

INDEPENDENT STATE OF PAPUA NEW GUINEA.

CHAPTER NO. 363A.

*Mining (Ok Tedi Supplemental Agreement).*

GENERAL ANNOTATION.

ADMINISTRATION.

The administration of this Chapter was vested in the Minister for Minerals and Energy at the date of its preparation for inclusion.

The present administration may be ascertained by reference to the most recent Determination of Titles and Responsibilities of Ministers made under Section 148(1) of the Constitution.

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INDEPENDENT STATE OF PAPUA NEW GUINEA.

CHAPTER NO. 363A.

*Mining (Ok Tedi Supplemental Agreement) Act.*

ARRANGEMENT OF SECTIONS.

1. Interpretation—  
    "the commencement date"  
    "Supplemental Agreement".
  2. Approval of Agreement.
  3. Effect in relation to laws of Papua New Guinea.
  4. Ancillary powers of Minister.
- Schedule—The Supplemental Agreement.

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INDEPENDENT STATE OF PAPUA NEW GUINEA.

CHAPTER NO. 363A.

***Mining (Ok Tedi Supplemental Agreement) Act.***

Being an Act to provide for the approval and implementation of a Supplemental Agreement relating to the development of certain mineral deposits in the Ok Tedi region of the Western Province.

**1. Interpretation.**

In this Act—

“the commencement date” means 12 September 1980, being the date on which the *Mining (Ok Tedi Supplemental Agreement) Act 1980* came into force;

“the Supplemental Agreement” means the supplemental agreement a copy of which is set out in the Schedule.

**2. Approval of Agreement.**

The Supplemental Agreement is approved and has effect according to its tenor.

**3. Effect in relation to laws of Papua New Guinea.**

(1) The Supplemental Agreement has the force of law as if contained in this Act, and applies notwithstanding anything to the contrary in any other law in force in the country.

(2) No law at any time in force in the country made after the commencement date shall affect this Act or the Supplemental Agreement—

(a) unless the contrary intention appears, either expressly or by implication, in that law; or

(b) except as provided by the Supplemental Agreement.

(3) Except where the contrary intention appears, either expressly or by implication, in the Supplemental Agreement, and subject to this section and to Section 4, all laws at any time in force in the country which are not inconsistent with this Act or the Supplemental Agreement apply to and in relation to all acts, matters or things done or suffered under the Supplemental Agreement.

**4. Ancillary powers of Minister.**

Notwithstanding anything in any other law in force in the country at any time (whether before or after the commencement date), the Minister has power, on behalf of the State, to make all grants, issues, renewals and extensions required by or under the Supplemental Agreement to be made by the State, and is not bound in that regard by any provisions of any such law requiring or permitting any authority, consent, approval, report, recommendation, appeal, procedure or formality, or by any similar provision.

## SCHEDULE.

## Sec. 1.

## THE SUPPLEMENTAL AGREEMENT.

THIS SUPPLEMENTAL AGREEMENT made the 26th day of June 1980

## BETWEEN

- (1) THE INDEPENDENT STATE OF PAPUA NEW GUINEA (hereinafter called "the State");
- (2) DAMPIER MINING COMPANY LIMITED, a wholly owned subsidiary of the Broken Hill Proprietary Company Limited (hereinafter called "Damco");
- (3) MT. FUBILAN DEVELOPMENT CO. PTY. LTD., a wholly owned subsidiary of Amoco Minerals Company (hereinafter called "MFD"); and
- (4) KUPFEREXPLORATIONSGESELLSCHAFT MBH (hereinafter called "KE")

## WHEREAS

- A. By an Agreement dated 22 March 1976 between the State and Damco (hereinafter called "the Principal Agreement"), the State granted to Damco certain rights, set out in detail in the Principal Agreement, including rights to carry out Investigations and Studies in relation to, and undertake a Project involving the exploitation of, the Ok Tedi Deposits in Papua New Guinea.
- B. By an Agreement dated 25 October 1976 between Damco, MFD and KE (hereinafter called "the Consortium Agreement"), the parties formed a consortium (hereinafter called "the Consortium") to carry out the Investigations and Studies and upon completion thereof to consider the possible development and operation of the Project.
- C. By a second Agreement dated 25 October 1976 between the State, Damco, MFD and KE (hereinafter called "the Assignment Agreement"), Damco assigned and transferred to the Consortium as tenants in common in accordance with the percentage shares set out in the Consortium Agreement all rights granted to Damco by the State under the Principal Agreement, the members of the Consortium severally agreed with the State to perform and observe all the obligations undertaken by Damco under the Principal Agreement in accordance with its terms and the State recited its approval of the assignment.
- D. In November 1979, the Consortium completed the Investigations and Studies and submitted a Feasibility Study (hereinafter called "the Feasibility Study") on the Project and a Development Proposals Supplement to the State, which Study and Supplement together contained proposals by the Consortium under Clause 8 of the Principal Agreement to carry out the Project.
- E. By an instrument dated 29 February 1980, the State approved the Consortium's proposals (hereinafter called "the Approved Proposals") in accordance with Clause 9.1 of the Principal Agreement but subject to certain conditions subsequent set out in Schedule A to the instrument. The approval instrument also incorporated the State's responses set out in Schedule B to the instrument to twenty-one issues raised by the Consortium in the Development Proposals Supplement.
- F. The Parties intend by this Supplemental Agreement to resolve certain issues raised by the Consortium in the Development Proposals Supplement, and to make provision for other matters of mutual interest to the State and the Consortium by amendment of and addition to the Principal Agreement.

NOW THIS AGREEMENT WITNESSES AND IT IS AGREED AND DECLARED as follows:

## Clause 1. DEFINITIONS AND INTERPRETATION.

- 1.1 This Agreement is supplemental to the Principal Agreement and accordingly words and expressions which are given a certain meaning in the Principal Agreement are used herein with the same meanings.
- 1.2 The rules of interpretation set out in Clause 2 of the Principal Agreement shall, unless the context otherwise requires, apply in this Supplemental Agreement. References to Recitals, Clauses or Schedules are, unless otherwise specified, references to the recitals, clauses and schedules of this Supplemental Agreement.

**Clause 2 EFFECT ON AND OF OTHER LAWS**

- 2.1 This Supplemental Agreement is to have the force of law and apply notwithstanding anything to the contrary in any other law in force in Papua New Guinea and no law at any time in force in Papua New Guinea made after the commencement of this Agreement shall affect this Agreement—
- (a) unless the contrary intention appears, either expressly or by implication, in that law; or
  - (b) except as provided by this Agreement.

**Clause 3 CONDITIONS PRECEDENT**

- 3.1 The Parties declare that this Supplemental Agreement constitutes a material or substantial alteration of the Principal Agreement and accordingly pursuant to Clause 42.2 of the Principal Agreement the State shall as soon as is reasonably practicable introduce and sponsor in the National Parliament a Bill for an Act to approve this Supplemental Agreement, which Bill shall be in a form agreed upon between the Parties.
- 3.2 This Supplemental Agreement other than this Clause 3 shall not operate unless and until the Bill referred to in Clause 3.1 is passed as an Act and comes into force and, in the event that the passing of the Bill is delayed past 31 August 1980, the time limit for the Consortium to nominate the Company under Clause 10.1 and for the Company to give notice and furnish evidence under Clause 10.3 of the Principal Agreement will be extended by the length of the delay.

**Clause 4 PROJECT IMPLEMENTATION AND LIAISON**

- 4.1 The Parties acknowledge that—
- (a) any substantial modification, expansion or variation in the activities of the Company, either by undertaking any new activity or by a major expansion of activities specified in the Approved Proposals, which is not covered by the conditions to the Approved Proposals, shall be dealt with under Clause 8.5 of the Principal Agreement;
  - (b) any change in the Approved Proposals relating to environmental management and protection shall be dealt with under Clause 29.2 of the Principal Agreement;
  - (c) any change in the approved training and localisation programme shall be dealt with under Clause 30.3 of the Principal Agreement; and
  - (d) any change in the approved business development programme shall be dealt with under Clause 32.8 of the Principal Agreement.
- 4.2 Where the Company intends to make a substantial change in or departure from the Approved Proposals which does not fall under Clause 4.1, the following provisions shall apply:
- (a) the Company shall give notice to the State of the proposed change, giving full details and headed "Substantial Change to the Approved Proposals";
  - (b) if the State raises no objection to the change within fifteen days of the notice being given, the State shall be deemed to have approved the change;
  - (c) where the State raises an objection to the change within fifteen days, the State may approve or disapprove of the change within a further thirty days after notification of the objection, but if it fails to do either within this further period the State shall be deemed to have approved the change;
  - (d) where the State disapproves of the change and the Company considers the disapproval to be unreasonable, the Company may within thirty days after notification of the disapproval, elect to refer the question of reasonableness of the disapproval to arbitration under Clause 38 of the Principal Agreement; and
  - (e) the period of time from the Company's election under paragraph (d) until the arbitration award is given will be added to the time for construction under Clause 13.1 of the Principal Agreement.
- 4.3 The Company shall provide briefings at least twice a month during the Construction Stage for the State at times to be arranged with and for persons nominated by the Secretary for Minerals and Energy. The briefings will include information on all aspects of Project implementation and all changes in Project design and the Approved Proposals (whether or not such changes fall under Clauses 4.1 or 4.2).

