PROJECT MANAGER'S
MONTHLY REPORT
for
NOVEMBER 1984

P. F. LOVEDAY
RUM JUNGLE REHABILITATION PROJECT
REPORT FOR THE MONTH OF NOVEMBER 1984
DESIGN AND CONSTRUCTION ACTIVITIES

GENERAL NOTE

There was no Monthly Report produced for October 1984 as a joint Commonwealth/NT site inspection was conducted in conjunction with the Technical and Liaison Committee meetings held in Darwin on 23 to 25 October 1984 inclusive.

CATEORY A - EARTHWORKS

A1. Copper Heap Leach Pile
A2. Tailings Dam
A3. Dysons Open Cut

Design

Design completed in March 1984 by Cameron McNamara, in conjunction with sub-Consultants, Peter J Burgess and Associates, Dames and Moore, Brazier and Motti. Tender Documents and Design Report provided to Commonwealth and discussed during March Liaison Meeting.

Tenders closed on 29 March 1984.
- 2 -

- **Construction**
  The lowest tender from Thiess Contractors Pty Ltd was awarded on 13 April 1984.

- Separable Part A, Whites Overburden Heap was completed to the stage of Practical Completion on 4 September 1984. There were minor defects and omissions at that time, and these have now been rectified.

- Separable Part B, Whites Overburden Heap consists of vegetation works. To date seeding has not been carried out as there has been very little rain.

- Minor modifications/additions to contour banks on top of Whites Overburden Heap, originally constructed in 1983, have been made to improve water flow control.

- Removal of the tailings and underlying polluted subsoil in the Tailings Dam was completed on or about 5 October 1984. Subsequently the spreading and cultivation of lime, followed by addition of cover material, and the construction of a lined drainage system and associated contour banks have been complete. Thus the only outstanding work is the seeding. The seed is available on site. (Refer photographs 1 to 3)
- 3 -

- A survey undertaken by Consultants has assessed the quantity of tailings plus polluted subsoil removed as 348,500 m³ compared to the 331,000 m³ provided in the Bill of Quantities forming part of the contract. The final quantities for the purposes of payment under the contract have not yet been agreed to between the Contractor and the Northern Territory.

- Removal of the Copper Heap Leach pile to Dysons Open Cut was completed on 6 November 1984. (Refer photographs 4 and 5)

- The earthworks associated with filling and placing of Zone 1A, 1B and 2A cover materials, Dysons Open Cut is complete. Work is in progress with finalising the placement of Zone 3A material and lining of the central drain. The drop structure at the end of the central drain is complete. To date no seeding or construction of Contour banks have been carried out. (Refer photographs 6 to 13)

- It has been decided not to line the cut-off drain on the northern edge of Dysons Open Cut due to the sound nature of the natural materials.
- 4 -

- The Contractor has started to progressively move equipment off site as it is no longer required. The contractor is aiming to complete the works under the contract by the original due completion date of 21 December 1984. Subject to factors outside his control, he should achieve this aim. With respect to seeding generally if the weather is likely to be too dry during December, the Contractor has indicated that he will request that such seeding be deemed a separable part under the contract, and seeding will be delayed until adequate rains are expected to support germination.

- On 20 November 1984 the Contractor submitted a claim for $1,747,940.00 "to cover the costs associated with delays to the commencement of removal of tailings, unforeseen difficulties associated with the loading, hauling and placing of tailings material and delays due to strike and wet weather" and summarised as follows:
<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Costs</td>
<td>$1,229,854.00</td>
</tr>
<tr>
<td>Overheads</td>
<td>$202,608.00</td>
</tr>
<tr>
<td>Plant underutilisation</td>
<td>$75,040.00</td>
</tr>
<tr>
<td>Plant damage</td>
<td>$105,954.00</td>
</tr>
<tr>
<td>Strike</td>
<td>$89,687.00</td>
</tr>
<tr>
<td>Wet weather</td>
<td>$5,672.00</td>
</tr>
<tr>
<td>Miscellaneous Costs</td>
<td>$39,125.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,747,940.00</strong></td>
</tr>
</tbody>
</table>

The Contractor has advised that the above claim makes no allowance for:

- "mobilisation, demobilisation and air conditioning of additional plant required to overcome the unforeseen problems and to accelerate the work to timely completion.
- additional costs to provide and place filter fabric to overcome the extreme difficulties in traversing the tailings in the lower level of Dysons Open Cut"

Action is now underway to examine the claim, and prepare for a preliminary meeting with the Contractor when appropriate.
The final outcome with the claim could clearly have a significant effect on the overall project.

