

SETTLEMENT AGREEMENT

1987, This Agreement is made this 14th day of September,

BETWEEN:

ALCAN ALUMINIUM LIMITED, a Canada  
corporation (formerly named  
"Aluminum Company of Canada,  
Limited")

(hereinafter called "Alcan")

OF THE FIRST PART,

AND:

HER MAJESTY THE QUEEN IN RIGHT OF  
CANADA, represented by THE MINISTER  
OF FISHERIES AND OCEANS

(hereinafter called the "Federal Crown")

OF THE SECOND PART,

AND:

HER MAJESTY THE QUEEN IN RIGHT OF  
THE PROVINCE OF BRITISH COLUMBIA,  
represented by THE MINISTER OF  
ENERGY, MINES AND PETROLEUM  
RESOURCES

(hereinafter called the "Provincial Crown")

OF THE THIRD PART.

WHEREAS:

A. Pursuant to the 1950 Agreement, the Provincial Crown granted Alcan rights to use certain water resources in British Columbia, including water from the Nechako River, to produce hydroelectric power for industrial purposes;

B. Relying upon its ownership of these rights, Alcan has developed hydroelectric facilities and a major aluminum smelter, as well as townsites and related facilities at Kitimat and Kemano, all in British Columbia;

C. Alcan's ability to generate hydroelectric power for its smelter and other industrial purposes depends upon the continuation of its rights to use such water resources;

D. As provided in the 1950 Agreement, Alcan is considering completion of its hydroelectric facilities in British Columbia;

E. The Minister of Fisheries and Oceans, Canada (hereinafter called the "Minister") exercises jurisdiction under the Fisheries Act (Canada) in respect of the protection and management of fish resources in accordance with, inter alia, the Habitat Policy;

F. The Minister has issued an opinion, dated concurrently herewith, under subsection 20(10) of the Fisheries Act (Canada) in respect of the Nechako River, a copy of which is attached as Schedule "A" to this Agreement; and

G. The Parties, in order (a) to achieve an acceptable level of certainty that such water resources will be managed so as to conserve and protect the chinook and sockeye salmon resources of the Nechako River; and (b) to ensure Alcan's continuing ability to generate hydroelectric power for industrial purposes, wish to enter into this Agreement;

THIS AGREEMENT WITNESSES that in consideration of the premises and the covenants and agreements hereinafter set forth (the sufficiency of which is hereby acknowledged), the Parties hereby covenant and agree, as follows:

#### Section 1 - Definitions

In this Agreement:

- a. "1950 Agreement" means the Agreement made the 29th day of December, 1950 between the Provincial Crown and

Alcan under the authority of the Industrial Development Act (British Columbia);

- b. "Action" means the legal action commenced by the Attorney General of Canada against Alcan in the Supreme Court of British Columbia, Vancouver Registry, under no. C803064;
- c. "Alcan's Licence" means any water licence, conditional water licence or permit issued pursuant to the 1950 Agreement including conditional water licence no. 19847 and permit to occupy lands no. 3449, both dated 29 December, 1950;
- d. "Alcan's Storage Facilities" means the Kenney Dam (and ancillary saddle dams), the Nechako Reservoir and the Skins Lake Spillway, and includes the Kenney Dam Release Facility;
- e. "Annual Water Allocation" means the quantity of water required to be released in accordance with the provisions of this Agreement during each twelve month period commencing on the first day of April in each and every year during such period of time as this Agreement will remain in force and continuing up to and including the next following thirty-first day of March;
- f. "Annual Water Year" means a twelve month period commencing on the first day of April and continuing up to and including the next following thirty-first day of March;
- g. "Computer Models" means the computer models which have been used since 1983 for the purposes of temperature maintenance and control in the Nechako River and which are outlined in the Envirocon Limited Technical Memorandum 1957/2 "Documentation of the Nechako River Unsteady State Water Temperature Model", Technical Memorandum 1957/1 "Documentation of the Nechako River Unsteady State Flow Model", and Technical Memorandum 1957/3 "Documentation of the Users Guide to the 1984 Nechako River Thermal Model", copies of which have been delivered to the Parties concurrently with the execution of this Agreement, together with such modifications as may be necessary as a result of operation of the Kenney Dam Release Facility;
- h. "Conservation Goal" means the conservation on a sustained basis of the target population of Nechako River chinook salmon including both the spawning

escapement and the harvest as referred to in paragraph 3)1. of the Summary Report;

- i. "Habitat Policy" means the "Policy for the Management of Fish Habitat" published by the Department of Fisheries and Oceans (Canada) in 1986;
- j. "Kenney Dam" means the rock filled dam in the Grand Canyon of the Nechako River, constructed, owned, occupied and operated by Alcan;
- k. "Kenney Dam Release Facility" means the water release facility to be designed and constructed at or near Kenney Dam by Alcan;
- l. "Monitoring" includes the set of measurements and the structures necessary to make those measurements which are required to determine whether the Remedial Measures implemented pursuant to this Agreement have achieved the Conservation Goal and to provide information to the Technical Committee on water releases from the Nechako Reservoir and discharges of water and temperatures of the water in the Nechako River and the act of making such measurements;
- m. "Murray-Cheslatta System" means those bodies of water between the Skins Lake Spillway and Cheslatta Falls, and all streams and lakes tributary thereto;
- n. "Nanika River" means the Nanika River in British Columbia and all streams and lakes tributary thereto;
- o. "Nechako River" means the Nechako River in British Columbia below the Kenney Dam and all streams and lakes tributary thereto;
- p. "Nechako Reservoir" means the reservoir established and operated by Alcan on the Nechako River above Kenney Dam;
- q. "Parties" means Alcan, the Federal Crown, the Provincial Crown, each of whom is a party to this Agreement;
- r. "Physical Work" includes any instream or off-channel modification, activity or structure, for the purpose of conserving the target population of chinook salmon as contemplated in paragraph 4 of the Summary Report;
- s. "Protocol" means the protocol employed for determining flow adjustments as set out in chapter 2.0 "Methods" of

Envirocon Limited Technical Memorandum 1941/C "Review of the 1984 Nechako River Hydrothermal Monitoring and Control Program", copies of which have been delivered to the Parties concurrently with the execution of this Agreement;

- t. "Release Sites" means any site at which water is released from the Nechako Reservoir into the Nechako River, including, without restricting the generality of the foregoing, the Skins Lake Spillway and the Kenney Dam Release Facility;
- u. "Remedial Measures" means any Physical Work, management of water allocation, or other action determined pursuant to this Agreement to be needed for the achievement of the Conservation Goal;
- v. "Skins Lake Spillway" means the spillway facilities constructed, owned and operated by Alcan in the vicinity of Skins Lake, British Columbia;
- w. "Steering Committee" means the Steering Committee referred to in section 3 of this Agreement;
- x. "Summary Report" means the Summary Report of the Nechako River Working Group dated August 24, 1987, a copy of which is attached as Schedule "B" to this Agreement;
- y. "Technical Committee" means the Technical Committee referred to in section 3 of this Agreement; and
- z. "Water Comptroller" means the comptroller as defined in the Water Act (British Columbia).