- 4.4 The Company shall establish at the beginning of the Construction Stage a liaison engineering office in Port Moresby and a sub-office in Kiunga and maintain them throughout the Construction Stage.
- 4.5 The Company shall be given the opportunity to participate in and be kept fully advised on the preparation of implementation programmes for the provision of civic, administrative and social services in areas connected with the Project in Tabubil, Kiunga and Port Moresby.

**Clause 5 FINANCING AND MARKETING**

5.1 By 31 October 1980 or such later date as the State may agree, the Consortium shall (unless it has before such date notified the State under Clause 34.1(c) of the Principal Agreement that it proposes to abandon the Project) prepare and submit to the State—

- (a) a general financing strategy for the Project giving such evidence as the State may reasonably require as to the likely sources and expected availability of finance for the Company necessary for the development and operation of the Project; and
- (b) a general marketing strategy for the Project in accordance with Clause 5.2.

The Consortium may assume that the financing and marketing strategies are acceptable to the State if no objection is raised within one month of the dates of their submission.

5.2 The general marketing strategy shall include—

- (a) identified potential markets for each of the Mine Products;
- (b) details of the manner in which any sales to KE (or any assignee) pursuant to the purchasing rights under the Consortium Agreement will be made; and
- (c) a timetable for seeking formal commitments and entering into sales contracts.

5.3 The Consortium and the Company may arrange loans and commitments for the financing of the Project provided that, except as the State may otherwise agree—

- (a) the loans and commitments conform with the general financing strategy which was acceptable to the State;
- (b) authorities under the Foreign Exchange Regulations are obtained from the Bank of Papua New Guinea in respect of the loans and commitments; and
- (c) the equity funds to be contributed in the form of ordinary shares are not less than 25% of the total loan and share capital for Stages I and II as described in the Feasibility Study provided that the 25% limitation shall not apply to the extent that funds are provided other than in the form of share capital to meet Project overruns.

5.4 Clause 10.3 of the Principal Agreement is amended by deleting paragraphs (a) and (b).

5.5 If loan guarantees or completion undertakings are required to enable the Company to borrow amounts which together with share capital will be sufficient to provide finance for the Project to achieve Commencement of Commercial Production (hereinafter called "the Initially Committed Finance"), the following shall apply:

- (a) where the Company's guaranteed loans are not more than A\$200 million the shareholders of the Company other than the State shall provide or procure the loan guarantees and completion undertakings and the State shall not participate in them or be responsible or liable under them either directly or indirectly;
- (b) where the Company's guaranteed loans are more than A\$200 million, the shareholders of the Company (other than the State) shall provide or procure the loan guarantees and completion undertakings and the State shall participate in them or (if the lenders will not accept the State's participation) indemnify such shareholders or guarantors to the extent of—
  - (i) the proportion equivalent to the State's shareholding (directly or indirectly) in the Company of the amount by which the Company's total guaranteed loans exceed A\$200 million; or
  - (ii) A\$30 million,whichever is the less;
- (c) the amounts referred to in paragraphs (a) and (b) will be escalated from 31 December 1980 until the date which is the mid-point of the drawdown period for the Initially Committed Finance (to be agreed later) by the agreed inflation rate of 10% per annum; and



- (d) the Company's guaranteed loans shall include all loans to the Company or credits obtained by the Company in respect of Initially Committed Finance in respect of which guarantees of repayment or completion undertakings are given.
- 5.6 If the Company in accordance with a decision made pursuant to a shareholders agreement (provided it shall be negotiated and agreed by 28th February 1981) is to incur overruns in costs from whatever cause so that the Initially Committed Finance is not sufficient for the Company to achieve Commencement of Commercial Production or to satisfy completion tests imposed by lenders of the Company's guaranteed loans and loan guarantees are required to enable the Company to borrow additional loans, then either—
- (a) the Shareholders of the Company (other than the State) shall provide or procure the guarantees required, for which the Company shall pay them a fee of 5% per annum (which shall be treated as an operating expense) from the time the guarantees are given until they are discharged; or
- (b) the shareholders of the Company, including the State, shall provide or procure the guarantees required in proportion to their respective shareholdings (directly or indirectly) in the Company.

The Company shall give notice to its shareholders when guarantees are required for any such additional loans and within one month of such notice, after consulting with the other shareholders, the State shall in its discretion choose which of paragraphs (a) and (b) will apply in respect of such loans or any part thereof and shall notify the Company and other shareholders accordingly. The additional guaranteed loans shall rank equally as a debt of the Company with the State's user charge payable pursuant to the Infrastructure Offer referred to in Clause 7.1. and the fee under paragraph (a) if payable shall rank the same.

- 5.7 Any shareholder, including the State, may in the circumstances of Clause 5.6 elect to provide an equivalent shareholder's loan to the Company in place of a guarantee of the whole or any part of the additional loans. If a shareholder provides a shareholder's loan in the circumstances of Clause 5.6(a) the rate of interest on the shareholder's loan shall be the then average rate of interest for existing syndicated commercial borrowings by the Company plus 5% per annum and the loan and interest thereon will rank equally with the State's user charge referred to above.

#### Clause 6 EQUITY PARTICIPATION

- 6.1 The second sentence of Clause 11.1 of the Principal Agreement is amended by deleting "six months" twice occurring and substituting "ten months".
- 6.2 Clause 11.5 of the Principal Agreement is amended by adding the following paragraphs:
- "(d) the reasonable costs incurred by the State in sending its technical and financial consultants to meetings for the First Phase Study referred to in the conditions to the Approval Proposals; and
- (e) the reasonable costs incurred by the State in carrying out the additional programmes referred to in Clause 10 of the Supplemental Agreement dated 1980".

#### Clause 7 INFRASTRUCTURE

- 7.1 The terms and conditions, as set out in Schedule C to the State's Approval of Proposals dated 29 February 1980, of the State's offer to elect under Clause 21.1 of the Principal Agreement to provide the establishment costs of the Kiunga to Tabubil road (hereinafter called "the Infrastructure Offer") shall not be challenged on the grounds that they are not fair and reasonable. The Consortium may accept the Infrastructure Offer at any time before 31 July 1980 by notice to the State and upon receipt of such notice the State shall forthwith give notice of its election under Clause 21.1 of the Principal Agreement.
- 7.2 The Parties acknowledge that the Project will give rise to the need for certain additional facilities and infrastructure in Port Moresby and Kiunga (or Ningerum) which are not included in the Feasibility Study. Subject to Clause 7.3, the Company shall discharge its liability for the cost of these items by paying to the State (or as the State may direct to another instrumentality or agency)—

(a) in respect of the State's land development subsidy, housing, health facilities, police facilities and jail in Kiunga (or Ningerum), the following amounts:

At the beginning of Stage I—A\$396,300

At the beginning of Stage II—A\$315,000;

and

(b) in respect of the State's land development subsidy, housing for married personnel, international schools, community schools and national high schools in Port Moresby, the following amounts:

At the beginning of Stage I—A\$1,090,000

At the beginning of Stage II—A\$1,514,000

At the beginning of Stage III—A\$785,300

The Stages referred to in paragraphs (a) and (b) are those identified in the Feasibility Study.

7.3 The amounts referred to in Clause 7.2 will be escalated from 31 December 1980 until their respective dates of payment by the following agreed inflation rates:

10% per annum to 1985

8% per annum to 1990

6% per annum thereafter

7.4 Where under Clause 7.2 the Company pays an amount to the State in respect of certain specific facilities, the State shall ensure that during the Stage of the Project at the beginning of which that amount is paid those facilities are expanded or upgraded to meet the needs of the Project.

7.5 The State acknowledges that the payment by the Company of the costs provided for in Clause 7.2 will fully discharge the Company's liability in respect of additional facilities and infrastructure within the scope of the Project as presently described in the Feasibility Study.