- A4. Whites Open Cut

- During September/October aeration was carried out which successfully mixed the top 10 metres.

- Tests carried out between 25 and 29 October 1984 by Water Division showed that mixing of treated and untreated water in the top 9 metres was occurring. Prior to 28 October 1984 the suction hose inlet had been at 14 metres depth, and as of 28 October 1984 it was raised to 9 metres. A meeting was held with MPES on 31 October 1984, when NT requested MPES to comprehensively review the water treatment strategy in view of problems to date and potential cost over-runs.

- On 5 November 1984 MPES lowered the suction hose from 9 to 25 metres.

- Associate Professor, B Gould from Unisearch Limited visited the site on 14 November 1984, and on 15 November he attended a meeting with MPES and NT representatives. It was proposed to MPES that as part of their comprehensive review, they should consider:
modifying the suction and return arrangements
the construction of lagoons
steps necessary to achieve stratification between
treated and untreated water.

* On 16 November the suction hose was raised to 4 metres and
up until 20 November there were promising indications that
stratification was occurring, but on 21 November the upper
layer of treated water again mixed with lower layers.

* It was agreed that the treatment plant be shut down on
22 November 1984.

* On 26 November MPES took action to fit a modification to
the suction hose inlet (in line with suggestions put
forward by B Gould, Unisearch). Refer photograph 14. The
modification should assist being able to take water from a
nominated depth rather than sucking it up from lower
levels.

* A meeting is scheduled for 30 November 1984 between MPES
(including R Wilde, Director from Perth) and the
Department to discuss proposed strategies for the future
treatment. It is understood that Professor Imberger or
his representative will also be attending that meeting.
- 8 -

A5. Intermediate Open Cut

- Following the discussions at the Liaison Meeting in October action is in hand to develop proposals and obtain appropriate proposals for the pumping and release of untreated water during the 1984/85 wet season, subject to adequate natural flows in the East Branch and the Finniss River.

A6. Dysons Overburden Heap

- During September 1984 the Department accepted a proposal from Consultant Cameron McNamara, in conjunction with Dames and Moore; Peter J Burgess and Associates plus Brazier and Motti; to undertake the investigations, survey, design, tender documentation for Stage 4 works as generally described in the May Monthly Report.

- The Consultant submitted an Options and Design Criteria Report in October 1984 which was considered at the Liaison Meeting, and preferred options identified as the basis for design and tender documentation for Stage 4.1 works.

- In the case of Dysons Overburden Heap the preferred option is to reshape the top of the heap; introduce zoned covers; construct erosion control drains including stabilised main and lateral drains; and revegetate the top surface.
A7. Whites Overburden

- **Design**
  Following the cancellation of the original contract let to Hendrie Constructions, all outstanding works were evaluated and redocumented and the outstanding works were included in the tender documents referred to under Items A1, A2, A3.

- **Construction**
  As for Items A1, A2, A3, contract awarded to Thiess Contractors Pty Ltd on 13 April 1984. The position with progress is dealt with under Items A1, A2, A3.

A8. Whites North Overburden Heap

- As noted in earlier reports the ripping and liming of the area remaining from Whites North has been completed. It is proposed to carry out the topsoil application and vegetation in approximately November/December 1985 as part of Stage 4 works.

A9. Intermediate Overburden Heap

- Design work scheduled in conjunction with item A6, stage 4.1 works.
The preferred option is for major earthworks on top of the heap to reduce the overall height to approximately 10 metres maximum; flatten batters to 1 in 3; introduce complete zoned cover; construct erosion control drains on top surface; stabilised main and lateral drains on top surface; top drain, gabion structure at main drain outfall to East Branch Finnis River diversion channel; and revegetate complete heap.

