**% of Income**
Russia	503,319	98.0
CIS	6,436	1.3
Foreign	3,742	0.7
	513,497	100

A total of 98% of the Institute's business came from within Russia. Other CIS countries accounted for only 1.3% of income with the majority coming from Kazakhstan. Foreign income (0.7%) was derived from Germany and Mongolia.

WAI Comment: The Irgiredment Insitute has an established reputation and is certainly an excellent acquisition for PHM. The Institute will provide invaluable assistance in the preparation of technical studies, particularly in relation to State legislation compliance. Irgiredmet is not, however, in a position to compete as a business entity on an international basis with other recognised laboratories, due to the tight restrictions on exporting test samples from and importing test samples to the Russian Federation.

SECTION E FINANCIAL ANALYSIS

1.0 INTRODUCTION

A financial analysis has been undertaken by WAI of PHM's projects and commitments for the next two and a half years. Financial models were constructed for each operation based on the mining of reserves derived from by PHM using the Standard Russian Classification scheme. A summary of each operation is presented in the following sections:

1.1 Pokrovskiy

1.1.1 Capital Costs

Pokrovskiy is a mature operating mine and capital expenditure requirements are low, however US$2M has been budgeted for geological exploration in 2008, 2009 and 2010.

1.1.2 Operating Costs

Operating costs at Pokrovskiy currently vary between US$6.8M and US$7.8M per quarter, depending on the season. During the summer months both heap leaching and RIP processes are operated, whereas in the winter only RIP processing is conducted. The average cash operating cost is in the region of US$140/oz of gold recovered.

1.1.3 Revenue

Pokrovskiy is expected to produce on average 1,700kg of gold per quarter in the summer months and 1,556kg per quarter during the winter months (a period of 6 months per season) over the next 2.5 years. This will generate up to US$46M per quarter in gross revenue during 2008 and 2009, equivalent to US$850/oz of gold sold (see Section 1.6). During 2010 the peak revenue is predicted to fall to US$41M per quarter due to a lowering in the average gold price to US$750/oz.

1.2 Pioneer

1.2.1 Capital Costs

The project to increase Pioneer production during 2009 is well underway and it is forecast that capital expenditure requirements for the second half of 2008 will be in the region of US$34.5M. During 2009, a further US$51.5M will be required for processing equipment, mining equipment and tailings expansion.

1.2.2 Operating Costs

Operating costs at Pioneer are currently between US$1.5M and US$3.2M per quarter (depending on the season). The average cash operating cost is currently US$121/oz of gold recovered.

1.2.3 Revenue

Current revenue from Pioneer is in the region of US$27.0M per quarter, this will rise to a peak of US$77.0M per quarter in 2009 and US$69.4M per quarter during 2010 as production increases, offsetting the forecast reduction in the gold price. Revenue, is affected by the seasonal nature of the heap leach operation which only operates during the summer.

1.3 Malomir

1.3.1 Capital Costs

The Malomir project is currently being developed and capital expenditure requirements for the second half of 2008 are estimated to be US$31.3M. A further US$43.8M will be required during 2009 and US$41.7M during 2010. The main capital items are the processing plant, tailings dam, mining equipment, infrastructure and construction costs.

1.3.2 Operating Costs

Mining operations are not due to commence until the first quarter of 2010.

1.3.3 Revenue

Revenue from gold sales will commence in the first quarter of 2010 and is expected to be in the order of US$48.9M per quarter.

1.4 Placer Deposits

1.4.1 Capital Costs

Placer deposits in the Amur region are currently being opened and expanded. New dredges and processing equipment are required for this expansion and the capital requirements are estimated to be US$2.5M in the third quarter of 2008, US$7.6M during the 2009 season and US$5.0M during the 2010 season.

1.4.2 Operating Costs

The cost of the placer operations is currently US$2.1M per quarter. This is equivalent to US$2.8/m^3 of gravel processed or a cash operating cost of US$196/oz of gold produced.

1.4.3 Revenue

Current revenue from the placer operations is in the region of US$8.3M per quarter and should rise to US$13.6M per quarter by 2010 as production is increased.

1.5 Yamal Deposits

1.5.1 Capital Costs

The Yamal operations are currently being developed and therefore capital expenditure demands are high. The main items of capital expenditure are processing equipment, mining equipment, infrastructure and construction costs. During the latter half of 2008, US$2.7M will be spent developing the project. A further US$37.7M will be spent during 2009 and US$37.9M during 2010.

1.5.2 Operating Costs

Mining of waste material will commence during Q3 2009 with processing of this material to produce aggregates commencing during Q3 2010.

1.5.3 Revenue

Revenue generation from the aggregate operations is estimated to be US$12.1M per quarter and will commence in Q3 2010.

1.6 Gold Price Assumptions

The gold price assumptions used in the cash flow models are as follows:

- Short Term (2008 and 2009) – US$850/oz;
- Medium Term (2010 and 2011) – US$750/oz; and
- Long Term (2012 Onwards) – US$650/oz.