#### Clause 8 TAXATION

8.1 Clause 23.1 of the Principal Agreement is amended—

(a) by deleting the definition of "Commencement of Commercial Production" and substituting the following:

"Commencement of Commercial Production" means the last day of the first month during which the Company achieves an average rate of gold production for shipment from the Project in excess of 70% of the average monthly gold production for the first year of Stage I under the Approved Proposals, or the last day of the month in which aggregate shipments of gold exceed one and a half times the average monthly gold production for the first year of Stage I under the Approved Proposals, whichever be the earlier;

(b) by deleting the definition of "Investment Recovery Period" and substituting the following:

"Investment Recovery Period" means any period after the Commencement of Commercial Production during which Initial Capital Expenditure exceeds—

(a) the sum of the Company's taxable incomes (as determined in accordance with the Income Tax Act) in all Tax Years from and including the Tax Year in which Commencement of Commercial Production occurs; plus

(b) the sum of all deductions for depreciation under Division 3 and all deductions under Division 10 of Part III of the Income Tax Act which have been allowed to the Company under the Income Tax Act or under this Clause in those Tax Years; less

(c) the sum of the amounts of income tax payable by the Company in respect of those Tax Years;

(c) by deleting the definition of "Working Capital" and substituting the following:

"Working Capital" for a Tax Year means the book value of the average monthly level of stocks of Mine Products and consumable items;

8.2 Clause 23.5 of the Principal Agreement is amended by deleting the definition of "Initial Capital Expenditure" in the middle of the Clause and substituting the following:

"Initial Capital Expenditure" means—

(a) Total Investment to the end of the Tax Year for which additional deductions are sought, being a Tax Year not later than the Tax Year in which—

- (i) the tenth anniversary of the Commencement of Commercial Production occurs; or
  - (ii) the copper flotation plant achieves an average rate of copper production for shipment in excess of 70% of the average monthly copper production for the first year of Stage III under the Approved Proposals,
- whichever occurs first; less
- (b) Replacement Expenditure to the end of the Tax Year in question.
- 8.3 If the Company becomes liable to pay provincial taxes in categories other than those included in the Organic Law on Provincial Government as at the date of this Supplemental Agreement, the Company may claim as a credit against its income tax in any Tax Year the amount of any such provincial taxes which it has paid in that Tax Year and its income tax otherwise payable under the Income Tax Act, after applying the provisions of Clause 23 of the Principal Agreement and this Clause 8, shall be reduced accordingly.
- 8.4 The State undertakes that the Ministers of the National Government will use their powers under the Constitution and the Organic Laws to protect the Company from—
- (a) provincial land tax on any land used for the purpose of any mining or industrial activity (including the generation of electricity) except to the extent that it is imposed on the unimproved value of the land; and
  - (b) other provincial taxes which are discriminatory.
- 8.5 The amounts paid by the Company under Clause 7.2 shall be deemed to be expenditure by the Company on plant or articles which are installed ready for use in the Tax Year in which such amounts are paid and the estimated effective life of which shall be deemed for the purposes of Section 74 of the Income Tax Act to be fifteen years.

**Clause 9 ENVIRONMENTAL MANAGEMENT AND PROTECTION**

- 9.1 The Company shall make provision to the reasonable satisfaction of the State for the maintenance of the tailings dam after the mine is closed. Such provision may be in the form of either a trust fund or a security, or some other form agreed by the State, and shall include appropriate legal, financial and administrative arrangements.
- 9.2 The Company undertakes to make administrative arrangements to facilitate the processing of compensation claims made in accordance with Clause 29.12 of the Principal Agreement. The Parties acknowledge that such administrative arrangements shall not alter the legal and constitutional rights of either the Company or persons entitled to claim compensation.
- 9.3 Representatives of the Company and the State will meet annually to agree upon environmental programmes related to the Project which supplement the environmental management programme in the Feasibility Study and which may include experimentation and research into suspected causal links between the Project and environmental damage. All the costs of any agreed supplementary environmental programmes will be borne one third by the State and two thirds by the Company. The programmes shall be carried out by the Company unless it is agreed by the Company and the State that it would be beneficial for any such programme to be carried out by an independent body.
- 9.4 The Company shall take all necessary safety precautions in the transport of cyanide to the Mining Area and advise the State on the precautions to be taken.

**Clause 10 TRAINING AND LOCALISATION**

- 10.1 To assist the Consortium in the preparation of the Company's training and localisation programme and to ensure the maximum participation by Papua New Guineans and local enterprises in the Construction Stage of the Project, the State shall carry out a study into—
- (a) manpower availability in Papua New Guinea during the Construction Stage;
  - (b) the capacity of local enterprises in Papua New Guinea to contribute to the Construction Stage as contractors, sub-contractors or suppliers; and
  - (c) the possibility of organising and equipping local enterprises and providing training for non-Company employees so as to improve the capability of such local enterprises to contribute to the Construction Stage.

This Study is expected to take around three months and to cost approximately A\$100,000. The State shall make the results of the study available to the Consortium as soon as they become available.

10.2 Upon conclusion of the study under Clause 10.1 and provided that the prospects for the Project continue to be favourable, the State shall, after consultation with the Consortium on its scope, commission a substantial pilot training scheme for Papua New Guinean construction labour which will, unless otherwise agreed, be organised and administered by an internationally experienced project management company and the cost of which will be agreed with the Consortium. The aims of this scheme will be to identify the most suitable training courses and methods of work, and to train and certify an initial number of construction workers. The scheme is expected to run for about twelve months.

10.3 The State's obligations under this Clause 10 are not in substitution for the Company's obligations under Clause 30 of the Principal Agreement.

#### Clause 11 SUPPLIES

11.1 Clause 31.1 of the Principal Agreement is amended by deleting "and are of a quality" and substituting—

"on competitive terms, conditions and delivery dates and are in all substantive respects of a quality".

11.2 Clause 31.2 of the Principal Agreement is amended by inserting after "competitive terms" the words, "conditions and delivery dates".

#### Clause 12 TERMINATION, CONSEQUENCES OF TERMINATION AND ASSIGNMENT

12.1 Clause 12.2 of the Principal Agreement is amended by adding—

"The Special Mining Lease shall terminate on the termination of this Agreement but shall not be liable to forfeiture under Section 81 of the Mining Act (Amalgamated) 1977".

12.2 Schedule III of the Principal Agreement is amended by deleting from Condition 3 the words "or upon its forfeiture under the Mining Act 1937 (Papua) whichever shall first occur".

12.3 Clause 34.2 of the Principal Agreement is amended as follows:

- (a) by deleting "The" at the beginning and substituting "Subject to Clause 34.7, the";
- (b) in paragraph (c), by deleting "becomes insolvent" and substituting "is unable to pay its debts when they fall due for a period of three months";
- (c) by deleting paragraph (d); and
- (d) in paragraph (e), by deleting "is properly forfeited due to default by the Company or".

12.4 Clause 34.3 of the Principal Agreement is deleted and the following new subclause substituted therefore:

"34.3 The notice to be given by the State to the Company pursuant to Clause 34.2 (a) or (b) (not being a notice of termination) shall specify—

- (a) pursuant to which of those paragraphs of Clause 34.2 it is given; and
- (b) in the case of a notice given pursuant to Clause 34.2 (a)—
  - (i) the nature of the default,
  - (ii) that the State considers the default material, and
  - (iii) where appropriate and known to the State the Party or Parties responsible therefore,

and shall be given to each of the Parties other than the State."

12.5 Clause 34 of the Principal Agreement is amended by adding at the end the following new subclause:

"34.7 The State shall provide each mortgagee or chargee under a mortgage or charge given pursuant to Clause 40.3 with a copy of any notice given to the Company, or to Parties other than the State, under this Clause 34. This Agreement shall not be terminated by the State unless it has given not less than thirty days' notice of its intention to so terminate (which period of notice may run concurrently with notice under Clause 34.2 (a) or (b)) to all mortgagees or chargees under any mortgage or charge given by the Company pursuant to Clause 40.3. If any such mortgagee or chargee appoints a receiver or manager of the Company before this Agreement is terminated the State may not terminate this Agreement unless the default or other event giving rise to the State's right to terminate under Clause 34.2, being a default or event capable of remedy, is not remedied by the Company within sixty days of appointment of a receiver or manager. Any notice or copy notice to be given

to any mortgagee or chargee shall be given by telex to the address for service of notices given by such mortgagee or chargee to the State."

