PINE CREEK GOLDFIELDS LIMITED

ANNUAL REPORT

MLN 13

1ST JULY, 1990 TO 30TH JUNE, 1991

by C.F.D. Pease
General Manager
14th August, 1991
TABLE OF CONTENTS

1. MINING
   1.1 General
   1.2 Blasting
   1.3 Pit Slope Stability
   1.4 Mining Fleet

2. MILLING
   2.1 CIP Plant
   2.2 Heap Leach

3. PROJECTS
   3.1 North-West Waste Dump
   3.2 South Waste Dump
   3.3 Highway Deviation

4. ENVIRONMENT
   4.1 General
   4.2 Acid Mine Water

5. REHABILITATION

6. SAFETY

7. EXPLORATION
   7.1 Cox's - Henry George Area
   7.2 Battery Shear
   7.3 Czarina Anticline
   7.4 Enterprise Mine Area
   7.5 Kohinoor Anticline

FIGURES

1. Location Plan
2. Exploration Areas
3. Pit Plan (in envelope)
Preliminary Report on Drilling at Cox's Area and the Battery Shear Zone, MLN 13; August 1991, W.J.A. Yeo
1. MINING

1.1 General

A total of 2,065,055 BCM of material was mined during the 1990-91 financial year resulting in deepening of the pit by 40 vertical metres at the southern end, 35 metres at the northern end, and 20 vertical metres in the central area of the pit. This total consisted of:

336,512 BCM of Ore
147,451 BCM of Marginal Primary Material
1,581,092 BCM of Waste

giving an overall strip ratio of 5.14:1.

Stockpiled material at the end of the year stood at:

CIP Ore 33,514 BCM
Marginal Primary 330,121 BCM

Due to a reassessment of the ore reserves in the Enterprise Pit it was decided to cease mining north of 11750 m N, this point now forms the northern limit of the pit design below 1175 m RL. Also due to stability problems with the eastern highwall it was necessary to change the batter slope below 1175 m RL to 35° overall as an intermediate solution while the longer term integrity of the Stuart Highway was assessed. At year end preparations were under way to start cutting back the eastern highwall from surface at an initial angle of 40°, steepening to 54° batter slope (65° face angles) below 1170 m RL.

1.2 Blasting

A total of 1,934,317 BCM of material was blasted during the year. Blasting systems were further refined by utilising ICI Trunk Line Delays and individual hole initiation to both improve ore fragmentation, and decrease the powder factor employed.

1.3 Pit Slope Stability

The south eastern pit wall continued to give problems with regard to stability during the first quarter. Mining was briefly interrupted, and then allowed to proceed with a flattened batter angle. This resulted in an improvement in stability, and no further failures of consequence were recorded.

1.4 Mining Fleet

The following fleet was in operation for the full year:

6 CAT 773B Trucks
2 CAT 988B Loaders
1 CAT 245 Excavator
1 CAT D9L Dozer (Track)
1 CAT 824 Dozer (Wheel)
1 CAT 14G Grader
2. MILLING

2.1 CIP Plant

A total of 890,021 tonnes of ore averaging 3.48 g/t Au was treated in the CIP circuit during the year from which 2,415.7 kgs of gold and 488.9 kgs of silver were produced in bullion. The average recovery of gold for the year was 77.9%.

The increase in gold head grade relative to last year was due to the treatment of primary ore. The decrease in tonnage relative to last year was due to the failure of the Primary ball mill discharge end trunnion. This mill was out of service for 4 months and tonnage was restricted to 60% of normal capacity during that period.

The Secondary ball mill motor was upgraded to allow an increase in treatment rate. The capacity of the plant when treating primary ore is now 1.2 Mtpa.

Peroxide assisted leaching (PAL) continued to be used although a trial using oxygen (Goldox) was carried out.

2.2 Heap Leach

The heap leach operation saw a total of 225,897 tonnes of ore crushed and stacked during the year and this was partially leached to yield 150.1 kgs of gold. The stockpile of heap leach ore is now exhausted.

The heap leaching rate has dropped and it is unlikely that the planned recovery will be achieved. Production from the heap leach is likely to cease before the end of 1991.

3. PROJECTS

3.1 North-West Waste Dump

The placement of material on the north-west waste dump was completed in October 1990 and the area was prepared for rehabilitation trials. Approximately 20,000 m³ was seeded with native trees and monitored for growth. However, during February 1991 it was detected that acid water was being generated by seepage through the dump and action had to be taken to prevent this acid water discharging into Pine Creek. At the end of the year the dump was in the process of being fully sealed with a capping of compacted, low sulphur oxidised waste, under the supervision of consultants, AGC Woodward-Clyde, to prevent storm water percolation through the dump.

3.2 South Waste Dump

As with the north-west waste dump the south dump produced highly acidic discharge (into the Process Water Dam) during the wet season. Contouring of this dump has commenced and capping with oxidised waste will commence during year 91/92.
3.3 **Highway Deviation**

After a period of prolonged heavy rain at the beginning of the wet season, cracks were detected between the Stuart Highway and the south east corner of the pit. Mining in this area was temporarily changed to generate an overall slope of 35° to preserve the integrity of the highway. In the meantime a feasibility study on moving the highway was carried out and in April 1991 the board of directors approved finances to divert the highway to the east of the town. Work will commence on the deviation in July 1991 and the relocation will be completed before the next wet season.