Summary tables for each project are shown in Table 1.1 to Table 1.5 below and a graphical production forecast is given in :

Table 1.1: Pokrovskiy Summary of Selected Financial and Operational Data

		2008		2009				2010			
	Unit	*Q3 2008*	*Q4 2008*	*Q1 2009*	*Q2 2009*	*Q3 2009*	*Q4 2009*	*Q1 2010*	*Q2 2010*	*Q3 2010*	*Q4 2010*
Ore Mined	*Kt*	600	600	600	600	600	600	600	600	600	600
Ore Processed (RIP Plant)	*Kt*	450	450	450	450	450	450	450	450	450	450
Grade	*g/t*	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80
Recovery	*%*	91%	91%	91%	91%	91%	91%	83%	83%	83%	83%
Ore Processed (Heap Leach)	*Kt*	300			300	300			300	300	
Grade	*g/t*	0.80			0.80	0.80			0.80	0.80	
Recovery	*%*	60%			60%	60%			60%	60%	
Gold Produced	*Kg*	1,700	1,556	1,556	1,700	1,700	1,556	1,556	1,700	1,700	1,556
Revenue	***US$M***	**46.46**	**42.53**	**42.53**	**46.46**	**46.46**	**42.53**	**37.52**	**41.00**	**41.00**	**37.52**
Capital Expenditure	*US$M*	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50

Table 1.2: Pioneer Summary of Selected Financial and Operational Data

		2008		2009				2010			
	Unit	**Q3 2008**	**Q4 2008**	**Q1 2009**	**Q2 2009**	**Q3 2009**	**Q4 2009**	**Q1 2010**	**Q2 2010**	**Q3 2010**	**Q4 2010**
Ore Mined	Kt										
Ore Processed (RIP Plant)	Kt	0	122	450	0	0	450	650	0	0	650
Ore Processed (Heap Leach)	Kt	750	0	0	1,400	1,400	0	0	2,400	2,400	0
Grade	g/t	1.80	11.30	6.93	1.40	1.40	6.93	4.92	1.00	1.00	4.92
Recovery	%	73%	93%	80%	73%	73%	80%	78%	73%	73%	78%
Gold Produced	Kg	986	1,282	2,818	1,431	1,431	2,818	2,876	1,752	1,752	2,876
Revenue	**US$M**	**26.95**	**35.04**	**77.02**	**39.11**	**39.11**	**77.02**	**69.36**	**42.25**	**42.25**	**69.36**
Capital Expenditure	US$M	-20.00	-14.50	-15.49	-13.06	-18.02	-4.90	-10.05	-2.10	-1.50	

Table 1.3: Malomir Summary of Selected Financial and Operational Data

		2008		2009				2010			
	Unit	**Q3 2008**	**Q4 2008**	**Q1 2009**	**Q2 2009**	**Q3 2009**	**Q4 2009**	**Q1 2010**	**Q2 2010**	**Q3 2010**	**Q4 2010**
Ore Mined	Kt							750	750	750	750
Ore Processed (RIP + Autoclave)	Kt							750	750	750	750
Grade	g/t							3.30	3.30	3.30	3.30
Recovery	%							82%	82%	82%	82%
Gold Produced	Kg							2,030	2,030	2,030	2,030
Revenue	**US$M**							**48.95**	**48.95**	**48.95**	**48.95**
Capital Expenditure	US$M	-20.02	-11.29	-6.65	-11.33	-12.06	-13.71	-9.94	-13.48	-11.27	-6.98

Table 1.4: Placers Summary of Selected Financial and Operational Data

		2008		2009				2010			
	Unit	**Q3 2008**	**Q4 2008**	**Q1 2009**	**Q2 2009**	**Q3 2009**	**Q4 2009**	**Q1 2010**	**Q2 2010**	**Q3 2010**	**Q4 2010**
Gravel Processed	km3	750			1000	1000			1250	1250	
Grade	g/m3	0.45			0.50	0.50			0.50	0.50	
Recovery	%	90%			90%	90%			90%	90%	
Gold Produced	Kg	304			450	450			563	563	
Revenue	**US$M**	**8.31**			**12.30**	**12.30**			**13.58**	**13.58**	
Capital Expenditure	US$M	-2.50			-3.80	-3.80			-2.50	-2.50	

Table 1.5: Yamal Summary of Selected Financial and Operational Data

		2008		2009				2010			
	Unit	**Q3 2008**	**Q4 2008**	**Q1 2009**	**Q2 2009**	**Q3 2009**	**Q4 2009**	**Q1 2010**	**Q2 2010**	**Q3 2010**	**Q4 2010**
Ore Mined Petropavlovskoye	Kt										
Ore Mined Novogodnee Monto	Kt										
Waste Mined	Kt					280	285	250	250	250	260
Grade	g/t										
Recovery	%										
Gold Produced	Kg										
Magnetite Conc. Produced	Kt										
Aggregates Produced	Kt									604	604
Revenue	**US$M**									**12.10**	**12.10**
Capital Expenditure	US$M		-2.78	-6.54	-8.76	-8.89	-13.49	-9.86	-2.81	-10.65	-14.57

A summary of gold produced, total revenue, capital expenditure and cash flows for the deposits in development and operation over the next 2.5 years is given in Table 1.6 below:

APPENDIX 1

Glossary

Table 1.6: Summary of Operations

		2008		2009				2010			
	Unit	*Q3 2008*	*Q4 2008*	*Q1 2009*	*Q2 2009*	*Q3 2009*	*Q4 2009*	*Q1 2010*	*Q2 2010*	*Q3 2010*	*Q4 2010*
Gold Produced	*Kg*	*2,990*	*2,838*	*4,374*	*3,581*	*3,581*	*4,374*	*6,462*	*6,045*	*6,045*	*6,462*
Gold Produced	*Tr. Oz*	*96,141*	*91,254*	*140,643*	*115,145*	*115,145*	*140,643*	*207,781*	*194,373*	*194,373*	*207,781*
Revenue	*US$M*	*81.72*	*77.57*	*119.55*	*97.87*	*97.87*	*119.55*	*155.84*	*145.78*	*157.88*	*167.94*
Capital Expenditure	*US$M*	*43.02*	*29.07*	*29.17*	*37.45*	*43.28*	*32.60*	*30.35*	*21.38*	*26.42*	*22.05*

Note: Revenue in Q3 and Q4 of 2010 includes US$12.1M per quarter from aggregate sales.