- 12.6 Clause 35.1 (b) of the Principal Agreement is amended by deleting—
- (a) the words "or mortgagee" twice occurring; and
  - (b) the words "free from any encumbrances whatsoever".
- 12.7 Clause 35.2 of the Principal Agreement is amended by deleting from the end the words "and freed and discharged from all mortgages and other encumbrances".
- 12.8 Clause 35.3 of the Principal Agreement is amended by deleting—
- (a) the words "other than under Clause 34.2 (c)"; and
  - (b) the words "and freed and discharged from all mortgages and other encumbrances".
- 12.9 Clause 40.3 of the Principal Agreement is amended by inserting before "any mortgagee or chargee" the words "subject to Clause 40.4".
- 12.10 Clause 40 of the Principal Agreement is amended by adding the following new subclause:
- "40.4 The rights of any mortgagee or chargee under a mortgage or charge given by the Company pursuant to Clause 40.3 shall be subject to and limited by the rights of the Company under this Agreement and the State's right to terminate those rights under Clause 34.2. Where requested by any mortgagee or chargee under a mortgage or charge given pursuant to Clause 40.3, the State and such mortgagee or chargee shall discuss provisions to secure the rights and position of such mortgagee or chargee and shall enter into an agreement in respect thereof. Unless otherwise provided in such agreement, the rights of sale of such mortgagee or chargee shall not be exercisable—
- (a) unless the sale is of all the assets and undertaking of the Company as a going concern (or with such exceptions as the State may agree) to a purchaser approved by the State, such approval not be unreasonably withheld; or
  - (b) if the State has within the twenty-eight days' period of notice under Clause 40.3 given notice to the mortgagee or chargee that it will purchase the assets which the mortgagee or chargee wishes to sell at a price which is equivalent to—
    - (i) the price which a bona fide willing but not over-anxious purchaser who is at arm's length from the Company, its shareholders and the mortgagee or chargee has offered to pay for the assets; or
    - (ii) if there is no such offer, at the written down book value of the assets, and settles the purchase by making full payment of the price within ninety days or otherwise on terms agreed with the mortgagee or chargee.

Clause 13 NOTICES

- 13.1 Clause 46.2 of the Principal Agreement is amended by—
- (a) deleting—

"The Director,  
Office of Minerals and Energy"

and substituting—

"The Secretary,  
Department of Minerals and Energy";

and
  - (b) inserting after the address of Damco—

"and of MFD shall be—  
Mt. Fubilan Development Co. Pty. Ltd.,  
200 East Randolph Drive,  
Chicago, Illinois, 60601, U.S.A.  
and of KE shall be—  
Kupferexplorationsgesellschaft MBH,  
Reuterweg 14,

6000 Frankfurt 1,  
Federal Republic of Germany:

Clause 14 MISCELLANEOUS

- 14.1 Clause 9.3 of the Principal Agreement is amended by deleting "crushing, screening" and substituting "comminution".
- 14.2 References throughout the Principal Agreement to "the Mining Act 1937 (Papua)" shall be read as "the Mining Act (Amalgamated) 1977".
- 14.3 In relation to the conditions on Resource Utilisation in Section 2 of Schedule A to the State's Approval of Proposals, the Parties as the potential shareholders of the Company confirm as a general policy that the Company's mining strategy shall be updated periodically throughout the life of the mine in accordance with good mining practice.
- 14.4 In relation to paragraph (g) of Schedule C to the State's Approval of Proposals, the State shall use its best endeavours in negotiating any loan out of which the State will finance the Infrastructure Offer to eliminate or minimise any prepayment fee or penalty.
- 14.5 Clause 18.3 of the Principal Agreement is amended by inserting after "Facilities" where it first occurs a comma and the words "shall supply electricity to the Company from the Power Supply Facilities in priority to other users".
- 14.6 Clause 19.1 of the Principal Agreement is amended by adding at the end a semi-colon and the words "and the Company shall be entitled, at all times during the continuance of this Agreement, to use such telecommunications facilities to meet such needs and the State agrees that such usage shall not be prejudiced by use of such telecommunications facilities by others".
- 14.7 Clause 21.5 of the Principal Agreement is amended by inserting before "priority" the words "the right to use and".
- 14.8 Clause 23.8 of the Principal Agreement is amended by deleting before "tax" the word "income".

Clause 15 WORK PROGRAMME

- 15.1 By 15 July 1980, the Consortium shall furnish to the State an addendum to the first phase study carried out in accordance with the conditions of the Approved Proposals. The addendum shall contain a full report on —
- (a) the optimisation cases that were carried out as part of the first phase study; and
  - (b) the results of the six additional optimisation cases already nominated by the State in a letter to the Consortium.
- 15.2 (a) The Company shall on or before the expiration of a period expiring 12 months after the commissioning of the Stage I gold plant (hereinafter called "the Study Period") carry out a work programme (hereinafter called "the Work Programme") in accordance with the terms of reference contained in Schedule A. It is acknowledged that the technical constraints which are conditions to the first phase study shall not apply to the Work Programme study.
- (b) While carrying out the Work Programme the Company shall make —
- (i) regular reports at reasonable intervals to keep the State informed of progress and of results flowing from the Work Programme;
  - (ii) an interim report to the State (hereinafter called the "Interim Report") on progress of the Work Programme not later than four months after the commissioning of the Stage I gold plant; and
  - (iii) a final report to the State on the Work Programme and on the conclusions therefrom reporting fully on the three alternatives set out in the terms of reference (hereinafter called the "Final Report") not later than the expiration of the Study Period.
- (c) Unless the State notifies the Company within three months of the submission of the Company's Interim Report that the progress made in carrying out the Work Programme is not reasonable or unless the State notifies the Company within three months of the submission of the Company's Final Report that the Work Programme has not been adequately carried out and reported on in accordance with this sub-clause then the Work Programme shall be considered to be satisfactorily carried out or complete as the case may be it is acknowledged that any notification for the purposes of this clause may be in terms of and in accordance with Clause 34.2(a) of the Principal Agreement.

- (d) If the State does so notify the Company and if the Company disagrees, then such dispute, if not resolved by negotiation, shall be referred to arbitration in accordance with Clause 38 of the Principal Agreement and Clause 15.8 hereof.
- 15.3 Any decision by the Company to act either wholly or partly in accordance with the Final Report shall be made in accordance with its normal decision making processes for commercial decisions of that nature at that time. It is acknowledged that with respect to any alteration of the Approved Proposals that may be sought following a decision of the Company, the provisions of Clause 8.5 of the Principal Agreement shall apply.
- 15.4 The State and the Consortium agree that the Feasibility Study shall be the basis upon which the general financing strategy is prepared. The Consortium shall endeavour to ensure that the general financing strategy is consistent with the procedures contained in this Clause and that when negotiating such financial arrangements, sufficient flexibility shall be retained to allow the adoption of any revised mining strategy decided upon as a result of the Work Programme provided that the ability of the Project to obtain and to service such financing is not adversely affected.
- 15.5 The State agrees that it shall not give any notice under Clause 2.7 (a) of the conditions contained in the Approved Proposals.
- 15.6 Clause 8.5 of the Principal Agreement is amended —
- (a) by deleting "expansion" in the sixth line and the seventeenth line (twice occurring) and substituting "variation"; and
  - (b) by inserting "gold or" before the word "copper" in the nineteenth line.
- 15.7 If during the course of carrying out the Work Programme the Company shall decide that having regard to significant changes in technology the Work Programme should be varied or that having regard to significant falls in the price of gold the treatment of lower grade ore would be clearly uneconomic and to pursue further the Work Programme would be pointless, it may furnish evidence of the facts leading to its decision to the State and seek agreement from the State to variations to or cessation of the Work Programme as the case may be.
- 15.8 (a) In any reference to arbitration of a dispute pursuant to Clause 15.2 (d) the arbitrator or arbitrators shall be required in his or their award to determine whether the Company is in default in performance of its obligations in relation to the carrying out of the Work Programme, whether in all circumstances it is reasonable that the Company should be required to carry out further work in relation to the Work Programme, what further work (if any) the Company should carry out as part of the Work Programme before it should be considered to have completed the same and within what time it should be carried out and, in the case of a dispute as to whether an award following a reference to arbitration has been complied with, whether in all the circumstances and having regard to the steps taken by the Company to comply with the award it is reasonable that a right of termination of the Principal Agreement should arise under Clause 34.2 thereof and in what events that right should arise.
- (b) In considering any reference under this Clause either as to whether the Work Programme as set out in the terms of reference has been adequately carried out or as to whether an award of an arbitrator or arbitrators in relation thereto has been complied with the arbitrator or arbitrators shall take into the account the circumstances and what work should reasonably be required in order to achieve the objectives of the Work Programme within a reasonable time having a regard to these considerations.
  - (c) Notwithstanding anything contained in the Principal Agreement no right of termination of the Principal Agreement or of any Special Mining Lease or any other lease, licence or right granted thereunder shall arise under Clause 34.2 thereof as a result of a breach by the Company of an obligation under or pursuant to this Clause 15, unless an arbitrator or arbitrators shall have determined in an award pursuant to Clause 15.8 (a) that having regard to the matters mentioned in Clause 15.8 (b) it is reasonable that such right should arise and any events stated as a condition to such right arising shall have occurred.

Clause 16 ENVIRONMENTAL IMPACT STUDY

16. The contents of Schedule II to the Principal Agreement are hereby deleted in their entirety and replaced by the contents of Schedule B to this Supplemental Agreement.

IN WITNESS whereof this Supplemental Agreement has been duly executed by the Parties, the day and year first hereinbefore written.