4. **ENVIRONMENTAL**

4.1 **General**

Total rainfall for the year 1990/91 was one of the highest on record at 1397.7 mm which is about 250 mm above average. Pumping from Copperfield Creek enabled the Copperfield Storage Dam to be filled and the Process Water Dam spilled from 17th January until mid March. Towards the end of the wet season leaching of the waste dumps caused low pH levels in the run-off waters discharging into Pine Creek and Copperfield Creek, necessitating remedial work.

4.2 **Acid Mine Water**

Once detected, acid mine water from the north west waste dump was isolated and pumped into the pit and thence to the Process Water Dam.

Acid water from the south waste dump flowed into the Process Water Dam despite attempts to pump it into the tailings dam. When the PWD spilled, acid water was discharged into the lower Copperfield Creek system. This problem is being addressed to prevent recurrence during the next wet season and the environmental monitoring programme is under review in co-operation with the Mines Environment Directorate, AGC Woodward-Clyde and Ranger Uranium Mines.

5. **REHABILITATION**

Twenty test areas totalling 20,000 m² on the north-west waste dump with differing surface preparation were seeded with native trees when waste placement was completed in October 1990. Unfortunately, this area has since been covered during final shaping and drainage contouring of the dump and encapsulation of the sulphidic waste rock with leached oxide waste but some useful results were obtained as an indication for reseeding this year. Covering and seeding of the dump will be completed prior to the start of the next wet. It is also hoped to be able to seed some areas of the south waste dump this year. Various tracks and disturbed areas at the south of the lease were also ripped and seeded.
6. **SAFETY**

There were 11 lost time accidents on the mine lease during 1990-91. These are divided by area:

<table>
<thead>
<tr>
<th>AREA</th>
<th>NUMBER OF ACCIDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mine</td>
<td>5 (2 contractors)</td>
</tr>
<tr>
<td>Maintenance</td>
<td>4</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>2</td>
</tr>
<tr>
<td>Geology</td>
<td>-</td>
</tr>
<tr>
<td>Township</td>
<td>-</td>
</tr>
<tr>
<td>Administration</td>
<td>-</td>
</tr>
<tr>
<td>Employee Relations</td>
<td>-</td>
</tr>
</tbody>
</table>

This equates to a frequency rate of 27.01 per million man hours. The average duration rate of the accidents was 3.5 days.

7. **EXPLORATION**

7.1 **Coxs – Henry George**

3 diamond drill holes (309 m) and 79 percussion drill holes (3219 m) were completed. Drilling, which covered two sub-parallel zones, Coxs to the west, and Henry George to east, was on 40 m lines on 8 m centres. Encouraging results at Coxs were sufficient to justify infill drilling on 20 m lines. An additional 37 holes (2068 m) were drilled as a result. Results from Henry George were disappointing.

Coxs area lies entirely on the west limb of the Kohinoor anticline. Surface mapping and information obtained from diamond drilling indicates the existence of a large fault (reverse?) similar to other structures identified at Czarina, Jensens and within the Enterprise Pit.

A zone of continuous mineralisation at + 0.5 g/t Au appears to be closely associated with the fault and quartz veining related to it. The mineralisation, which dips to the east predominantly and also appears to plunge to the south, is unclosed in both these directions. An initial geostatistical resource estimate has been completed, for oxide material only, with the following results:

<table>
<thead>
<tr>
<th>Cut-off g/t</th>
<th>Tonnes x 10^3</th>
<th>Grade g/t</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.90</td>
<td>630</td>
<td>1.47</td>
</tr>
<tr>
<td>1.20</td>
<td>395</td>
<td>1.72</td>
</tr>
<tr>
<td>1.40</td>
<td>280</td>
<td>1.89</td>
</tr>
</tbody>
</table>

At this stage drilling has been confined to the oxide zone, however planned drilling during 1991-92 will test the southern extension of the mineralisation as well as dip extensions to the east into primary rock.

Exploration drilling to date is detailed in the attached report. A more complete exploration report and resource assessment will be prepared when the results of the forthcoming drilling programme can be incorporated to fully delineate the mineralised zone.
7.2 Battery Shear

5 diamond drill holes (582 m) and 28 vertical percussion holes (1180 m) were drilled. Drilling on 40 m lines on 8 m centres, covered a zone of extensive old workings. Mineralisation was intersected along the entire zone but proved very discontinuous, as a result the area was infill drilled on 20 m lines with a further 27 holes (1013 m). The Battery Shear is thought to be another major westerly dipping fault (reverse?) which transects the Enterprise syncline. Mineralisation associated with this structure appears to be related to easterly dipping quartz veining developed in the footwall of the fault.

A manual resource estimate, based on cross-sections is for oxide material only, 170,000 tonnes at 1.30 g/t Au using a 0.5 g/t cut-off.

Cross-sections and assay results of the exploration work at Battery Shear are included in the attached report. Drilling on the Battery Shear structure and the adjacent Bashi Bazouk area is planned during the coming year. This should provide a more complete assessment of the disposition and tenor of the mineralised zone.

7.3 Czarina Anticline

No further exploration was conducted on the Czarina area during 1990-91 however work has continued on orebody modelling and mining/feasibility studies. A mining proposal for the North Czarina resource will be finalised during the first half of 1991-92.

7.4 Enterprise Mine Area

No exploration drilling was conducted around the Enterprise Pit area during 1990-91.

7.5 Kohinoor Anticline

No work was conducted on the Kohinoor prospect during the 1990-91 year. The scheduled drilling programme was postponed due to concerns expressed by causative groups and persons about the possible effects of drilling on the ghost bat colony which inhabits Kohinoor Adit.