GLOSSARY OF TERMS

"°C"	degrees Celsius
"acid"	igneous or volcanic rock containing more than about 60% silica (SiO_2) by weight, most of the silica being in the form of silicate minerals, but with the excess of about 10% being free quartz
"adit"	horizontal or sub-horizontal underground development providing access to underground workings from surface
"aero-magnetic"	geophysical prospecting (by air) method that maps variations in the magnetic field of the Earth that are attributable to changes of structure or magnetic susceptibility in certain near-surface rocks
"Ag"	chemical symbol for the element silver
"albite"	sodic feldspar, $Na(AlSi_3O_8)$; variety of plagioclase feldspars
"alkaline"	term applied to igneous rocks in which the feldspar is dominantly sodic and/or potassic
"alluvial"	*detrital* material which is transported by a river and deposited at points along the flood plain of a river
"alteration"	changes in the chemical or mineralogical composition of a rock, generally produced by weathering or hydrothermal solutions
"amphibole"	mineral group characterised by double chains of silica tetrahedral, in the orthorhombic or monoclinic crystal systems
"amphibolite"	faintly foliated metamorphic rock developed during regional metamorphism
"andesite"	fine-grained igneous rock with no quartz or orthoclase, composted of about 75% plagioclase feldspars, balance ferromagnesian silicates
"anticline"	fold that is dome shaped and has its oldest beds at its core
"apophyses"	small offshoot or network of veins from a large mass of igneous rock such as granite
"Archean"	middle geological Eon of three sub-divisions of the Precambrian, from 4,000 to 2,500Ma
"argillic/argillite"	pertaining to clay or clay minerals; e.g., argillic alteration in which certain minerals of a rock are converted to minerals of the clay group
"arsenic"	metallic, steel-grey, brittle element. Chemical symbol, As
"arsenopyrite"	monoclinic mineral, 8FeAsS; metallic silver-white to steel grey; the most common arsenic mineral and principal ore of arsenic; occurs in many sulphide ore deposits
"asl"	above sea level
"atomic absorption"	wet chemical assay method

"Au"	chemical symbol for the element gold
"auriferous"	pertaining to gold
"autoclave oxidation"	a high temperature and pressure process in which gold bearing sulphides are oxidised to render gold amenable to cyanide leaching
"axial trend"	plane through a rock fold that includes the axis and divides the fold as symmetrically as possible
"ball mill"	rotating drum containing steel balls used to grind ore
"barren"	of rock or vein material containing no minerals of value
"basalt"	fine-grained igneous rock dominated by dark-coloured minerals, consisting of plagioclase feldspars (over 50%) and ferromagnesian silicates
"base metals"	any of the more common and more chemically active metals, e.g., lead, copper
"bedrock"	mining/geological term for the un-weathered rock below the soil
"breccia"	clastic rock made up of angular fragments of such size that an appreciable percentage of rock volume consists of particles of granule size or larger
"calcareous"	substance that contains calcium carbonate. When applied to a rock name, it implies that as much as 50% of the rock is calcium carbonate
"calcite"	mineral composed of calcium carbonate, chemical symbol $CaCO_3$
"Cambrian"	geologic period of time from 590 to 505Ma
"carbonate"	refers to a carbonate mineral such as calcite $CaCO_3$
"Carboniferous"	period of geologic time from about 345 to 280 million years
"Category A"	Soviet "ore reserves" where the reserves in place are known in detail. The boundaries of the deposit have been outlined by trenching, drilling, or underground workings. The quality and properties of the ore are known in sufficient detail to ensure the reliability of the projected exploitation.
"Category B"	Soviet "ore reserves" where blocks are delineated by mine workings on three or more sides
"Category C_1"	Soviet 'ore reserves" whose blocks are delineated by mine workings above and below
"Category C_2"	Soviet "ore reserves extrapolated from Category C_1 but with more complex geology or limited mine workings
"Category P_{1-3}"	Soviet "Prognostic" ore reserves extrapolated beyond more definable reserves and resources. The category is subdivided into three sub-categories P_1 to P_3, with the level of confidence decreasing progressively from sub category 1 to 3