It is now intended that the work associated with rehabilitating the East Branch and Fitch Creek be designed and documented in conjunction with items A6 and A9.

The preferred option is:
- no rehabilitation within the East Branch, Finnis River above (upstream) of the Acid Dam.
- Remove lower wall adjacent to Whites North; improve drainage at confluence with Sweetwater Dam; lime treatment as required; and revegetate.
- For Sweetwater Dam/Fitch Creek remove the bund well and channel improvement.

This category contains a varied group of activities and the main items are dealt with below:
(a) **Remove Copper Launder and Evaporation Ponds; Reshape Copper Creek**
Works included in contract for Items A1, A2, A3; works now complete.

(b) **Snake Creek**
All vegetation is complete.

(c) **Remove Small Stockpiles of Ore on the Site**
Quotations closed on 14 June 1984. The lowest quotation, on a plant hire basis was accepted. Works proposed now complete.

(d) **Removal of Temporary Facilities**
It is proposed to include the removal of the wash down facilities building in Stage 4.2 works. Other facilities currently scheduled for removal in 1986.

(e) **Treatment, Cover, Revegetate as required at toes of White’s, Intermediate and Dysons Overburden Heaps; Clean up and revegetate in vicinity of original uranium treatment plant; rehabilitate borrow pits and haul roads no longer required.**
Most of this work is included in Stage 4.1 works in conjunction with items A6 and A9. Being designed.
A 12. Site Establishment

- Works complete.

CATEGORY B: CONSTRUCTION WORKS

Bl. Water Treatment Plant

- Construction of the water treatment plant was completed in July 1984 and pre-commissioning tests commenced in late July 1984. The first filter cake was produced on 2 August 1984.

- To date the treatment plant has consistently produced a throughput of treated water below the design target, and has not yet been present for "acceptance tests".

- There is still an ongoing exercise to modify the treatment plant to improve overall performance. This is dealt with further under Item E of this Report.

- Tenders closed in August for the collection and disposal of empty lime and flocculant bags, and a contract was awarded in September to the lowest tenderer. Performance to date satisfactory.
During September a claim was received from John Holland Constructions Pty Ltd in the amount of $80,110 being for the costs of acceleration and costs of delays to the works to contract TW 127 of 83/84 which was awarded in April 1984 in the amount of $58,926 for electrical works and instrumentation. MPES, who supervised the contract, have recommended rejection of the claim. Following further assessment of the claim by the Department, further details have been requested and are now awaited by the Department.

During October MPES submitted a Report dealing with Filter Cake Disposal. Following discussions during the Technical Committee on 23 October 1984 comments from Department of Health; Department of Housing and Construction and Australian Atomic Energy Commission have been submitted to MPES. Still awaiting re-submission of the Report by MPES. If acceptable, MPES to then prepare tender documents for filter cake disposal.

- No commitment or perceived requirement.

B2. Discharge Pipeline to Whites Open Cut
C1. Camp Services, Power Water, Sewerage

- Ongoing charges for services in the accommodation camp. Currently there are no charges for sewerage.

C2. Plant Generators

- Two (2) x 200 KW generators have been provided by Contractor Elmec Pty Ltd. They arrived on site on 1 June 1984 and are installed, fenced and have been operating.

One generator has been unserviceable since 23 October 1984 arising from overheating. It has been removed from site and is in Darwin. MPES are following up the matter with the Contractor/Supplier. Some liability by the supplier has been accepted, however they in turn contend that part of the problem arises from inadequate maintenance, which is the responsibility of MPES. Ongoing issue, which affects both generators (notwithstanding one is still operational). In the meantime a stand-by generator has been provided by this Department and as such no delays to the overall project has arisen due to power generation.

C3. Camp Accommodation

- No commitment or perceived requirement.
C4. Monitoring

- This topic received considerable attention during the Liaison Committee meeting on 24/25 October 1984. Final position unclear pending a Ministerial decision on whether or not additional funding ($540 000) to be provided to cover the proposed expanded program. Decision will not be made by the Commonwealth until after the Federal election on 1 December 1984. Northern Territory Minister has been briefed.