## Section 2 - Obligations of the Parties

### 2.1 Alcan's Obligations:

So long as Alcan performs the covenants and agreements on its part contained in this Agreement, as required hereunder, Alcan's obligations to release water subject to Alcan's Licence at any Release Site will be satisfied hereunder as follows:

#### A. Short Term Flow Obligation:

- (a) Commencing immediately upon the execution of this Agreement by the Parties, and continuing until the

31st day of March, 1988, Alcan will permit to escape through the Skins Lake Spillway into the Murray-Cheslatta System and the Nechako River, a quantity of water sufficient to achieve the flows in the Nechako River at Cheslatta Falls (measured at hydro-metric station no. 08JA017) set out in Column II of Schedule "C" to this Agreement, at the times specified in such Schedule;

- (b) Commencing on the first day of April, 1988, and continuing until such time as the Kenney Dam Release Facility is operating, Alcan will permit to escape through the Skins Lake Spillway into the Murray-Cheslatta System and the Nechako River an Annual Water Allocation equivalent to a mean annual water flow measured at Skins Lake Spillway of at least 36.8 cubic metres per second plus such additional flows as are determined to be required for cooling purposes by the Computer Models and Protocol (hereinafter referred to as the "Short Term Annual Water Allocation"); and
- (c) Alcan will permit Alcan's Storage Facilities to be used for the purpose of releasing the Short Term Annual Water Allocation in accordance with the following:
  - i. The Technical Committee will manage the Short Term Annual Water Allocation with the object of achieving the flows set out in Column II of Schedule "C" to this Agreement or as the Technical Committee may otherwise determine in accordance with this Agreement, and will direct Alcan accordingly;
  - ii. Alcan will release the Short Term Annual Water Allocation in accordance with such directions, or failing any such directions, in accordance with Column I of Schedule "C" to this Agreement;
  - iii. Alcan will be responsible for and have complete control over the operation of Alcan's Storage Facilities;
  - iv. in the event that Alcan proposes to release flows in excess of the Short Term Annual Water Allocation, Alcan will so notify the Technical Committee and comply with the directions of the Technical Committee

regarding the timing of such releases, unless otherwise directed by the Water Comptroller;

- v. in the event that Alcan releases flows pursuant to clause 2.1 A. (c) iv of this Agreement, the quantity of water so released will be deemed not to be included as a part of the water required to be released pursuant to clauses 2.1 A. (a) or (b);
- vi. any measurement in connection with the release of the Short Term Annual Water Allocation will be made at the Skins Lake Spillway and in the event of dispute will be determined by the Technical Committee;
- vii. Alcan will not be obligated to store any portion of an Annual Water Allocation beyond the applicable Annual Water Year; and
- viii. Alcan will continue to maintain and operate the Computer Models and Protocol necessary to maintain temperature control in the Nechako River in accordance with this Agreement.

B. Long Term Flow Obligation:

- (a) At such time as the Kenney Dam Release Facility is operating, Alcan will permit to escape through the Kenney Dam Release Facility and/or the Skins Lake Spillway as may be specified, from time to time by the Technical Committee, into the Nechako River, an Annual Water Allocation equivalent to a mean annual water flow measured at the Kenney Dam Release Facility and/or the Skins Lake Spillway of at least 19.6 cubic metres per second plus such additional flows as are determined to be required for cooling purposes by the Computer Models and Protocol (hereinafter referred to as the "Long Term Annual Water Allocation");
- (b) Alcan will permit Alcan's storage facilities to be used for the purpose of releasing the Long Term Annual Water Allocation in accordance with the following:
  - i. The Technical Committee will manage the Long Term Annual Water Allocation with the object of achieving the flows set out in Column II of Schedule "D" to this Agreement or as the Technical Committee may otherwise determine

in accordance with this Agreement, and will direct Alcan accordingly;

- ii. Alcan will release the Long Term Annual Water Allocation in accordance with such directions, or failing any such directions, in accordance with Column I of Schedule "D" to this Agreement;
  - iii. Alcan will be responsible for and have complete control over the operation of Alcan's Storage Facilities;
  - iv. in the event that Alcan proposes to release flows in excess of the Long Term Annual Water Allocation, Alcan will so notify the Technical Committee and comply with the directions of the Technical Committee regarding the timing of such releases, unless otherwise directed by the Water Comptroller;
  - v. in the event that Alcan releases flows pursuant to clause 2.1 B. (b) iv of this Agreement, the quantity of water so released will be deemed not to be included as a part of the water required to be released pursuant to clause 2.1 B. (a);
  - vi. any measurement in connection with the release of the Long Term Annual Water Allocation will be made at the Kenney Dam Release Facility and/or the Skins Lake Spillway and in the event of dispute will be determined by the Technical Committee; and
  - vii. Alcan will not be obligated to store any portion of an Annual Water Allocation beyond the applicable Annual Water Year; and
- (c) If for any reason Alcan is unable to permit to escape through the Kenney Dam Release Facility the Long Term Annual Water Allocation, Alcan will, during such period of time as it is so unable, permit to escape through the Skins Lake Spillway such quantity of water as is necessary to provide flows measured at Cheslatta Falls (measured at hydro-metric station no. 08JA017) equivalent to those specified in Column II of Schedule "D".



C. Construction of Kenney Dam Release Facility:

- (a) In the event that Alcan proceeds to construct the Kenney Dam Release Facility, it will do so at its own expense and in accordance with plans and specifications approved by the Technical Committee. The Kenney Dam Release Facility together with the Computer Models and Protocol will be operated and maintained at the sole expense of Alcan.
- (b) The Kenney Dam Release Facility will not be put into operation until at least the expiration of 12 months from the cessation of flows which are in excess of 283.2 cubic metres per second and which are the result of the construction of a new tunnel or modifications to the existing tunnel to the power house at Kemano.