SIGNED for and on behalf of THE INDEPENDENT STATE OF PAPUA NEW GUINEA by TORE LOKOLOKO, G.C.M.G., O.B.E., K.St.J., Governor General, acting with and in accordance with the advice of the National Executive Council, in the presence of:

—————R. ROBERTSON—————  
Witness

TORE LOKO  
—————  
Tore Lokoloko,  
Governor General

SIGNED for and on behalf of MT. FUBILAN DEVELOPMENT CO. PTY. LTD. by its duly constituted Attorney in the presence of:

—————W. H. J. BARR—————  
Witness

P.D. TIMMS  
—————  
Attorney

SIGNED for and on behalf of KUPFEREXPLORATIONS-GESELLSCHAFT MBH by its duly constituted Attorney in the presence of:

—————P. D. TIMMS—————  
Witness

W. H. J. BARR  
—————  
Attorney

THE COMMON SEAL of DAMPIER MINING COMPANY LIMITED was hereunto affixed by authority of the Board of Directors in the presence of:

—————D. ADAM—————  
—————P. MOORE—————

COMMON SEAL OF  
DAMPIER MINING  
COMPANY LIMITED

SCHEDULE A

WORK PROGRAMME — TERMS OF REFERENCE

The following programme of work is to be performed on less than 1.0 g/t gold reserves within the Ok Tedi gold capping.

1. OBJECTIVES

1.1 To obtain technical data required in order to make the best economic decision on handling of gold capping material below the cut-off grades considered in the Consortium Feasibility Study and, to take account of consequential changes that may be needed in related processing facilities.

The alternatives being seen as:

- (a) Expansion of the gold cyanidation plant
- (b) Dilution into the copper flotation plant feed
- (c) Dumping to waste if uneconomic to treat.

2. SCOPE

2.1 *General*

The scope of work contemplated herein is an outline of work aimed at meeting the above objectives under current technological and economic conditions in particular, with respect of the price of gold.

In this regard, it should be noted the work programme, as outlined, includes provision of pilot plant facilities on site which will be tied into training programmes and pre-commissioning testwork for Stage I. A more detailed scope of work contemplated under the various disciplines, is as follows and is summarized on the attached bar chart.



2.2 *Geology*

The following are proposed as geological activities on site:

- A. Re-assay of an appropriate number of samples of all grades of leached capping by more accurate methods to establish the accuracy of previous results.
- B. In-fill drilling and pilot drilling of adits and raises within low grade leached capping totalling approximately 3000 metres.
- C. Approximately 400 m of adits and 100 m of raises would be driven to obtain such samples with grade comparisons of identical increments of pilot drill holes within the adit cross-sections. The presently contemplated site of adit development is at RL 1945 NNW from DDH 47 to DDH 115 with raises on DDH 115, 116 and on a new hole, see Figure 1.
- D. Surface sample drill pads and helipads not previously sampled.
- E. Re-interpretation of low grade leached capping reserves utilizing the results of A to D above.

2.3 *Mining*

Mining activities would be limited to support for the geological work investigating the reserve of low grade ore. This is, driving of adits and operation of the bulk sample plant. Plus, supply of approximately 10,000 tonnes of low grade, uncrushed, ore to the pilot plant from continued adit development and stripping.

Supply of average grade ore and porphyry copper ore to the pilot plant would come from normal mine predevelopment and/or adits.

As some low grade leached capping treatment alternatives require reduced dilution of copper ore with leached capping, there is an increased risk of copper contamination. Experience will be gathered in the latter part of the first year of operation of the ability of the mining operation to segregate these materials and determine how much, if any, contamination will occur.

2.4 *Metallurgy*

The programme of metallurgical work contemplated for assessment of low grade ores is split up as follows:

A. *Initial Site Activities*

Work on site would commence in month 35 with rehabilitation of laboratory facilities and fabrication of a nominal 2 tonne per hour pilot plant capable of simulating the gold cyanidation and copper flotation circuits.

Laboratory investigations proposed are:

- (a) Cyanide usage tests on individual low grade leached capping intercepts
- (b) Copper contamination simulations in cyanidation
- (c) Flotation of various percentage mixtures of low (and average) grade leached capping in porphyry copper ore.

B. *Pilot Plant*

Following an initial period of some six months of testwork on average grade ores, as pre-commissioning studies for Stage I, the pilot plant would be available for low grade leached capping investigations.

Proposed investigations would then include:

- (a) Detailed analysis of gold extraction and CIP efficiency on a range of low grade leached capping samples.
- (b) Analysis of the effect of expected higher levels of acid soluble copper in these samples with respect to gold extraction and cyanide consumption and destruction
- (c) Analysis of the metallurgical response of the above samples when mixed with average grade leached capping ore
- (d) Similar analysis of metallurgical response emanating from low grade leached capping as mixtures with porphyry ore in a flotation circuit, and also mixtures of low and average grade leached capping with porphyry ore.

Precedent to the work programme and forming a basis to the programme, is the metallurgical testwork currently in progress as follows:

Current Testwork (CMDL Whyalla)

- (a) Standard cyanide leach and comparative grindability tests on 14 intercepts of leached capping between 0.4 and 1.0 g/t Au
- (b) Standard cyanide leach tests on mixtures of leached capping designed to clarify the effects of total copper and acid soluble copper with respect to gold extraction and cyanide usage
- (c) Approximately 5 tonnes of low grade leached capping will be tested in a nominal 7.5 kg/hr pilot plant for assessment of leach extraction, carbon in pulp (CIP) loading and CIP recovery efficiency. A further 5 tonnes of high copper content material will be tested to assess copper contamination effects on the above parameters and for cyanide destruction requirements.

It should be recognized that the applicability of the Stage I gold cyanidation circuit should be proven, or modifications thereto proven, before a second module approved. Proving of the closed circuit primary grind, leaching and carbon in pulp systems may realistically be expected to take up to 12 months.

2.5 *Environment*

The environmental factors affecting the decision on a second gold facility are the free and complex cyanide levels occurring at the tailings dam discharge point and the attendant costs of environmental control. Any prediction of concentrations resulting from a second facility will require an understanding of the rates of cyanide dilution and natural decay in the tailings dam under the range of conditions experienced throughout the year.

Although the pilot plant programme will provide useful information on cyanide decay under various conditions, it must be supplemented by up to one year's monitoring of the environmental effects of the first gold facility before deciding the possibility of an expansion.

The monitoring of the first year's operations will consist of the baseline monitoring as specified in Volume 2 of Consortium Feasibility Study and in Schedule II of the Ok Tedi Concession Agreement (as it may be amended) together with much more detailed sampling in the tailings dam area.

2.6 *Engineering*

During the detailed design phase for the Stage I gold plant, provision will be made for the possibility of a second gold plant module taking capacity to 30,000 tpd. This will embody location, layout of foundations and interconnection points.

Actual design of a second gold plant module would proceed for some three months prior to a final decision to treat low grade leached capping by cyanidation. This would provisionally take place between 9 and 12 months after commissioning of the Stage I plant, after proper assessment of geological, environmental and metallurgical aspects.

Time required to commission a second gold plant module is expected to be 18 months from authorization, broken up as follows:

Placement of firm orders and procurement of materials	4 months
Fabrication, delivery and field erection	12 months
Testing and Commissioning	2 months
	<hr/>
	18 months
	<hr/>

This assumes no exceptionally long delivery items and particularly that the primary mills ordered for Stage II would have been proved suitable for the gold circuit.

Alternatively, engineering would proceed for any necessary modifications to the Stage II flotation plant design which may be required following a decision to treat low grade leach capping during Stage II as additional tonnage within the flotation plant.