- Day to day monitoring on site by Department of Health now ceased following completion of the tailings removal etc.

- Works commenced in November to upgrade roads to give improved wet weather access to gauging stations GS 815097 (East Branch Finniss River) and GS 815204 (Finniss River).

- On 27 September 1984 public tenders were invited for renovations and improvements to gauging station GS 815097. Works completed early November 1984.

- Consultants Gutteridge Haskins and Davey Pty Ltd have been commissioned to design and document the weir proposed for monitoring flows in the central drain Whites Overburden Heap. Public tenders are to be invited on 29 November 1984.
Because of cost considerations the NT Conservation Commission have been instructed not to proceed with purchase and installation of equipment associated with erosion monitoring Whites Overburden Heap. Such action endorsed verbally by Department of Resources and Energy representative, I Morrison.

The Monitoring Committee meeting scheduled for 28, 29 November 1984 was cancelled as monitoring agencies did not submit their draft Annual Reports for 1983/84 activities. As at 28 November 1984 the only draft Report received by the Project Manager is from the Conservation Commission (report received 27 November 1984).

Action deferred re proposed studies to examine the integrity of Whites Overburden Covers in view of the uncertain financial situation and the Commonwealth's view that "this a relatively low priority in the short term".

C5. Engineering and Management

This is an ongoing issue. Current items of particular interest are summarised below:

(a) Problems associated with water treatment (Refer comments under Categories B1, D, E).
C6. Site Services

- No commitment to date, and no perceived requirement.
The first order of flocculant arrived in April 1984. In November an order was placed for two tonnes of Magnafloc E-10, and quotes sought for 600 kg of both Cyanamid A2100 and N2100. The Cyanamid is intended for further tests on site, as laboratory tests indicate economies could be achieved by using that floc in lieu of E-10.

During May, the first shipment of 3350 tonnes of hydrated lime arrived on the ship "Yanoshima Maru".

Of that shipment 1300 tonnes was delivered to site, while the remainder was stored under cover in Darwin, and is being progressively delivered to site as required.

A test certificate from the Japanese Company Nippon Kaiji Kentei Kyokai indicated that the lime meets the specified 74% CaO content. The Contract with the lime supplier provides that:

(i) the CaO content of the lime delivered on site is the one which governs acceptance;
(ii) the Contractor and the Northern Territory will agree upon a sampling method;

(iii) the Northern Territory is to arrange and pay for testing of lime upon arrival on site.

- Independant sampling and testing was carried out by Analabs during November and the CaO content was 72.86% and 72.82%. This indicates additional lime will have to be provided by Asoma, at their expense.

- As a result of lime consumption and treatment of water being slower than originally planned it was necessary to review the timing of the third lime shipment originally due to arrive in December 1984. It has been agreed that it will be deferred till mid April 1985.

- The lime supplier, Asoma, were also concerned that cash flow was slower than originally anticipated. During November Asoma agreed to providing a further Bank Guarantee for approximately $199 500, which has allowed cash flows to the Company to be put in line with those originally anticipated.
PRELIMINARY DISCUSSIONS WITH ASOMA INDICATE THAT THEY ARE
CONFIDENT THAT MARKETS EXIST IN THE NORTHERN TERRITORY FOR
ANY SURPLUS LIME WHICH MAY BECOME AVAILABLE FROM THE
THIRD SHIPMENT. (SUCH SURPLUS WILL ARISE IF THE CONCEPT
OF RELEASE OF UNTREATED WATER FROM INTERMEDIATE OPEN CUT
PROVES SUCCESSFUL. WHETHER OR NOT IT IS SUCCESSFUL WILL
NOT BE KNOWN BY THE TIME THE QUANTITIES ON THE THIRD
SHIPMENT HAVE TO BE FINISHED).