"Cenozoic"	era of geologic time, from the beginning of the Tertiary period to the present, considered to have begun about 65 million years ago
"chalcopyrite"	the mineral sulphide of iron and copper, CuFeS
"channel samples"	continuous rock-samples, where an even channel is cut into the rock to obtain the sample. If competently sampled, the quality of such sampling is comparable to drill-hole assays
"chlorite"	tetrahedral sheet silicates of iron, magnesium, and aluminium, characteristic of low-grade metamorphism. Green colour, with cleavage like mica
"chloritisation"	alteration of rocks to chlorite as a result of low-grade metamorphism
"CIL"	recovery process in which a slurry of gold ore, carbon granules and cyanide are mixed together. The cyanide dissolves the gold content and the gold is adsorbed on the carbon. The carbon is subsequently separated from the slurry for further gold removal
"CIP"	similar to CIL process, but initially the slurry is subjected to cyanide leaching in separate tanks followed by carbon-in-pulp. Carbon-in-pulp is a sequential process whereas carbon-in-leach is a simultaneous process
"CIS"	Commonwealth of Independent States
"CO_2"	carbon dioxide
"COG"	cut-off-grade. In ore estimation, the lowest grade of mineralised rock that qualifies as ore. Often used to define the assay grade below which an orebody cannot be profitably exploited
"conglomerate"	detrital sedimentary rock made up of more or less rounded fragments >2mm in size
"Cretaceous"	geologic period of time from 144 to 65Ma
"cross-cut"	tunnel driven often perpendicularly to intersect underground mineralisation
"Cu"	the chemical symbol for copper
"cut-off grade" or "COG"	lowest grade of mineralised material considered economic, used in the calculation of ore resources
"cyanidation"	metallurgical technique for extracting gold by leaching from low-grade ore, converting the gold to water soluble aurocyanide metallic complex ions
"cyanide leach"	chemical extraction method using a dilute cyanide solution to leach gold from the mineralisation
"dacite"	fine-grained igneous rock with composition between rhyolite and trachyte
"Datamine®"	complex mining software used primarily for orebody modelling, resource estimation and pit optimisation

"deposit"	coherent geological body such as a mineralised body
"detrital"	term applied to any particles of minerals or rocks which have been derived from pre-existing rock by the processes of erosion
"Devonian"	geological period of time from 408 to 362Ma
"diabase"	metamorphosed medium-grained igneous rock, composition of gabbro
"diamond drill hole/drilling"	hole made by a rotary drill using diamond-edged bits which produces a solid continuous cylindrical core sample of the rock
"dilution"	amount of barren or low-grade material that has to be extracted to recover the ore
"diorite"	coarse-grained igneous rock with composition of andesite (no quartz or orthoclase), composed of 75% plagioclase feldspars and balance ferromagnesian silicates
"dip"	true dip of a plane is the angle it makes with the horizontal plane
"discount rate"	value used in accounting procedures to determine the present value of future cash flows arising from a project, ie the discounted value of all future cash flows
"disseminated"	mineral deposit in which the desired minerals occur as scattered particles in the rock, but in sufficient quantity to make the deposit an ore
"dolerite"	see diabase
"doré"	unrefined gold. After being mined, the first stage in the purification process of the gold ore produces a cast bar (gold doré) that mostly comprises gold (up to >90%) with the remainder comprising silver, copper etc
"drive"	horizontal underground tunnel
"dump leach"	similar to heap leach except ore is not crushed
"dyke"	sheet-like body of igneous rock which is discordant, generally steeply dipping
"EIA"	Environmental Impact Assessment
"EMP"	Environmental Management Plan
"*en echelon*"	said of geologic features that are in an overlapping or staggered arrangement, e.g., faults
"enrichment"	process by which the relative amount of one constituent mineral or element contained in a rock is increased
"Eon"	period of geological time or existance
"epigenetic"	applied to mineral deposits of later origin than the enclosing rocks or to the formation of secondary minerals by alteration
"epithermal"	said of a hydrothermal mineral deposit formed within about 1km of

the earths surface in the range of 50°C to 200°C.

"ESIA" Environmental and Social Impact Assessment

"extrusive" igneous rock that has been erupted onto the surface of the Earth. Extrusive rocks include lava flows and pyroclastic material such as volcanic ash

"fault" surface of rock fracture along which has been differential movement

"Fe" chemical symbol for iron

"Feasibility Study" extensive technical and financial study to assess the commercial viability of a project

"feldspar" most important group of rock forming silicate minerals, with end-members, alkali feldspar $KalSi_2O_8$, sodium feldspar $NaAlSi_2O_8$ and calcium feldspar $CaAlSi_2O_8$

"felsic" silicate minerals, magmas, and rocks which are enriched in the lighter elements such as silica, oxygen, aluminum, sodium, and potassium

"FGS" fellow of the Geological Society

"FIMMM" fellow of the Institute of Material, Mining and Metallurgy

"fire assay" dry thermal technique for gold analysis

"flocculant" chemical used to aggregate fine particles to improve settling rates

"flotation" mineral processing technique used to separate mineral particles in a slurry, by causing them to selectively adhere to a froth and float to the surface

"fold" structure of rocks or strata that have been bent into a dome (anticline), basin (syncline), terrace (monocline) or a roll

"footwall" rock mass below a fault, vein, bed, mineralisation or mine working or orebody; opposite hanging wall

"free gold" or "free-milling gold" a metallurgical term, gold that has a clean surface so that it readily amalgamates with mercury after liberation

"fsu" Former Soviet Union

"g/t" gram per metric tonne

"gabbro" coarse-grained igneous rock with composition of basalt

"gamma spectrometry" technique of measuring the spectrum, or number and energy, of gamma rays emitted as natural radioactivity by the formation

"gangue" minerals that are not considered to be of economic significance. That part of the mineral deposit from which a metal or metals is not extracted