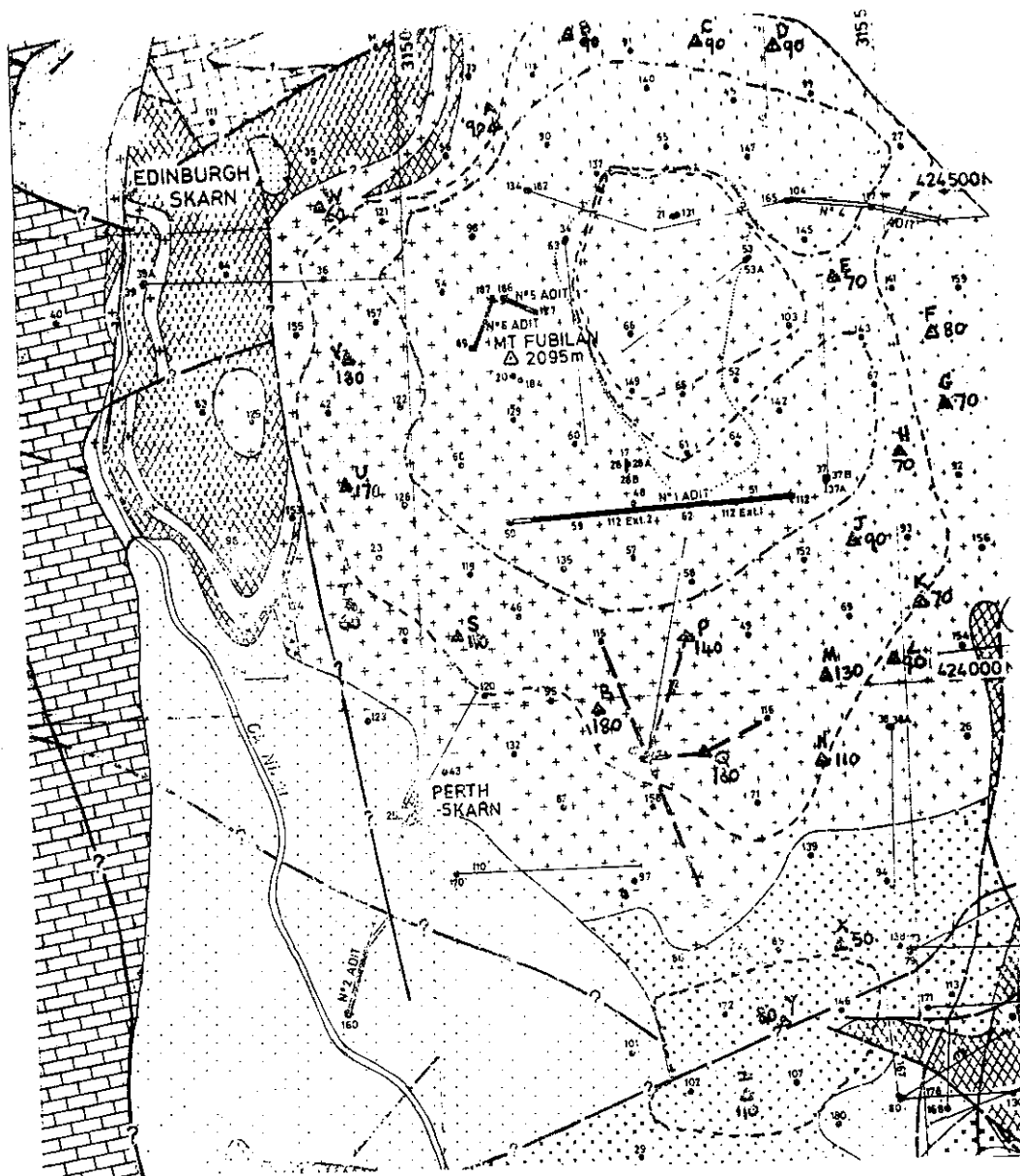


FIG. 1 LOW GRADE GOLD CAPPING—PROPOSED ADITING AND INFILL DRILLING

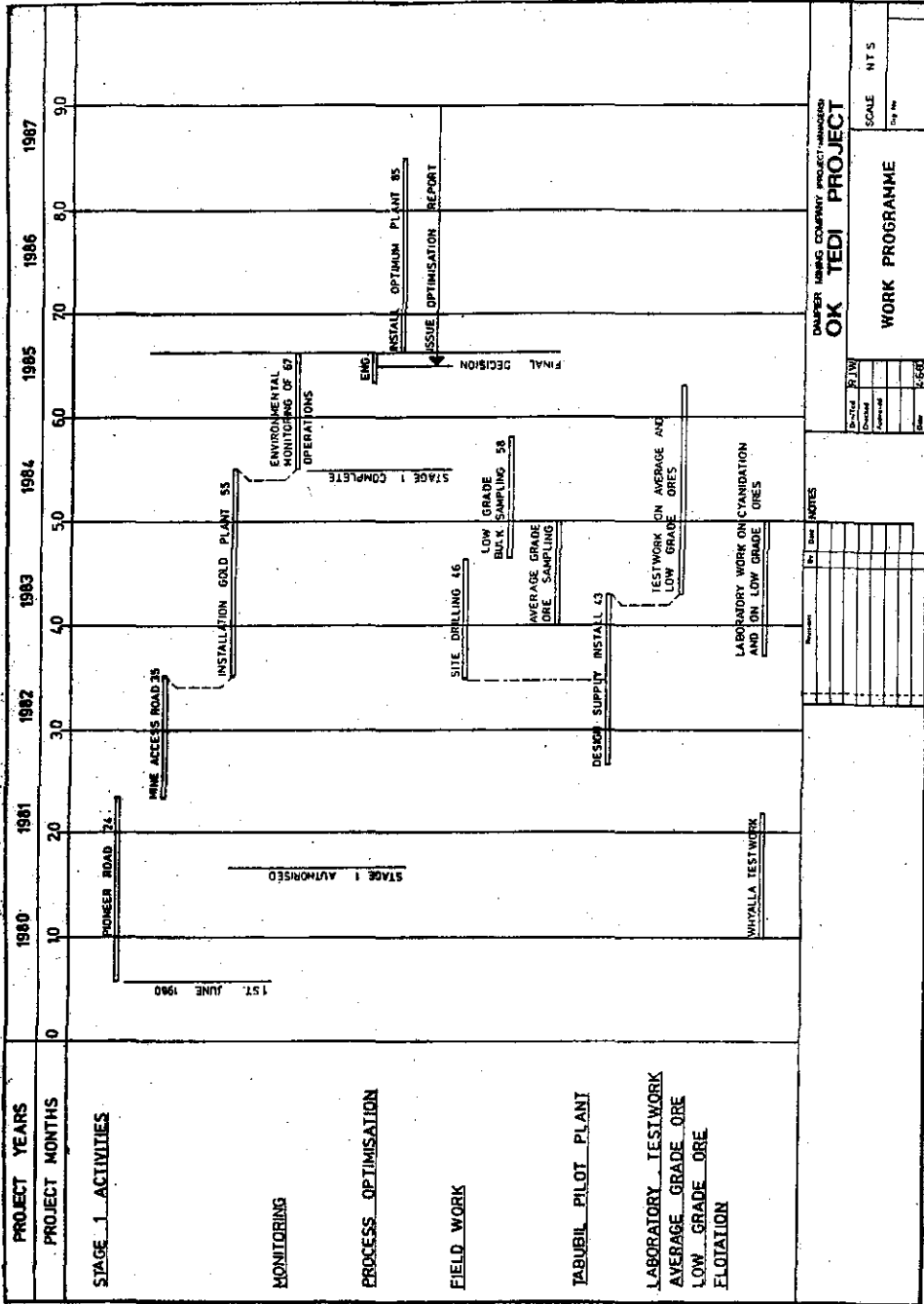
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Legend  
 - - - - 1.0 g/t Au contour, average through leach cap  
 - - - - 0.5 g/t Au on at least one bench in leached cap  
 - - - - Proposed adits (RL 1945)

A Proposed drill hole and target depth (m)

▲ 90 Holes proposed are maximum to give 70m spacing.

Some sites may not be possible and some may not be required after review of proposed surface sampling.



DAUPHIN MINING COMPANY PROJECT MANAGER  
**OK TEDI PROJECT**  
 SCALE N T S  
 Day No.

DATE	BY	INITIALS

NO.	DATE	NOTES

NO.	DATE	NOTES

WORK PROGRAMME

SCHEDULE B

ENVIRONMENTAL IMPACT STUDY

I. OBJECTIVE

The objectives of the Environmental Impact Study ("EIS") are to ensure that—

- (a) baseline data are provided so that the effects of the Project on the existing environment can be investigated;
- (b) predictions are made about the effects of the Project on the existing environment;
- (c) any further alternative ways of achieving the Project's objectives within the strategy proposed in the Consortium Feasibility Study ("CFS") are investigated and assessed in order to minimise the effects on the environment;
- (d) the means to protect the environment from adverse effects are proposed and evaluated;
- (e) the proposed Project is examined in relation to existing local land-use and the potential regional development of the area;
- (f) the interested public and people in the area affected are given the opportunity to participate in consideration of the environmental effects;
- (g) the environmental management program as proposed in the CFS has available to it the necessary baseline data; and
- (h) an environmental impact statement ("Statement") is prepared detailing the results of the EIS and the impact the Project may have on the environment.

II. TIMING

The EIS and preparation and approval of the Statement will be completed prior to the Commencement of Construction.

III. SCOPE OF THE EIS

The EIS will cover the full range of environmental consequences of the Project.

The Statement will be a self-contained document and include a description of the proposed Project and operations with maps, photos, technical data and other information relevant to an assessment of the environmental effects. The Statement will include a summary of recommendations for design alternatives within the scope of the Project as specified in the CFS, and the sources of information, reference documents, literature sources, and research reports used in the EIS. It is to be an objective evaluation of the environmental impact of the Project. A separate self-contained summary which avoids technical jargon as far as possible should be available in English, Motu and Pidgin.