THE SECOND LIME SHIPMENT ARRIVED IN DARWIN ON
10 SEPTEMBER 1984, VIA THE "WORLD KATORI". THE WHOLE
SHIPMENT OF 3900 METRIC TONNES HAS BEEN STORED UNDER COVER
IN DARWIN. BASED UPON STOREAGE RESTRAINTS IT MAY BE
NECESSARY TO USE SOME OF THIS SHIPMENT PRIOR TO USING ALL
OF THE LIME FROM THE "YANOSHIMA MARU".

CATEGORY E: OPERATION OF WATER
TREATMENT PLANT

REFER EARLIER COMMENTS UNDER CATEGORY B1 AND C2.
The key issue now limiting plant throughput is a very significant build up of scale particularly within the primary clarifier, the primary clarifier feed line and the treated water return line. Refer photographs 15 to 20.

As noted earlier, the treatment plant was stood down as from and including 22 November 1984 with all operators working on day shift for the next week. During that time descaling has been carried out, including the primary clarifier. With respect to the scaling in the pipes, it is extremely hard and very difficult to remove. A further problem exists with lack of accessibility to the Primary Clarifier Feed Pipe which enter the Primary Clarifier from the underside.

Water Division chemists have carried out tests which indicate that approximately 28 tonnes per day of gypsum was being generated based upon a daily throughput of 6000 m³, and of that quantity approximately 16 tonnes are available to precipitate. No attempts have been made to estimate how much of that precipitation occurs within the treatment plant. There are clear indications of gypsum precipitation on the banks of Whites Open Cut, together with the scale problems within the treatment plant.
• Modifications have also been made to the bell shaped intake nozzle on the pit suction hose. Refer photograph No 14 which shows a timber frame/fibre glass covered fitting which was fitted to the bell intake nozzle on 23 November 1984. The aim is to give better control over the depth from which water is drawn into the suction hose. The general arrangement was proposed by Unisearch Limited during the earlier mentioned meeting held on 15 November 1984.

• Modifications have also been made to the filter cake conveyor belt, and further modifications are proposed. (Refer photograph No 21)

• As noted earlier, a meeting is to be held on 30 November 1984 with MPES representatives: Mr I Meares, University of Western Australia, where proposed future strategies, and associated costs will be further discussed and developed.

<table>
<thead>
<tr>
<th>Description</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated water produced</td>
<td>468 100 m</td>
</tr>
<tr>
<td>Filter cake produced</td>
<td>9722 tonnes</td>
</tr>
<tr>
<td>Flocculant used</td>
<td>3828 kg</td>
</tr>
<tr>
<td>Lime used</td>
<td>1351 tonnes</td>
</tr>
<tr>
<td>Power used</td>
<td>260 000 kwh</td>
</tr>
<tr>
<td>Lost time</td>
<td>674 hours</td>
</tr>
</tbody>
</table>
The position is further demonstrated by details on attached Drawings Numbered W45 and W52.
PROGRESS SCHEDULES

- The Liaison Committee meeting on 24/25 October 1984 endorsed the attached Project Schedule as the basis for Project planning for 1984/85 and 1985/86.

- During August the Commonwealth advised NT that "Appropriation Bill No 2 1984/85 Budget Paper No 3 includes a provision of $7.590 M for the Rum Jungle Rehabilitation Works Program for 1984/85 rather than the $8.390 M which emanated from the last Liaison Committee Meeting". The figure of $7.590 M has been adopted as the target expenditure for 1984/85.

- The current uncertain position with the proposed additional monitoring requires early resolution at Ministerial level.
MAIN CONTRACTS (Works in excess of $100,000)

1. EARTHWORKS - CATEGORY A

1.1 Whites North

Contractor ROADMAKERS (NT) P/L
Awarded 15 APRIL 1983 . Contract amount $197,840
. Contract as varied $236,432
due date for completion 10 JUNE 1983
actual completion 10 JUNE 1983

1.2 Whites Heap

Contractor HENDRIE CONSTRUCTIONS
Awarded 17 AUGUST 1983 . Contract amount $1,383,060
. Contract as varied $1,428,755
. Value work done up to stage contract cancelled $868,867
due date for completion 21 MARCH 1984
actual completion . Contract terminated
value Security retained . $51,500

Uncompleted works redocumented and included in Thiess Contract listed below.