"geochemical" prospecting techniques which measure the content of specified metals in soils and rocks; sampling defines anomalies for further

	testing
"geophysical"	prospecting techniques which measure the physical properties (magnetism, conductivity, density, etc.) of rocks and define anomalies
"geostatistics"	complex method of resource estimation using regionalised variables i.e., grade and thickness
"gneiss"	term applied to banded rocks formed during high-grade regional metamorphism
"GPS"	Global Positioning System
"graben"	elongated, trench-like, structural form bounded by parallel normal faults created when block that forms trench floor moves downward relative to blocks that form sides
"grade"	relative quantity or the percentage of ore mineral or metal content in an ore body
"granite"	coarse-grained igneous rock dominated by light-coloured minerals, consisting of about 50% orthoclase, 25% quartz, and balance of plagioclase feldspars and ferromagnesian silicates
"granodiorite"	coarse-grained igneous rock intermediate in composition between granite and diorite
"ground water"	water occupying openings, cavities, and spaces in rocks and soils
"Group 1 deposits"	large deposits, simple in form with uniform distribution of minerals (examples: coal, some iron and disseminated copper deposits). A normal density of drillholes allows the definition of a high level of A and B reserves
"Group 2 deposits"	large deposits with different and sometimes complicated forms and uneven distribution of minerals (examples: some iron and sedimentary copper deposits). Only B category reserves may be defined with a normal grid of drillholes. A combination of drilling and underground workings may be necessary to define the reserves. Category A reserves can be established only by close spaced drilling and underground workings
"Group 3 deposits"	smaller sized deposits with uneven distribution of minerals (examples: some veins, skarns, dykes, and pegmatite deposits). Drillholes can only establish C_1 reserves. A and B reserves can be established only with underground workings
"Group 4 deposits"	smaller sized deposits similar to Group 3 deposits or with even more complex shapes (examples: some veins, skarns, dykes, pegmatite deposits and gold placers). Category A reserves cannot be established with drilling or a normal grid of underground workings. Drilling in combination with underground workings is necessary to establish category B reserves
"Group 5 deposits"	small "pocket" type deposits. Category A and B reserves cannot be established by systematic prospecting. Only category C reserves can be established
"halo"	circular or crescent distribution pattern about the source or origin of

	a mineral, ore, mineral association, or petrographic feature
"hanging wall"	rock mass above a fault, vein, bed, mineralisation or mine working/orebody; opposite foot wall
"HDPE"	High Density Polyethylene – often used as liner to tailing ponds
"heap leach"	process used for the recovery of metal ore from typically weathered low-grade ore. Crushed material is laid on a slightly sloping, impervious pad and uniformly leached by the percolation of the leach liquor trickling through the beds by gravity to ponds. The metals are recovered by conventional methods from the solution
"hematite"	important ore mineral of iron, Fe_2O_3, found as an accessory in igneous rocks, in hydrothermal veins and replacements, and in sediments
"horst"	an up thrown area between two parallel faults
"hydrogeology"	the study of the water cycle
"hydrothermal"	refers in the broad sense to the process associated with alteration and mineralisation by a hot mineralised fluid (water)
"igneous"	said of a rock or mineral that solidified from molten or partly molten material, i.e., from a magma
"inclinometry"	measurement of the angle of a drillhole below surface
"inclusion"	any size fragment of another rock enclosed in an igneous rock. A particle of nonmetallic material retained in a solid metal or alloy
"*Indicated* Resource"	as defined in the JORC Code, is that part of a Mineral Resource which has been sampled by drill holes, underground openings or other sampling procedures at locations that are too widely spaced to ensure continuity but close enough to give a reasonable indication of continuity and where geoscientific data are known with a reasonable degree of reliability. An *Indicated* Mineral resource will be based on more data and therefore will be more reliable than an Inferred resource estimate
"*Inferred* Resource"	as defined in the JORC Code, is that part of a Mineral Resource for which the tonnage and grade and mineral content can be estimated with a low level of confidence. It is inferred from the geological evidence and has assumed but not verified geological and/or grade continuity. It is based on information gathered through the appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability
"intermediate"	the composition of igneous or volcanic rocks whose composition lies between those of basic and acid rocks
"intrusive"	of or pertaining to intrusion – both the processes and the rock so formed
"IP"	Induced Polarisation; geophysical method whereby an induced electrical polarisation is manifested by a decay of voltage in the Earth following the cessation of an excitation current pulse

"IRR"	Internal Rate of Return is a capital budgeting method used by firms to decide whether they should make long term investments. The IRR is defined as any discount rate that results in a net present value of zero, and is usually interpreted as the expected return generated by the investment.
"JORC"	Joint Ore Reserves Committee of the Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals council of Australia
"Jurassic"	geologic period of time from 190 to 135Ma
"km(s)"	kilometres
"km^2"	square kilometres
"kt"	kilo tonnes (1,000 tonnes)
"kV"	kilo-volt
"leached"	a rock that is in the process of being broken down by the action of substances dissolved in water
"leaching"	see cyanidation
"limestone"	sedimentary rock composed largely of mineral calcite, $CaCO_3$, formed by either organic or inorganic processes
"Lithology"	term usually applied to sediments, referring to their general characteristics. A macroscopic hand-sample or outcrop-scale description of rocks
"m"	metre
"Ma"	million years
"mafic"	dark-coloured igneous rock which has a high proportion of pyroxene and olivine minerals
"magnetics"	a geophysical technique used to measure the magnetic susceptibility of rocks
"magnetite"	an iron ore mineral, Fe_3O_4
"massif"	a very large topographic or structural feature, usually of greater rigidity than the surrounding rock
"MCRP"	Mine Closure and Rehabilitation Plan
"*Measured* Resource"	defined in the JORC Code, as that part of a Mineral Resource for which the resource has been intersected and tested by drill holes, underground openings or other sampling procedures at locations which are spaced closely enough to confirm continuity and where geoscientific data are reliably known. A measured resource estimate will be based on a substantial amount of reliable data, interpretation and evaluation which allows a clear determination to be made of the shapes, sizes, densities and grades
"Mesozoic"	era of geologic time, from the end of the Paleozoic to the beginning