D. Implementation of Summary Report:

(a) Physical Work:

- i. Alcan will construct and install any Physical Work determined pursuant to this Agreement to be needed for the achievement of the Conservation Goal in accordance with plans and specifications approved by the Technical Committee;
- ii. The implementation of any Physical Work will be consistent with the recommendations contained in the Summary Report and in accordance with the directions of the Technical Committee; and
- iii. Alcan will during such period of time as this Agreement will remain in force pay and be responsible for all the construction, installation, maintenance, and operating costs of any Physical Work.

(b) Monitoring:

- i. Alcan will pay half the costs of Monitoring.

(c) Technical and Steering Committees:

- i. Alcan will pay half the costs of participation by the external expert on the Technical Committee.

E. Amended Water Licence:

- (a) Alcan hereby abandons in perpetuity all of its rights to store, divert and use water and to construct, maintain and operate works of any nature on the Nanika River, including those granted by or pursuant to the 1950 Agreement, Alcan's Licence, Order-in-Council 2883/1950, the Industrial Development Act (British Columbia) or Water Act (British Columbia).
- (b) Alcan will apply to the Provincial Crown, contemporaneously with the execution of this Agreement by the Parties, to amend Alcan's Licence and the 1950 Agreement, as necessary, and take all such other steps as may be required to reflect such abandonment.
- (c) Alcan will not seek compensation from the Federal Crown in respect of any water foregone by reason of any action by the Minister prior to the execution of, or pursuant to, this Agreement, and hereby releases the Federal Crown from all claims or demands in respect of such compensation.
- (d) Alcan will not seek compensation from the Provincial Crown under the 1950 Agreement in respect of any water foregone pursuant to this Agreement, and hereby releases the Provincial Crown from all claims or demands in respect of such compensation.
- (e) Alcan hereby abandons in perpetuity all of its rights to store water in the Cheslatta Lake and the Murray Lake, and to build water storage facilities at the outlet of the Murray Lake, arising under conditional water licence no. 20779; provided that Alcan reserves to itself all rights to release water through the Skins Lake Spillway as contemplated in this Agreement.

F. Provision of Information:

Alcan will provide the Technical Committee, on an ongoing basis, with the required technical information in the possession or control of Alcan in any way relating to the quantity of water inflowing into the Nechako Reservoir and Murray-Cheslatta System, the Computer Models and

Protocol, and the water temperature at Cheslatta Falls and the confluence of the Stuart River and Nechako River.

2.2 Federal Crown's Obligations:

A. Implementation of Summary Report:

(a) Monitoring:

- i. The Federal Crown will pay half the costs of Monitoring.

(b) Research Obligation:

- i. The Federal Crown will pay all costs of the applied research programs referred to in the Summary Report.

(c) Technical and Steering Committees:

- i. The Federal Crown will pay half the costs of participation by the external expert on the Technical Committee.

B. Amended Water Licence:

The Federal Crown will not challenge the legal validity of the 1950 Agreement, or any licence, permit, interest, entitlement, or right in favour of Alcan issued thereunder.

C. Federal Authorization:

- (a) The Minister, on behalf of the Federal Crown, will use his best efforts to have the Governor-in-Council make regulations pursuant to sub-section (3)(b) of section 33.1 of the Fisheries Act (Canada) prescribing that the only circumstances in which the Minister or a person designated by the Minister may make orders under sub-section (2) of section 33.1 in relation to the operation of the Kenney Dam and Skins Lake Spillway which are inconsistent with the terms and conditions of this Agreement, are as follows:

- i. in the event Alcan fails, neglects or refuses, after reasonable notice from the Minister, to permit to escape into the Nechako River and/or the Murray-Cheslatta System the Short Term Annual Water Allocation

or Long Term Annual Water Allocation as provided for in this Agreement; or

- ii. in the event Alcan fails, neglects or refuses, after reasonable notice from the Minister, to operate or maintain at its sole expense the Kenney Dam Release Facility, if constructed, or to construct, install, operate or maintain any Physical Work, or the Computer Models and Protocol, in accordance with this Agreement.

### 2.3 Provincial Crown Obligations:

#### A. Remedial Program:

- (a) The Provincial Crown will implement the freshwater fishery management strategy outlined in the letter dated August 28, 1987, to the Minister as attached as Schedule "E" to this Agreement, in a manner consistent with the Conservation Goal.
- (b) To maintain the annual inflow from the Murray-Cheslatta System into the Nechako River, estimated to be 5.0 cubic metres per second, the Provincial Crown will:
  - i. place a Water Reserve, as defined in the Water Act (British Columbia), on the natural flow in the Murray-Cheslatta System for fisheries and instream purposes; and
  - ii. not authorize the diversion of any water in the Murray-Cheslatta System to lands outside the Murray-Cheslatta System.
- (c) In the event that a water storage dam is authorized in the Murray-Cheslatta System, the Water Comptroller will require that a water management plan be prepared jointly by the Federal Crown and the Provincial Crown to co-ordinate the releases of water from the Nechako Reservoir and such water storage dam, so as best to manage the Long Term Annual Water Allocation, while meeting other downstream needs.

#### B. Amended Water Licence:

- (a) The Provincial Crown will amend Alcan's Licence and the 1950 Agreement and take all such other

steps, as may be necessary to accomplish the abandonment by Alcan of all its rights to store, divert and use water and to construct maintain and operate works of any nature on the Nanika River, including those granted by or pursuant to the 1950 Agreement, Alcan's Licence, Order-in-Council 2883/1950, the Industrial Development Act (British Columbia) or Water Act (British Columbia), and covenants and agrees not to reinstate such rights at any time in the future.

- (b) The Provincial Crown will assign or licence to the Federal Crown, during such period of time as this Agreement will remain in force, without compensation, an amount of water in each Annual Water Year equivalent to the Short Term Annual Water Allocation for that year or the Long Term Annual Water Allocation for that year, as the case may be, in accordance with this Agreement and by means of an appropriate authorization under the Industrial Development Act (British Columbia) or the Water Act (British Columbia).
- (c) The Provincial Crown acknowledges that neither the acceptance by the Federal Crown of the assignment and licence referred to in clause 2.3 B(b) of this Agreement, nor the payment of any fee, rental or charge in respect of any such assignment or licence, constitutes any acknowledgement on the part of the Federal Crown that Canada requires any leave or licence of the Province of British Columbia for the use of any water in British Columbia for the safety of fish.