1.3 Tailings Dam; Copper Heap Leach Pile; Filling Dyson's Open Cut

Contractor THIESS CONTRACTORS P/L
Awarded 13 APRIL 1984 . Contract amount $2,651,266
. Contract as varied $2,849,969
(Note: Change Order reducing the price by approx $60,000 still to be issued for modified arrangement with rock blanket : Dysons Open Cut.)

Approx. breakup of tender price against Earthworks Items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A7</td>
<td>Complete White's Heap</td>
<td>$581,096</td>
</tr>
<tr>
<td>A1</td>
<td>Copper Heap Leach Pile</td>
<td>$455,602</td>
</tr>
<tr>
<td>A2</td>
<td>Tailings Dam</td>
<td>$962,710</td>
</tr>
<tr>
<td>A3</td>
<td>Dyson's Open Cut</td>
<td>$651,858</td>
</tr>
</tbody>
</table>

Total $2,651,266
due date for completion 21 DECEMBER 1984.
In June 1984, the Contractor submitted claims totalling $1.94 million for anticipated costs of removing the tailings and subsoil to Dysons Open Cut. The Contractor has now submitted a detailed claim for the additional costs of handling the tailings of $1,747,940. Taking account of the provisions in the contract for these items, his claim for additional mobilisation and the costs of placing geotextile fabric in Dysons Open Cut, the nett value of his claim, in addition to the contract price, is $1,507,340. A comparison of his initial and current claims is presented below:

<table>
<thead>
<tr>
<th></th>
<th>June 1984 Claim</th>
<th>Current Claim</th>
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</thead>
<tbody>
<tr>
<td>Remove tailings and</td>
<td>$1,852,450</td>
<td>$1,455,340</td>
</tr>
<tr>
<td>subsoil (including</td>
<td></td>
<td></td>
</tr>
<tr>
<td>accept risks and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>acceleration)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remove tailings and</td>
<td>$22,350</td>
<td>-</td>
</tr>
<tr>
<td>subsoil from tailings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trials on Tailings Dam</td>
<td>$60,000</td>
<td>$52,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$1,934,800</td>
<td>$1,507,340</td>
</tr>
</tbody>
</table>

1.4 Supply and Deliver 45,000 Tonnes of Crushed Rock

Contractor ADELAIDE QUARRY INDUSTRIES LTD
Awarded 9 MARCH 1984  . Contract amount $ 537,375
. Contract as varied $ 543,168

due date for completion (as varied) 21 JUNE 1984
actual date works completed 20 JUNE 1984

Contract varied for additional rock including 300 tonnes Rip Rap material.

2. CONSTRUCTION WORKS - CATEGORY B

Water Treatment Plant

2.1 Filter Press

Contractor WILLIAM BOBY
Awarded 29/09/83  . Contract amount $ 333,745
. Contract as varied $ 351,185

due date for completion varied for 21 MAY 1984
date delivered to site 6 JUNE 1984
On arrival to site found damaged parts and other parts missing. In addition to 5% security (approx $16,700), also retaining Bank Guarantee of $10,000 to be held until MPES certify that all components delivered to site and all damage occurring in transit to site has been rectified. The majority of the problems with the filter press have now been rectified to the extent that MPES feel that design throughput can now be achieved.

Contract price as varied includes a rise and fall payment of $14,403.48 arising from customs etc.

2.2 Steelwork and Tanks

Contractor TRANSCON
Awarded 01/03/84 . Contract amount $275,795 . Contract as varied $389,105 . Final value $435,858
due date for completion 3 MAY 1984
date for completion excluding late but minor variations 23 JULY 1984
date for completion including late but minor variations 15 OCT 1984

Variations include, amongst other things, the installation and electrical wiring associated with the filter press, plus fencing of two generating units. "Late minor variations" includes extra handrails, access ladder for water treatment plant and the provision of commissioning assistance for the treatment plant.