	of the Cenozoic, or from about 225 million years to about 65 million years ago
"metalliferous"	containing metal
"metallogenic province"	belt of rocks, often structurally controlled, that are host to a specific selection of minerals
"metallogenic"	study of the genesis of mineral deposits, with emphasis on its relationship in space and time to regional petrographic and tectonic features of the Earth's crust
"metallurgical"	describing the science concerned with the production, purification and properties of metals and their applications
"metamorphism"	process whereby rocks undergo physical or chemical changes or both to achieve equilibrium with conditions other than those under which they were originally formed (excluding process of weathering). Agents of metamorphism are heat, pressure, and chemically active fluids
"metamorphosed"	rocks which have been altered by temperature and pressure
"metasomatism or metasomatic"	metamorphic change which involves the introduction of material from an external source
"Mg"	chemical symbol for magnesium
"Micromine®"	company thats has developed innovative geological resource modelling software for the mineral resource industry since 1986
"mill"	equipment used to grind crushed rocks to the desired size for mineral extraction
"mineral resource"	concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such a form that there are reasonable prospects for the eventual economic extraction. The location, quantity, grade geological characteristics and continuity of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral resources are sub-divided into *Inferred*, *Indicated* and *Measured* categories
"mineralisation"	process of formation and concentration of elements and their chemical compounds within a mass or body of rock
"mm"	millimetre, one thousandth of a metre
"Mo"	chemical symbol for molybdenum
"molybdenum"	a silver-white, very hard metallic element in the chromium group (VI), symbol Mo
"monocline"	terrace shaped fold, dipping in only one direction
"monoclinic"	of or denoting a crystal system or three-dimensional geometrical arrangement having three unequal axes of which one is at right angles to the other two

"monzonite"	intrusive igneous rock that contains abundant and approximately equal amounts of plagioclase and potash feldspar
"Moz"	million troy ounces
"Mt"	million tonnes
"NPV"	Net Present Value: standard method in finance of capital budgeting – the planning of long-term investments
"nugget effect"	anomalously high precious metal assays resulting from the analysis of samples that may not adequately represent the composition of the bulk material tested due to non-uniform distribution of high-grade nuggets in the material to be sampled
"off balance"	Russian Standard Classification System term defining uneconomic resources
"Oligocene"	geological epoch of time from 35 to 23Ma
"on balance"	Russian Standard Classification System term defining commercially exploitable reserves but without mining dilution and recovery
"open-pit"	large scale hard rock surface mine
"optimisation process"	process to define an open pit outline based on geotechnical and economic parameters
"Ordovician"	period of geologic time from about 500 to 435 million years
"ore"	mineral deposit that can be extracted and marketed profitably
"orebody"	mining term to define a solid mass of mineralised rock that can be mined profitably under current or immediately foreseeable economic conditions
"ore-field"	zone of concentration of mineral occurrences
"ore reserve"	the economically mineable part of a *Measured* or *Indicated* mineral resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could be reasonably justified. Ore reserves are sub-divided in order of increasing confidence into *Probable* and *Proven*
"ore-shoot"	elongate pipelike, ribbon-like, or chimney-like mass of ore within a deposit (usually a vein), representing the more valuable part of the deposit
"organic"	being, containing, or relating to carbon compounds. Relating to or derived from living matter
"orogenic"	mountain building

"orthoclase"	series of potassium feldspars
"ounce" or "oz"	troy ounce (= 31.1035 grams)
"outcrop"	area over which a particular rock type occurs at the surface – whether visibly exposed or not
"OVOS"	Soviet EIA
"oxide"	a mineral formed by the direct union of an element with oxygen; e.g. corundum, hematite, magnetite and cassiterite
"oxide ore"	often known as secondary or supergene ore, which consists of alteration products of primary ore as a result of weathering or other surficial processes resulting from descending surface waters.
"palaeo"	prefix common in geological terminology, meaning ancient, of past times, and sometimes suggesting an early or primitive nature
"Paleozoic Era"	first of the three eras of the Phanerozoic, spanning 570-248 Ma
"Pb"	chemical symbol for lead
"Permian"	geologic period that extends from about 299.0Ma to 248.0 Ma
"Petrography"	systematic description of rocks using the naked eye or a microscope, hence petrographic work
"PGM"	Platinum Group Metals. Characterised by high specific density, unusual resistance to oxidising and acid attack and high melting point. Includes platinum, ruthenium, rhodium, palladium, osmium and iridium.
"pH"	measure of the acidity or alkalinity of a solution
"Phanerozoic"	rocks younger than 590Ma
"phenocrysts"	relatively large crystals which are found set in a finer-grained groundmass
"phyllite"	fine grained low-grade metamorphic rock
"pinch and swell"	marked thinning or squeezing of a rock layer or mineral zone that almost disappears before it widens out in another place
"placer"	mineral deposit formed by the winnowing action of either water, or air to concentrate minerals of different mass by gravity separation
"plagioclase"	series of sodium/calcium feldspars, plagioclase feldspars are common rock-forming minerals
"planar"	lying or arranged as a plane or in planes, usually implying more or less parallelism, as in bedding or cleavage
"plunge"	fold is said to plunge if the axis is not horizontal
"pluton"	igneous intrusion