#### 2.4 Joint Obligations:

- A. The Parties unconditionally accept the spirit and principles of the Summary Report and will implement the Summary Report as provided in this Agreement.
- B. Each of the Parties will pay and be responsible for all costs of and incidental to the participation by its own representatives on the Technical and Steering Committees.
- C. Each of the Parties will use its best efforts to execute and deliver all such further documents and agreements, do and complete all such acts, deeds and things (including the obtaining of necessary

approvals or authorizations and providing official copies of such approvals or authorizations) and provide all such reasonable assurances as may be necessary to carry out and implement the full intent and meaning of this Agreement.

- D. Each of the Parties will provide such supplemental licences, permits and other authorizations, and amendments thereto as may be necessary or advisable in consequence of this Agreement and to implement the matters contemplated by this Agreement, including without limitation construction of the Kenney Dam Release Facility and any dredging of the Tahtsa Narrows by Alcan in the Nechako Reservoir.

## 2.5 Limitation

After the date of this Agreement, and unless expressly required herein, neither the Federal Crown nor the Provincial Crown will require Alcan to bear any obligation, liability or expense, not mandatory under any applicable statute in effect at the date of this Agreement, in connection with or as a result of (i) any public hearing or regulatory process, or (ii) any mitigation or compensation measure whatsoever relating to the subject matter or implementation of this Agreement, insofar as it applies to the Nechako Reservoir, the Nechako River or the Murray-Cheslatta System, if such obligations, liabilities or expenses are not expressly required by the 1950 Agreement, Alcan's Licence, the Industrial Development Act (British Columbia), Order-in-Council 2883/1950, or this Agreement.

## Section 3 - Establishment of Committees

### 3.1 Establishment of Committees

The Parties will establish the Steering Committee and the Technical Committee in accordance with the Summary Report and this Agreement.

### 3.2 Steering Committee

The membership, responsibilities and proceedings of the Steering Committee will be determined as follows:

- (a) The Steering Committee will consist of three members. Each of the Parties will appoint from time to time one senior representative, who will be empowered by the Party appointing him/her to bind such Party to a decision made by the Steering Committee;

- (b) The Steering Committee will establish a schedule for its regular meetings which will be held at least annually. Any member may call for a meeting of the Steering Committee by giving reasonable notice of such meeting to the other members including a statement of the issues to be discussed. Meetings of the Steering Committee will be held in Vancouver, British Columbia unless the members otherwise agree;
- (c) In the event any Party fails or refuses to appoint such member, or such member being appointed fails or refuses to act, the remaining member or members may exercise the powers or function of the Steering Committee;
- (d) The Steering Committee, among other things, will:
  - i. oversee the implementation of this Agreement;
  - ii. determine any matter referred to it by the Technical Committee;
  - iii. approve and publish annual reports on program activities and effectiveness; and
  - iv. approve the annual program of activities relating to the achievement of the Conservation Goal submitted by the Technical Committee; and
- (e) Decisions of the Steering Committee will be unanimous. Failing unanimity on any matter to be determined by the Steering Committee under this Agreement, any member of the Steering Committee, may, in writing, request the matter to be determined by arbitration by a single arbitrator in accordance with the applicable provisions of the Commercial Arbitration Act (Canada) and/or Commercial Arbitration Act (British Columbia) in which event the matter will be referred to an arbitrator for decision in accordance with said Acts as may be applicable.

### 3.3 Technical Committee

The membership, responsibilities and proceedings of the Technical Committee will be determined as follows:

- (a) The Technical Committee will consist of four members. Each Party will appoint from time to time one member plus an alternate member. The fourth member will be an independent expert selected for his technical expertise by the members appointed by the Parties;
- (b) Each Party's representative will be an employee or consultant retained for the purpose by that Party with relevant scientific/engineering expertise in salmonid habitat improvement methodologies. For as long as is reasonably practical, each Party will attempt to designate its member from the membership of the Nechako River Working Group referred to in the Summary Report;
- (c) The Technical Committee will establish a schedule for regular meetings. Any member may call for a meeting of the Technical Committee by giving reasonable notice of such meeting to the other members including a statement of the issues to be discussed. Meetings of the Technical Committee will be held in Vancouver, British Columbia unless the members otherwise agree;
- (d) In the event any Party fails or refuses to appoint such member, or such member being appointed fails or refuses to act, the remaining member or members may exercise the powers or function of the Technical Committee;
- (e) The Technical Committee will be responsible for the implementation and ongoing administration of the program of remedial measures, monitoring, and applied research outlined in the Summary Report, to achieve the Conservation Goal. The Technical Committee, among other things, will:
  - i. determine any matter specified in this Agreement to be for decision or determination by the Technical Committee including, without limitation, managing releases of the Annual Water Allocation in the applicable Annual Water Year;
  - ii. determine, design, implement and administer a program of feasibility, pilot testing and Remedial Measures to ensure achievement of the Conservation Goal;



- iii. determine, design, implement and administer a program of monitoring to evaluate the effectiveness of Remedial Measures including monitoring of stock status, habitat performance, and specific measures performance;
  - iv. recommend to the Steering Committee a program of applied research to be conducted on the Nechako River to elucidate areas of technical uncertainty as indicated by the Summary Report, and administer any such program which the Steering Committee decides to implement;
  - v. determine criteria for decision-making in accordance with clause 3.4 with respect to, among other things, Remedial Measures implementation, Remedial Measures success and stock status consistent with the Summary Report;
  - vi. prepare and submit to the Steering Committee annually a report on activities and program effectiveness; and
  - vii. prepare and submit an annual program of activities relating to the achievement of the Conservation Goal for approval by the Steering Committee; and
- (d) The Technical Committee will report to the Steering Committee; and
  - (e) Decisions of the Technical Committee will be unanimous. Failing unanimity on any matter to be decided by the Technical Committee under this Agreement, any member of the Technical Committee may, in writing, request the matter be referred to the Steering Committee for determination.