The study will be divided into three parts—

- (a) Part A — Ok Tedi and Catchment;
- (b) Part B — Fly River Waterway and Estuary; and
- (c) Part C — Ocean Port Site.

PART A OK TEDI AND CATCHMENT

In this Part the Study Area means the area immediately surrounding the mine, the mine process facilities and the areas designated for waste rock and tailings disposal, township, roads, hydro-electric scheme, and limestone quarries and processing facilities.

This part of the EIS will cover the following specific points—

- (1) An analysis of the existing environment, to include the following—
  - (a) a photogrammetric evaluation of land classes in the Study Area on the basis of vegetative cover, slope and susceptibility to major soil movement and the preparation of maps based on a suitable photomosaic correlating this study with data from sufficient field traverses to characterise the main soil groups, erosion classes, drainage classes and an assessment of current land use capability. The completed maps and accompanying descriptive reports will indicate actual soil distribution and derived assessment classes, and thus take into account climatic factors and allow

for further interpretation in the light of possible major changes to soil and topography following mining development;

- (b) a description of the hydrologic and sediment transport characteristics of certain streams specified in and based on the sampling schedule set out in Table 1, Part A. This Table, referred to also in Part A (1)(c) and Part B (2)(a) below, is derived from the monitoring program in Table 3/3, page 148, Volume 2 of CFS, modified to apply to the pre-operations phase so as to provide baseline data. Three additional BT stations will also be established. The sediment transport measurements will include bed load where possible, as well as suspended sediment. The frequency of sampling may be varied in consultation with the State, as initial results are reviewed;
  - (c) a description of the chemical characteristics of certain streams specified in and based on the sampling schedule set out in Table 1, Part A. The frequency of sampling may be varied in consultation with the State, as initial results are reviewed. This section will also include an analysis of groundwater chemistry from three points within and downstream of the area proposed for the tailings dam in terms of total dissolved solids, As, Pb, Mo, Hg, Zn, Cu, Fe, Fe<sup>++</sup>, Fe<sup>+++</sup>, CN.
  - (d) an identification of the major habitats and communities both terrestrial and aquatic in the Study Area and along the Ok Tedi and the Kiunga-Tabubil road, with particular emphasis on those species used by local people. Aquatic communities will be described in detail, and this description will include an analysis of species composition. Key species (particularly fish) will be sampled in order to assess food yields. Heavy metal levels, including copper, lead, zinc, mercury and arsenic will be measured in key species at all levels of aquatic food webs of the Ok Tedi; and
  - (e) a description of meteorological conditions in areas where limestone will be extracted and/or processed into lime, as they relate to the dispersion of dust and gases.
- (2) An assessment of the environmental impact of the Project by considering the effects of each of the component phases of mine and ancillary developments on the basic environmental studies detailed in clause (1) of this Part. Alternatives with regard to various components of the operation were considered from the economic, environmental and engineering viewpoint during the preparation of the CFS, and the environmental studies undertaken in conjunction with the CFS provide information on the impact of the selected alternatives. This section will therefore include only a brief summary of the reasons for the selection of the plan of action as outlined in the CFS. However, many decisions with regard to the location and type of project facilities with considerable potential environmental implications will only be made during the detailed design of the project. Effective environmental planning depends on integration of consideration of environmental with other factors during all phases of planning, and design. Therefore this assessment will focus on impacts of various alternative practical locations or treatments *within the scope of the CFS* for each of the components of the mine development. The component studies will include the following aspects of mine development—
- (a) location of water intake including access road and pipeline structures;
  - (b) location of hydroelectric generating station including the dam and pond structure, road access and power transmission lines;
  - (c) location of tailings disposal and access road location. (This section will include an assessment of the possible contamination of groundwater from the tailings impoundment);
  - (d) location of waste dumps. This section will include predictions on the geographic distribution of mine waste sediments at various times during and after mining operations, on the basis of sedimentation analyses as reported in Volume Two of the CFS, together with the results of the baseline monitoring program;
  - (e) construction of access road including power transmission lines where these are adjacent to the road;
  - (f) construction of cable way and transmission lines;
  - (g) construction and continuing habitation of town sites at the River Port, Ningerum and Tabubil;
  - (h) operation of the mine and concentrator including transportation, storage and transhipment of concentrate and supplies (e.g. fuel, processing reagents) at the River Port;
  - (i) construction and operation of lime extraction and processing facilities; and
  - (j) abandonment of the mine and all associated facilities.

- (3) identification of the safeguards (in summary in the case of those outlined in the CFS) to be incorporated into the Project in order to avoid or minimise the adverse environmental effects of each of the component phases of the mine and ancillary developments. This section will also review the expected environmental impact of the Project on this area given the incorporation of the proposed safeguards.
- (4) Ten (10) years prior to the planned end of commercial operations, a final restoration programme will be agreed with the State. During the course of operations there will be progressive rehabilitation of affected areas and specialists will identify suitable ways to restore the mine and waste dumps

#### PART B FLY RIVER WATERWAY AND ESTUARY

This part of the study will cover the following specific points—

- (1) Analysis of the existing environment, to include the following —
  - (a) a description of the hydrologic, sediment transport and chemical characteristics of the Fly River at several points, based on the sampling schedule set out in Table 1, Part B. The frequency of sampling may be varied in consultation with the State, as initial results are reviewed;
  - (b) a survey at twelve points along the Fly River of aquatic life for species evaluation and chemical analyses (of key species). From the results of the survey a prediction will be made to indicate what effects incremental changes in metal ion or metal salt concentrations in the river will have on the accumulation of these elements in aquatic organisms;
  - (c) an aerial photographic survey, with description of the major types of biotic communities adjacent to the Fly River in areas agreed with the State, as potentially affected by the Project. A map of the distribution of the communities based on the aerial photographic survey, and supplemented by descriptions of the important components of the flora and fauna of each community will be prepared; and
  - (d) a study of villages, which it is agreed with the State are adjacent to the Fly River, of population size, structure and growth (based on available census data), settlement patterns (based on aerial photograph interpretation and census data), land use patterns (based on interpretation of aerial photographs supplemented by field surveys in a sample of villages), nutritional and health status (based on existing data supplemented by field surveys in a sample of villages) and significant cultural or archaeological sites to the extent they are revealed by the people concerned and potentially affected by the Project.
- (2) An assessment of the environmental impact of the Project by considering the effects of each of the component phases of mine and ancillary developments on the basic environmental studies detailed in clause (1) of this Part. Alternatives with regard to various components of the operation were considered from the economic, environmental and engineering viewpoint during the preparation of the CFS, and the environmental studies undertaken in conjunction with the CFS provide information on the impact of the selected alternatives. This section will therefore include only a brief summary of the reasons for the selection of the plan of action as outlined in the CFS. However, many decisions with regard to the location and type of project facilities with considerable potential environmental implications will only be made during the detailed design of the project. Effective environmental planning depends on integration of consideration of environmental with other factors during all phases of planning, and design. Therefore this assessment will focus on impacts of various alternative practical locations or treatments *within the scope of the CFS* for each of the components of the mine development. The component studies will include the following aspects of mine development —
  - (a) a summary evaluation of all construction phases in relation to tributary stream sedimentation and seasonal variation in stream-flow and sediment flow;
  - (b) an evaluation of heavy metal input and dilution as a result of continuous mining operations in the Ok Tedi headwaters;
  - (c) an evaluation of the impact of dredging operations at the River Port site;
  - (d) an evaluation of local contamination and impact at the River Port site and along the barge routes in relation to water and aquatic organisms, including an assessment of the risks of spills of concentrate and mining supplies, and the potential impact of such spills; and
  - (e) an evaluation of the Project in its totality on the terrestrial communities along the Fly River waterway, and at the River Port site.

- (3) Identification of the safeguards (in summary in the case of those outlined in the CFS) to be incorporated into the Project in order to avoid or minimise the adverse environmental effects of each of the component phases of the mine and ancillary developments. This section will also review the expected environmental impact of the Project on this area given the incorporation of the proposed safeguards.
- (4) The impact of the Project on the resident population of river villages, identified in Clause (1) (d) of this Part. This section will also include the reactions of such resident population to the Project.
- (5) A continuing environmental management programme as outlined in the CFS will be implemented as the Project proceeds.