"plutonic"	pertaining to igneous rocks formed at great depths
"polymetallic"	refers to a mineral deposit or occurrence with several metal sulphides, common metals include Cu, Pb, Zn, Fe, Mo, Au and Ag
"porphyritic"	medium coarse-grained intrusive or volcanic rock which is conspicuous by containing more than 25% large well-formed crystals by volume
"porphyry"	igneous rock containing conspicuous phenocrysts (crystals) in fine-grained or glassy groundmass
"potassium"	highly reactive metallic element of the alkali group; it is soft, light, and silvery. Chemical symbol, K. Occurs abundantly in nature
"ppb"	parts per billion
"PPE"	Personal Protective Equipment
"ppm"	parts per million
"Precambrian"	era before 590Ma
"precious metal"	gold, silver and platinum group minerals
"pressure oxidation or "POX"	a high temperature and pressure process in which gold bearing sulphides are oxidised to render gold amenable to cyanide leaching
"primary ore"	often known as hypogene ore, where ore minerals are deposited during the original period or periods of metalisation. Ore that has remained practically unchanged from the time of original formation
"propylitic"	plagioclase in an igneous rock is altered to epidote, sericite and secondary albite, and ferro-magnesian minerals are altered to chlorite-calcite-epidote-iron oxide assemblages
"Proterozoic"	most recent geological Eon of three sub-divisions of the Precambrian, from 2,500 to 570Ma
"pyrite"	mineral compound of iron and sulphur, sulphide mineral, iron sulphide, chemical symbol FeS_2
"pyroclastic"	rock consisting of fragments of volcanic material which has been blown into the atmosphere by explosive activity
"pyroxene"	group of chiefly magnesium-iron minerals
"pyrrhotite"	mineral compound of iron and sulphur found in basis igneous rocks
QA/QC	Quality Assurance/Quality Control
"quartz"	mineral composed of silicon dioxide
"quartzite"	hard, metamorphic rock which was originally sandstone
"Quaternary"	geological period of time from 2Ma; youngest period of the Cenozoic

"raise"	vertical or near-vertical opening driven upward form a level to connect with the level above
"RC drlling"	drilling method where samples are cut by percussion roller or blade drill bits and flushed to the surface using compressed air or water
"recovery"	proportion of valuable material obtained in the processing of an ore, stated as a percentage of the material recovered compared with the total material present
"refractory ore"	ore material that is difficult to treat for recovery of the valuable element
"reserves"	*Proven:* measured mineral resources, where technical economic studies show that extraction is justifiable at the time of the determination and under specific economic conditions. *Probable:* measured and/or indicated mineral resources which are not yet proven, but where technical economic studies show that extraction is justifiable at the time of the determination and under specific economic conditions
"resistivity"	geophysical technique to measure the electrical resistance of rocks
"rhyolite"	group of extrusive igneous rocks, typically porphyritic and commonly exhibiting flow texture, with phenocrysts of quartz and alkali feldspar in a glassy to cryptocrystalline groundmass
"rift"	regional-scale strike-slip fault, with offset measured up to hundreds of kilometres or a trough or valley formed by faulting
"RIP"	Resin in Pulp; processing technique by which a resin medium is used to absorb the desired element out of solution or pulp
"rock chip"	chip sample taken from one or more points within a restricted area
"rod mill"	rotating drum containing steel rods used to grind ore
"room and pillar"	system of mining in which typically flat-lying beds of coal or ore are mined in rooms separated by pillars of undisturbed rock left for roof support
"run-of-mine"	average grade of mineralisation to be extracted from a mine (ROM)
"Russian Standard Classification System"	Means by which Russian reserves are assigned to classes based on the degree of reliability of data and indicate their comparative importance for the national economy
"S"	chemical symbol for sulphur
"sandstone"	detrital sedimentary rock in which particles range from 1/16 to 2mm
"saturated"	rock or soil where all its interstices are filled with water, holding as much water or moisture as can be absorbed
"schist or schistocity"	metamorphic rock dominated by fibrous or platy minerals with

parallel alignment that splits readily. Has schistose cleavage and is product of regional metamorphism

"sedimentary"	rocks formed from material derived from pre-existing rocks by processes of denudation
"sericite"	white potash mica
"sericitization"	formation of sericite, usually at the expense of other minerals in the rock
"shaft"	vertical or inclined excavation into mine workings
"silicate"	compound consisting of silicon and oxygen (Si_xO_y), one or more metals, and possibly hydrogen
"silicification"	introduction of silica into a rock, either filling pore spaces or replacing pre-existing minerals
"sill"	tabular mass of igneous rock that has been intruded laterally between layers of older rock
"siltstone"	detrital sedimentary rock in which particles are less than 1/16mm
"Silurian"	a period of geologic time from about 435 to 395 million years
"sinistral"	term applied to a fault to describe the apparent direction of relative movement of each side, in this case to the left
"skarn"	an old Swedish mining term for silicate gangue (amphibole, pyroxene, garnet, etc.) of certain iron ore and sulfide deposits of Archean age, particularly those that have replaced limestone and dolomite
"slickensides"	indentations left on fault plane by movement
"smelting"	metallurgical operation (at a smelter) in which metal is separated from impurities by a process that includes melting
"sphalerite"	zinc sulphide mineral
"sphene"	accessory mineral found in acid igneous rocks and in metamorphosed limestones
"stibnite"	orthorhombic mineral, chemical symbol Sb_2S_3; may contain gold and silver; in low-temperature veins and around hot springs; the chief source of antimony
"stock"	intrusive mass of igneous rock
"stockpile"	an accumulation of ore or mineral formed to create a reserve for loading or when demand slackens or when the process plant is unequal to handling mine output
"stockwork"	mineral deposit consisting of a three-dimensional network of planar to irregular typically narrow veins
"stoping"	mining method of extract ore by digging tunnels along the trend of