#### 3.4 Decision Making Criteria

- A. The Technical Committee will be directed by the Parties to establish a comprehensive body of decision making criteria by November 1, 1987.
- B. In the event that the Technical Committee (or the Steering Committee or arbitration, in the case of dispute) has not determined such criteria by January 1, 1988, the following general criteria will apply until such determination is made:

## (a) In deciding:

- i. whether to implement a specific Remedial Measure;
- ii. the design of such Remedial Measure;
- iii. when such Remedial Measure should be implemented; and
- iv. the extent to which such Remedial Measure is implemented;

the Technical Committee shall base its decisions upon the following considerations:

- (1) the Remedial Measure is biologically sound;
- (2) the Remedial Measure is reasonable and based upon practical and proven techniques;
- (3) the Remedial Measure is cost effective, compared to alternative means of achieving the same biological objective within the same stage; and
- (4) implementation of the Remedial Measure is in accordance with the Habitat Policy.

## (b) In deciding whether to progress from one stage to the next stage, as contemplated in the Summary Report, the Technical Committee shall base its decision on the following considerations:

- i. transition to the next stage is necessary to achieve the Conservation Goal; and
- ii. all reasonable efforts to achieve the Conservation Goal under the current stage have been demonstrated to be inadequate.

## C. The Technical Committee may from time to time amend the decision making criteria in order to adjust its relevancy to current conditions.

3.5 Duration of Programs

The Steering Committee and Technical Committee will remain in existence and the Remedial Measures will

continue until such time as sustained achievement of the Conservation Goal can be demonstrated to the satisfaction of the Steering Committee or the Technical Committee.

#### Section 4 - Conditions

4.1 This Agreement will be of no force or effect at the option of Alcan if:

- (a) All further documents required by this Agreement to be negotiated, executed and delivered by the Federal Crown or Provincial Crown are not negotiated, executed and delivered by January 1, 1988, or such other date as may be mutually agreed upon in writing by the Parties; or
- (b) The regulations referred to in clause 2.2 C are not made or delivered to Alcan, as the case may be, by January 1, 1988 or such other date as may be mutually agreed upon in writing by the Parties.

4.2 This Agreement will be of no force or effect at the option of the Federal Crown if all licences and licence modifications described in clauses 2.1 E(b) and 2.3 B(a) and (b) have not been obtained by January 1, 1988, or such other date as may be mutually agreed upon in writing by the Parties.

4.3 Notwithstanding any other provision of this Agreement, this Agreement shall not come into force until approved by the Treasury Board pursuant to the Financial Administration Act (Canada).

#### Section 5 - Disposition of Action

5.1 Immediately upon the execution by all Parties of this Agreement:

- (a) The Parties will apply to adjourn generally the trial of the Action and cease from taking any further legal steps or proceedings with respect to the Action except as expressly provided in this Agreement; provided, however, that nothing herein shall prevent the Attorney-General of Canada from applying for injunctive or other relief in the event that Alcan fails to release flows equivalent to those set out in clause 2.1A.(a) in accordance with this Agreement; and

- (b) Upon the satisfaction of all conditions set forth in section 4, the Parties will consent to the discontinuance of the Action.

5.2 Each Party will bear its own costs and expenses incurred in connection with the Action and the negotiation and settlement of this Agreement.

#### Section 6 - General

6.1 No Party to this Agreement will be liable, or suffer any consequence under this Agreement, for any failure to observe or perform any term, condition, covenant or agreement contained in this Agreement for reasons beyond its reasonable control, including, without limitation, by reason of fire, flood or Act of God. Any Party unable to observe or perform any term, condition, covenant or agreement contained in this Agreement by reason of the foregoing will make every effort to resume such observance or performance as soon as such force majeure is eliminated.

6.2 All notices, requests and other communications hereunder will be in writing and will be delivered by hand as follows:

i. To Alcan:

Alcan Aluminium Limited,  
1188 Sherbrooke Street West,  
Montreal, Quebec,  
H3A 3G2

Attention: Chief Legal Officer

ii. To the Federal Crown:

The Regional Director-General,  
Department of Fisheries and Oceans, Canada  
555 West Hastings Street,  
Vancouver, British Columbia  
V6B 5G3

iii. To the Provincial Crown:

Deputy Minister of Environment and Parks,  
Parliament Buildings,  
Victoria, British Columbia,  
V8V 1X4

or to such other address as may be given by notice as aforesaid by the particular Party, and will be deemed to have been given on the date of delivery.

6.3 This Agreement, the Schedules hereto, and the documents and agreements to be delivered pursuant hereto constitute the entire Agreement between the Parties and will not be amended or modified except by agreement in writing executed by the Parties.

6.4 No waiver of any provision of this Agreement, the Schedules hereto or the documents and agreements to be delivered pursuant hereto will be deemed to or will constitute a waiver of any other provision hereof or thereof nor will such waiver constitute a continuing waiver unless otherwise expressly provided.

6.5 This Agreement and the documents and agreements to be delivered pursuant hereto will be governed by the construed in accordance with the applicable laws in force in the Province of British Columbia.

6.6 Time will be of the essence of this Agreement.

6.7 This Agreement will be binding upon and enure to the benefit of the Parties hereto and their successors and assigns. Alcan may assign any interest, right or obligation of Alcan hereunder provided the assignee first covenants with the Federal Crown and the Provincial Crown to observe and perform all terms, conditions, covenants and agreements on the part of Alcan for the benefit of the other Parties. Notwithstanding any such assignment by Alcan, it will continue to be bound by such terms, conditions, covenants and agreements.

6.8 Subject as herein provided this Agreement will continue in full force and effect for the duration of Alcan's Licence and of all further licences, permits and authorities in place or succession thereof issued or granted to Alcan, its successors or assigns.

6.9 This Agreement does not constitute approval or precedent regarding any principle or issue in the Action.

6.10 Each of the Parties stipulate that execution of this Agreement will not constitute approval or admission of or precedent regarding any principle, factor or issue in any subsequent proceedings.

6.11 Notwithstanding any other provision of this Agreement, any Party may seek relief arising solely from non-compliance with this Agreement by any Party.

6.12 Notwithstanding any other provision of this Agreement, the availability of all funds to be paid under this Agreement by the Federal Crown is subject to the appropriation thereof by Parliament of Canada.

6.13 No member of the House of Commons will be admitted to any share or part of this Agreement or benefit to arise therefrom.