#### PART C OCEAN PORT SITE

This part of the study will cover the following specific points—

- (1) A review of available data on the existing environment, more particularly on the following components of the environment—
  - (a) current and drift patterns;
  - (b) aquatic communities; and
  - (c) utilization of marine resources.
- (2) An assessment of the environmental impact of the construction and operation of the Ocean Port and associated facilities on the environment as detailed in Clause (1) of this Part. Alternative locations, processes and treatments should be considered in principle and reported on for both the construction and operation phases. The component studies will include the following aspects of Ocean Port development and operation—
  - (a) construction and operation of the loading dock and bulk-loading facilities, including mechanisms for on-and-off-loading concentrate, process reagents, fuel oil and other mining supplies. This section will include an assessment of the risk of accidental spills and the potential impact of such spills;
  - (b) construction and operation of storage facilities for concentrate, oil and processing reagents;
  - (c) construction, maintenance and use of the access road and power transmission lines, and in particular an assessment of the impact of erosion from road construction;
  - (d) construction and continuing habitation of the town at the Ocean Port site;
  - (e) dredging and filling operations associated with the development.
- (3) Identification of the safeguards (in summary in the case of those outlined in the CFS) to be incorporated into the Project in order to avoid or minimise the adverse environmental effects of each of the component phases. This section will also review the expected environmental impact of the Project on the area of the Ocean Port site given the incorporation of the proposed safeguards.
- (4) Proposals for further studies needed to evaluate more fully the environmental impact of Ocean Port construction and operation. The implementation of the further studies will be agreed with the State.

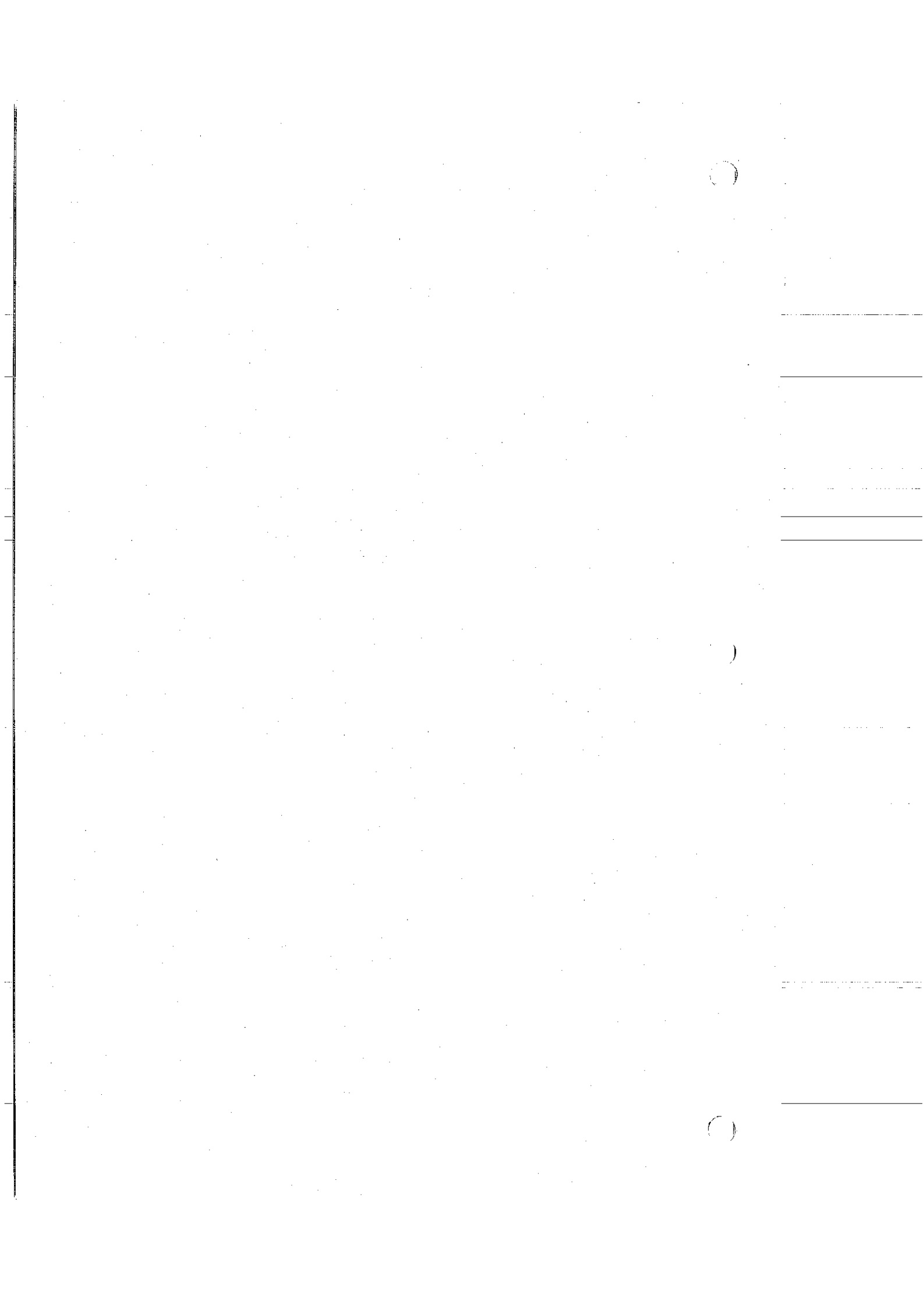


TABLE 1 — BASELINE WATER SAMPLING PROGRAM

	PART A							PART B						
	OK Maiong	Ok Gilor (BT)	Ok Mingi (BT)	Ok Mani — Sn 2 (BT)	Ok Tedi — Sn 1 (B)	Tabubil fresh water	Ok Ma at dam site	Ok Menga	Stns 3, 4, 5, 6, 7 (B)	Konkunda — Sn 8 (BT)	Kiunga — Sn 9 (BT)	Kuambit — Sn 10 (BT)	Ogwa — Sn 12 (B)	Sn 11 (b)
Flow rate	M	M	M	M	M	-	M	M	-	M	M	M	M	-
Stream level	C	C	C	C	C	-	C	C	-	C	C	C	C	-
pH	M	M	M	M	M	-	M	-	-	M	M	M	M	-
Turbidity (JTU)	M	M	M	M	M	-	M	-	-	M	M	M	M	-
Temperature	M	M	M	M	M	-	M	-	-	M	M	M	M	-
%solids (total suspended solids - TSS)	M	M	M	M	W*	M	M	-	-	M	M	M	M	-
TSS analysis (As, Pb, Mo, Hg, Zn, Cu, Fe)	-	M	M	M	W*	M	M	-	-	M	M	M	M	-
TSS trace element scan	-	M	M	M	W*	M	M	-	-	M	M	M	M	-
General mineralogical analysis	-	-	-	-	W*	M	M	-	-	M	M	M	M	-
Bed level	-	Q	Q	Q	Q	-	-	-	Q	Q	Q	Q	Q	Q
Sediment transport (intensive for 3 months, then decreasing)	-	I	I	I	-	-	-	-	-	I	I	I	-	-
Bed sediment sample (where possible)	-	Q	Q	Q	-	-	-	-	-	Q	Q	Q	-	-
Total dissolved solids (TDS)	M	M	M	M	W*	M	M	-	-	M	M	M	M	-
TDS analysis (As, Ph, Mo, Hg, Zn, Cu, Fe, Fe <sup>++</sup> , Fe <sup>+++</sup> )	-	M	M	M	W*	M	M	-	-	M	M	M	M	-
TDS trace element scan	-	M	M	M	W*	M	M	-	-	M	M	M	M	-
Mg, Ca, K, Na	-	M	M	M	W*	M	M	-	-	M	M	M	M	-
BOD	M	-	-	-	M	W	-	-	-	M	M	M	M	-
Oxygen, Nitrogen	M	-	-	-	M	W	-	-	-	M	M	M	M	-
Fecal coliform bacteria	M	-	-	-	M	W	-	-	-	M	M	M	M	-
Inorganic phosphorus	M	-	-	-	M	W	-	-	-	M	M	M	M	-

Notes: Station numbers taken from Fig 3/1, page 149, Vol 2, CFS

- B bed level
- BT bed level and sediment transport
- Q quarterly
- M monthly
- W weekly
- W\* weekly decreasing to monthly if appropriate
- C continuous
- I intensive (hourly, daily or weekly as required)



INDEPENDENT STATE OF PAPUA NEW GUINEA.

CHAPTER NO. 363A.

*Mining (Ok Tedi Supplemental Agreement) Act.*

APPENDIX.

SOURCE OF THE MINING (OK TEDI SUPPLEMENTAL AGREEMENT) ACT.

Part A. — Previous Legislation.

*Mining (Ok Tedi Supplemental Agreement) Act 1980 (No. 24 of 1980.)*

Part B. — Cross References.

Section etc., in Revised Edition.	Previous Reference <sup>1</sup> .
1	1
2	2
3	3
4	4
Schedule	Schedule
Schedule A	Schedule A
Schedule B	Schedule B

<sup>1</sup>Unless otherwise indicated, references are to the Act as set out in Part A.