	the ore and extracting ore from above and below the tunnel
"stratiform"	having the form of a layer, bed, or stratum; consisting of roughly parallel bands or sheets
"stratigraphy"	study of the stratified rocks, sedimentary and volcanics, especially their sequence in time, the character of the rocks and the correlation of beds in different localities
"strike"	direction in which a horizontal line can be drawn on a plane, and determines the direction in which to measure the true dip
"strike length"	longest horizontal dimension of an ore body or zone of mineralisation
"strike-slip"	component of the movement or slip that is parallel to the strike of the fault. Horizontal displacement; horizontal separation
"stringers"	mineral veinlet (narrow vein) or filament, usually one of a number, occurring in a discontinuous sub parallel pattern in host rock
"strip ratio"	the unit amount of spoil or waste that must be removed to gain access to a similar unit of ore or mineral material
"sub-volcanic"	pertaining to an igneous intrusion, or to the rock of that intrusion, whose depth is intermediate between that of abyssal or plutonic and the surface
"sulphide"	mineral containing sulphur in its non-oxidised form
"supergene"	said of a mineral deposit or enrichment formed near the surface, commonly by descending solutions, used almost exclusively for processes involving water
"supergene alteration"	near surface alteration
"syncline"	basin shaped fold
"t"	metric tonne
"tailings"	material that remains after all metals/minerals considered economic have been removed from the ore
"tailings pond"	open structure used to contain tailings material (slurry) whereby the solids settle while the liquid may be withdrawn
"tectonic"	said of or pertaining to the forces involved in, or the resulting structures or features of, tectonics: branch of geology dealing with the broad architecture of the outer part of the Earth; i.e., the regional assembling of structural or deformational features
"tennantite"	isometric mineral, $(Cu,Fe)_{12}As_4S_{13}$; forms a series with tetrahedrite; may contain zinc, silver, or cobalt replacing copper; in veins; an important source of copper
"terrigenous"	derived from the land or continent
"Tertiary"	geological period of time from 65 to 2Ma; first period of Cenozoic
"thrust"	overriding movement of one crustal unit over another, such as in

	thrust faulting
"TMF"	tailings management facility
"top-cut"	process applied to grade evaluation to eradicate "nugget-effect"
"Tournaisian"	geological epoch from 362 to 349Ma
"tpa"	tonnes per annum
"trachyte"	fine grained igneous rock
"transgressive"	discrepancy in the boundary lines of continuous strata; i.e., unconformity
"transition ore"	zone of an orebody where both oxide and sulphide/primary ore material exists
"treatment plant"	plant where ore undergoes physical or chemical treatment to extract the valuable metals/minerals
"tremolite"	monoclinic mineral, $2Ca_2Mg_5Si_8O_{22}(OH)_2$; amphibole group with magnesium replaced by iron, and silicon by aluminium toward actinolite; in low-grade metamorphic rocks such as dolomitic limestones and talc schists
"trench sampling"	sampling of a trench cut through the rock, generally in the form of a series of continuous channels (channel samples)
"TsNIGRI"	Central Research Institute of Geological Prospecting for Base and Precious Metal (Moscow)
"tuffs"	rock consolidated from volcanic ash
"ultramafic"	igneous rock composed chiefly of mafic minerals
"unconformity"	surface separating two rock masses, older exposed to erosion before deposition of younger. If older rocks were deformed and not horizontal at time of subsequent deposition, surface of separation is angular unconformity. If older rocks remained horizontal during erosion, surface separating them from younger rocks is called disconformity. Unconformity that develops between massive igneous or metamorphic rocks exposed to erosion and then covered by sedimentary rocks is called nonconformity
"underground working"	mine openings for evaluation for ore extraction excavated beneath the ground surface
"μm"	micron (one millionth of a metre)
"variography"	geostatistical method of determining the spatial variations in the grade and nature of mineralisation within a particular ore body
"vein"	tabular deposit of minerals occupying a fracture, in which particles may grow away from the walls towards the middle
"vein swarm"	multiple and composite veining
"volcano-clastic"	volcanic rocks which have been at least slightly worked by the sedimentary process

"W"	chemical symbol for tungsten
"weathering"	breakdown of rocks and minerals in the near-surface environment by the action of physical and chemical processes, in the presence of air and water
"wireframed"	technique to convert ore body intersections in a 3D computer model to assist interpretation
"xenoliths"	rock fragment foreign to igneous rock in which it occurs
"Zn"	chemical symbol for zinc; bluish-white, lustrous metal
ZVOS	Soviet EIA

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