6.14 Any reference in this Agreement to any statute or enactment of the Parliament of Canada or of the Legislature of British Columbia will be deemed to include all subsequent amendments thereto, and to all subsequent statutes and enactments in place of or substitution for the statute or enactment so named or having similar or related purpose.

6.15 Nothing herein shall be construed as affecting the Minister's powers under the Fisheries Act (Canada) except as such powers may be affected by regulations made as a result of clause 2.2C. of this Agreement.

IN WITNESS WHEREOF Alcan, the Federal Crown and the Provincial Crown have each executed this Agreement, each party being duly authorized and empowered to execute this Agreement, as of the day and year first above written.

WITNESS:

) ALCAN ALUMINIUM LIMITED,  
) by its Attorney-in-Fact

Name

Address

HER MAJESTY THE QUEEN IN RIGHT  
OF CANADA

Per:

) Honourable Tom Siddon, P.C., M.P.,  
) Minister of Fisheries and Oceans.

HER MAJESTY THE QUEEN IN RIGHT  
OF THE PROVINCE OF BRITISH  
COLUMBIA

Per:

) Honourable Jack Davis, Minister  
) of Energy, Mines and Petroleum  
) Resources.

Minister of  
Fisheries and Oceans



Ministre des  
Pêches et des Océans

September 14, 1987

Mr. David Morton, President  
Aluminum Company of Canada Limited  
1188 Sherbrooke Street West  
Montreal, Quebec  
H3A 3G2

Dear Sir:

You are in receipt of my letter of April 9, 1987 setting out my opinion pursuant to Section 20(10) of the Fisheries Act, R.S.C. 1970, c.F-14 and amendments thereto with respect of the flows, measured at hydro-metric station 08JA017 on the Nechako River, below Cheslatta Falls, which are required to provide sufficient water for the safety of fish and the flooding of the spawning grounds to such depth as is necessary for the safety of the ova deposited thereon.

Since forming that opinion, I have received additional information which allows me to conclude that there exist alternative ways of providing an acceptable level of certainty for the protection of the fish in the Nechako River to the flow regime set out in my letter of April 2, 1987. With the existing facilities in place, it is my opinion that flows can be reduced to the level identified in paragraph 2.1 A(b) of the Agreement made the 14th day of September, 1987 between Alcan, the Federal Crown, and the Provincial Crown, provided that the program identified in section 3 is also implemented.

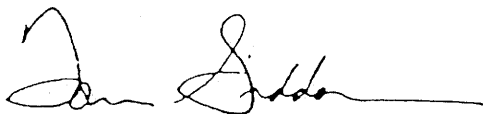
It is my further opinion that the quantity of water which Alcan must permit to escape from the Nechako Reservoir in order to provide an acceptable level of certainty for the protection of the fish and their ova can be reduced by the installation of certain mitigative and remedial works.



Accordingly, if the remedial measures contemplated by the Summary Report referred to in the Agreement made the 14th day of September, 1987 between Alcan, the Federal Crown and the Provincial Crown are implemented as contemplated by that Agreement then it is my opinion that the flow which will provide sufficient water for the safety of fish and the flooding of the spawning grounds to such depth as is necessary for the safety of the ova deposited thereon is as set out in the Agreement.

With the issuance of this opinion, it is my conviction that the objectives of your Company and my Department are met. On the one hand, your Company is provided with certainty with respect to the amount of the natural inflow which it will be permitted to divert for power production purposes. This will allow your Company to commit funds to the further expansion of its power works at Kemano. On the other hand, the water being provided in accordance with this opinion will ensure that there is sufficient flow in the Nechako to provide an acceptable level of certainty for the protection of fish and ova therein.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Tom Siddon", with a long horizontal flourish extending to the right.

Tom Siddon, P.C., M.P.

SCHEDULE "B"  
THE UNIVERSITY OF BRITISH COLUMBIA



**CONFIDENTIAL**

6328 Memorial Road  
Vancouver, B.C. Canada V6T 2B3

Telephone (604) 228-2121  
Fax (604) 228-3134

Office of the President

August 24, 1987

Mr. William Rich  
Vice-President  
ALCAN (Aluminum  
Company of Canada)  
4th floor  
1285 W. Pender St.  
Vancouver, B.C.

Dr. Peter Meyboom  
Deputy Minister  
Dept. of Fisheries and Oceans  
Ottawa, c/o Vancouver Office  
10th floor, 1090 W. Pender St.  
Vancouver, B.C.

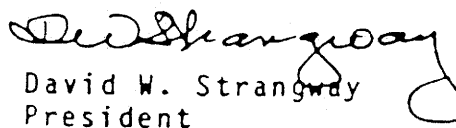
Dear Mr. Rich and Dr. Meyboom:

I was asked to participate in a working group established jointly by the Department of Fisheries and Oceans and the Aluminum Company of Canada to deal with technical questions associated with the proposal to change the flow regime of the Nechako River. My role was as a facilitator and not as an expert in the field. I am pleased to report to you that in my judgement, all issues of concern were presented and discussed thoroughly.

In all cases, the working group was able to reach a definitive agreement relating to the terms of reference in a process of full discussion and assessment of the risks. In my view, this was because all parties were expert in the field, and were able to review the technical issues as scientists and engineers.

I hereby transmit to you the unanimous report of the working group. Every member of this group is in full support of the contents of this report as it derives from the terms of reference.

Yours sincerely,

  
David W. Strangway  
President

Attachment

## SUMMARY REPORT OF THE NECHAKO RIVER WORKING GROUP

- 1) Following signing of an agreement between the Department of Fisheries and Oceans (DFO), the Aluminum Company of Canada (ALCAN), and the Province of British Columbia (B.C.), the water flows in the Nechako River will be managed to a mean annual flow of 26.4 cms including Cheslatta basin runoff. The Nechako River working group was established on Aug 20, 1987 by mutual agreement of DFO and ALCAN. The working group consisted of technical specialists from DFO, ALCAN, and the Province of B.C. The task of the working group was "To develop a program of measures and plan of implementation which will provide an acceptable level of certainty for the conservation and protection of the chinook fisheries resource of the Nechako River". Deliberations of the working group were from August 20-23, 1987 and were facilitated by Dr. David Strangway, President of U.B.C. This report summarizes the deliberations of the working group.
- 2) **Terms of Reference:**

To develop a program of measures and plan of implementation which will provide an acceptable level of certainty for the conservation and protection of the chinook fisheries resource of the Nechako River.