2.3 Earthwork and Concrete

Contractor FINDLAY CONSTRUCTIONS
Awarded 17/02/84 . Contract amount $106,529 . Contract as varied $134,089
due date for completion 30 MAY 1984
actual date for completion 7 JUNE 1984

2.4 Supply, Fabrication and Installation of Mechanical Works

Contractor KILPATRICK GREEN P/L
due date for completion 18 JUNE 1984
actual date for completion 25 JULY 1984

The original contract amount included a provisional sum of $56,000 which was not utilised. There have been Change Orders issued, including a minus variation for the $56,000.
3. PROJECT MANAGEMENT - CATEGORY C

3.1 Generating Plant

Contractor ELMEC PTY LTD
Awarded 03/02/84  Contract amount $123,154
actual date for completion  28 JUNE 1984
Generators have been fenced by others (Transcon).
Problems being experienced at present with overheating. Refer earlier comments under Category C2 Construction Activities.

4. CHEMICALS - CATEGORY D

4.1 Lime

Contractor ASCMA (AUSTRALIA) PTY LTD
Awarded 30/09/84 Subject to rise and fall adjustment. With respect to the first shipment of 3350 tonnes, Asoma have submitted claims during November based on additional costs of $2.10 and $2.00 per tonne for currency changes and wharf handling adjustments respectively.
Contract as varied $2,693,503

5. TREATMENT PLANT OPERATION - CATEGORY E

In June 1984, Consultant Mining and Process Engineering Services accepted Department's offer to extend their commission to operate, maintain and manage the water treatment plant and associated water management. The Department will separately meet certain costs such as spare parts worth more than $500; lime, flocculant; fuel for generators.
Costs based upon treating the estimated 3.817 million cubic metres of contained pit water once only over a total period of 71 weeks made up of:

<table>
<thead>
<tr>
<th>Description</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commissioning and Training</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Operating Period (382 days)</td>
<td>64 weeks</td>
</tr>
<tr>
<td>Change Over Whites to Intermediate</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Mothball Plant</td>
<td>1 week</td>
</tr>
</tbody>
</table>

Sub Total 69 weeks
Public Holidays during treatment 2 weeks

TOTAL 71 weeks

Summary of costs provided for under extension to commission is as follows:
Pre Commissioning Labour (Lump Sum)  $15,096  
Operating and Commissioning Labour  $589,122  
Contract Maintenance Labour  $46,912  
Materials and Expenses  $62,000  
Other Costs  $46,300  
Contingency  $10,000  

Total  $769,430  

Additional costs will arise from the decision to use aeration in Whites Open Cut. At this stage expect to amount to approximately $15,000.  

Further additional cost exposure exists as a result of the delays in achieving the design standards set for the treatment plant.  

MPES have been requested to comprehensively review the overall water treatment strategy in order to still render the pit water suitable for recreational use but to contain costs within earlier budget estimates.
Rock Lining of Central Drain, Tailings Dam

Contour Banks & Drain, Tailings Dam
Rock Lining of Tailings Creek Adjacent to Tailings Dam
Removal of Copper Heap Leach Pile in Progress

Area Previously Occupied by Copper Heap Leach Pile
Tailings Being Placed in Dysons Open Cut
Winning of Dolomite Rock Blanket Material from Intermediate Overburden Heap

Loading of Miscellaneous Ore Stockpile for Use in Rock Blanket, Dysons Open Cut
Placing Rock Blanket in Dysons Open Cut

Placing Copper Heap Leach Pile Material, Dysons Open Cut
General View, Filling Dysons Open Cut
Central Drain & Covers, Dysons Open Cut

Drop Structure, Dysons Open Cut
Modification to be Fitted to Suction Inlet
WATER TREATMENT PLANT
Scale in Primary Clarifier

WATER TREATMENT PLANT
Scale in Return Water Line
WATER TREATMENT PLANT
Primary Clarifier Feed Pump Showing Extent of Scaling
WATER TREATMENT PLANT
Cleaning of Scale From Primary Clarifier
WATER TREATMENT PLANT
Cleaning Primary Clarifier, Including "Hole in the Wall"
Fitting Cleats to Conveyor Belt