The program will be based on the following assumptions:

  - 2.1. Flows in the Nechako River at Cheslatta Falls will be equivalent to Alcan's fish and other use flows as set out in the attached flow chart.
  - 2.2. A cold water release facility will be constructed at the Kenney Dam.
  - 2.3. Additional means required to provide an acceptable level of certainty will be selected to accord with the full hierarchy of preferences outlined at pages 25-26 of the Policy of the Management of Fish Habitat.
- 3) **Principal Conclusions:**
  1. The total population of chinook salmon to be conserved is that represented by the average escapement to the river plus the average harvest during the period 1980-1986. DFO escapement records during this period averaged 1550 with a range of 850-2000. In view of the known inaccuracies in spawner count data the working group recognizes that the estimated escapement is on average 3100 spawning chinook but ranges from 1700 to 4000. This number will be referred to as the target population.

3.2. The working group concludes that conserving and protecting the chinook fisheries resource of the Nechako River can be achieved with an acceptable level of certainty by implementing the program of measures described below.

4) The Program of Measures:

The working group has agreed that the goal of conserving the target population of chinook can be achieved through implementation of a three-stage process. The First Stage represents a set of measures that, if properly applied should be sufficient to ensure conservation of the chinook stock. The Second Stage represents a set of additional measures that could be implemented in the event that the First Stage measures prove inadequate. The Third Stage represents the ultimate fall-back position in the event that implementation of First and Second Stages proves inadequate. The design and prioritization of the three stages is consistent with the hierarchy of preferences in the DFO Policy for the Management of Fish Habitat.

A. First Stage measures to ensure maintenance of the target population.

Following appropriate feasibility and bioengineering design work, specific measures, as outlined below, will be implemented as part of the program. Several categories are defined with specific measures listed under each category.

A.1. Flow design changes;

Outflows from Nechako Reservoir must be provided by means of a two-level release at Kenney Dam. The release structures are to include hollow cone valves to control any problem with Total Gas Pressure.

As a general principle, flow changes should not be instantaneous. Rather, these changes should be made over as long a period as is deemed practicable, so that ambient temperature changes are minimized and temperature shears avoided. The working group recognizes that: 1) this procedure will not change the total amount of water dedicated to fish and other use flows; and 2) moderation of the rate of flow change may not be possible during the period that cooling flows are being provided for sockeye.

Begin reduction to winter flows during late October to achieve winter flows in early November. Water saved during November should be allocated to the December to March period so as to increase overwinter flows.

A.2. Instream habitat modifications.

Design and construct a new channel through the Cheslatta outwash fan to carry outflow from Kenney Dam without eroding the fan. The existing channel is currently used as rearing habitat by juvenile chinook and should be preserved as such.

Control specific sediment sources that are endangering spawning beds, e.g. rip rap key areas of mainstem banks, construct sediment traps at existing aggradation areas such as below Greer Creek.

Modify tributary mouths to ensure that young chinook have access all year. Also breach beaver dams to ensure access to lower reaches of tributaries.

Increase habitat complexity by applying techniques to the river to increase habitat for all rearing life stages from post emergence to overwintering. Habitat complexing includes such measures as installation of woody debris and other cover, groins, scalloping shoreline, boulder clusters, rooted aquatics, or any other procedure that experience in British Columbia or elsewhere suggests would increase habitat complexity and suitability.

Fertilize upper river in spring and early summer to increase fish food production.

A.3. Off-channel modifications.

Encourage riparian vegetation in association with habitat complexing.

Fence areas of tributary streams and main-stem where cattle are creating erosion problems and disrupting habitat.

Open side and back channels to help ensure availability of this type of habitat at low flows.

B. Second Stage measures to ensure maintenance of the target population. These measures not to be implemented until those of the First Stage have been demonstrated to be inadequate.

B.1. Additional habitat alterations.

Gravel cleaning in localized spawning areas after monitoring.

Place additional clean gravel.

Build artificial spawning dunes after monitoring.  
Construction of artificial dunes.  
Requires pilot and development studies.

Habitat modifications in tributaries to increase their productivity for chinook.

B.2. Ensure access to new habitat created by Kenney Dam water releases and develop suitable habitat conditions for chinook.

C. Third Stage measures to ensure maintenance of the target population. These measures not to be implemented until those of the First and Second Stages have been demonstrated to be inadequate.

C.1. Measures could include any of those below;

Spawning channel.

Incubate Nechako chinook eggs at an existing hatchery and return fry to the Nechako.

Hatchery on the Nechako.

Compensate for lost production by implementing appropriate measures in other systems.

Maintain Nechako stock gene pool at some other hatchery.

5) Implementation plan:

5.1. Organizational framework.

To implement this program of measures so as to achieve the goal of sustaining the target population in the Nechako river system, a long term, tripartite commitment is required from each of ALCAN, DFO, and the Province of B.C.

A Technical Committee comprised of senior technical staff from each of the three parties and at least one external technical expert should be formed. This

Committee should be charged with administering a program of feasibility, design, implementation, monitoring, and applied research activities performed in a co-operative manner with the practical and sound application of existing and new scientific/engineering knowledge.

This committee could employ smaller, specialized, working groups from time to time if this would facilitate their tasks.

The Technical Committee could report to a senior level Policy/Steering Committee consisting of one or more representatives from each of the three parties. The Policy/Steering Committee would have the responsibility for directing and monitoring the implementation of the plan consistent with the tripartite agreement.

Terms of reference should be established for the committees immediately, and should incorporate such guiding principles as "reasonableness", "practicality" and "cost effectiveness" in relation to decisions on the extent, timing, nature and efficacy of measures employed.

Decisions regarding the duration of technical programs and sources of funding were judged not to be part of this assignment and were not addressed. However, there must be a commitment on all sides to continue programs and measures until such time as sustained achievement of the conservation goal could be demonstrated.

Criteria for deciding to advance to the Second or Third stage measures were not addressed and should be the responsibility of the Technical Committee. Such decisions must be based on the results of the monitoring program.

#### 5.2. Time table for implementation.

The organizational structure should be created as soon as practicable after the agreement is in place. Provided the development timetable permits, monitoring of stock status and habitat performance as outlined below should begin before flows are reduced. In addition, feasibility, design, and pilot testing of selected First Stage measures should be initiated. Monitoring of the Nechako before initiation of First Stage measures will provide an important reference point against which to assess the first year or two of monitoring results following implementation of First Stage measures. A timetable for implementation of the specific measures in

the First Stage is to be the responsibility of the Technical Committee with the expectation that this will be accomplished in an anticipatory and timely manner.

It is assumed that the technical committee will follow a process in evaluating possible measures that involves feasibility, design, pilot testing, production implementation, and evaluation. Responsible stop/go criteria will be applied at any of these stages.

6) **Monitoring and Evaluation of Program Success:**

There should be three types of monitoring and evaluation.

These are:

6.1. **Monitoring for stock performance.**

This is defined as monitoring to ensure that the conservation goal is met.

The most critical measure of conservation of the target stock is the total adult recruitment. However, the time lags involved in obtaining this measure mitigate against its sole use as a criterion of success. Consequently, stock performance monitoring should include counts of juveniles leaving the system, contribution of maturing fish to various fisheries and counts of adult fish returning to spawn.

6.2. **Monitoring for overall habitat performance.**

This is defined as monitoring particular types of habitat and the success of fish utilizing that habitat.

This includes;

- a. Success of egg deposition and egg retention in females.
- b. Incubation environment, particularly permeability and dissolved oxygen.
- c. Gravel quality and composition.
- d. Juvenile growth, condition and similar criteria.
- e. Predator populations.
- f. Stream temperature monitoring.
- g. Total gas pressure.



3. Monitoring Implemented Measures.

This is defined as monitoring the utilization of any measures introduced to improve production to ensure their efficacy and success in terms of the conservation goal.

Monitoring of any measure to ensure that production is maintained must involve sampling to satisfy two criteria: 1. is there an acceptable degree of utilization by the fish; and 2. are there acceptable effects of the modification or structure on fish growth, condition, and similar criteria?

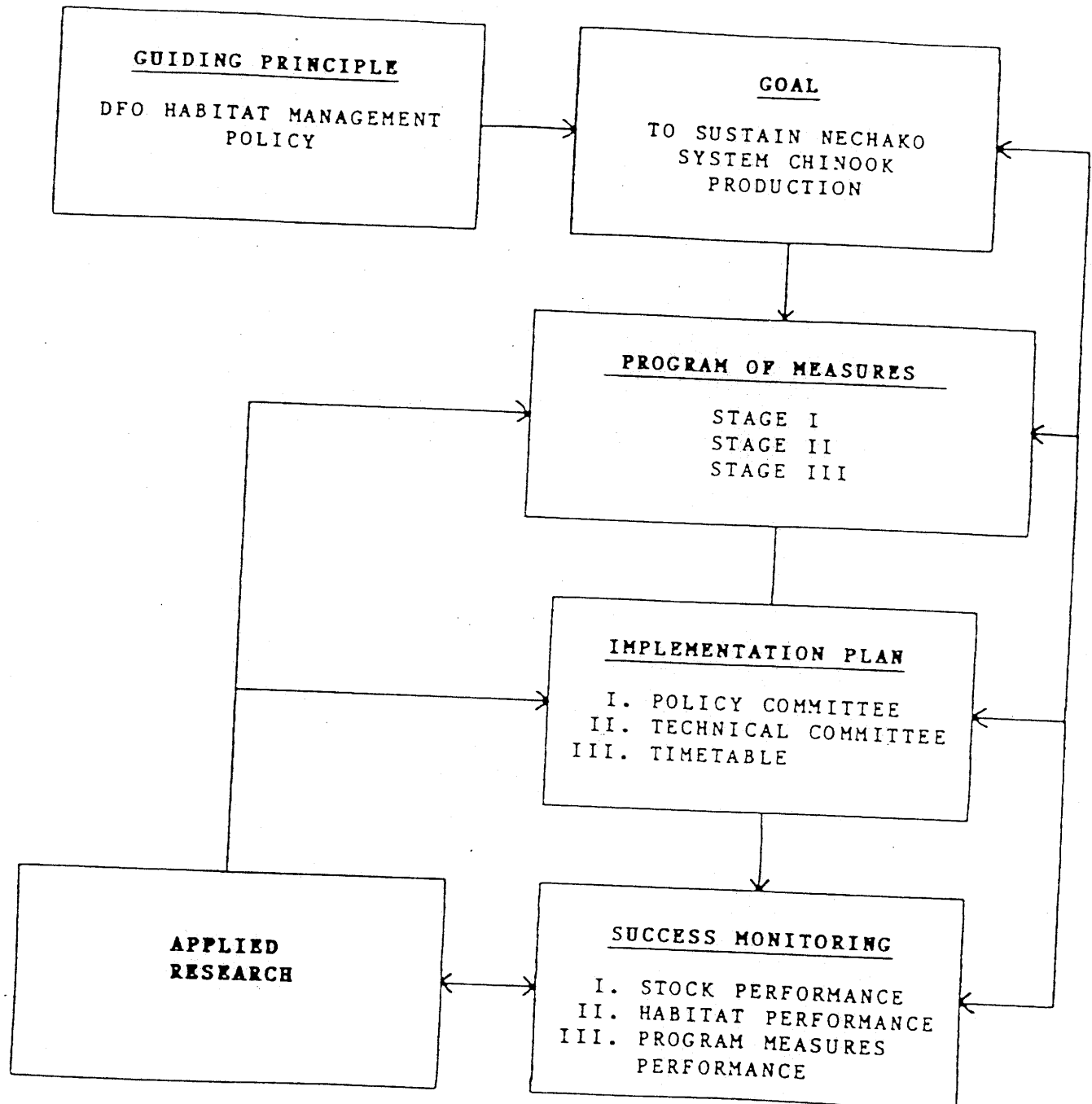
7) Applied Research Program:

The working group indentified important gaps in knowledge. These require that an applied research program be carried out. The committee identified the need for research in four principal areas: 1. Predator-competitor-prey interactions; 2. winter habitat; 3. temperature effects on food and fish growth; 4. develop a model to integrate the available information to assess the limiting factors to productivity.

MEMBERS OF THE WORKING GROUP WERE:

David Strangway (Facilitator)  
Don Chapman  
Dennis Deans  
Mike Healey  
Bruce Jenkins  
Colin Levings  
Slyde Mitchell  
Bruce Sheperd  
Pat Slaney  
Glenn Stewart

**FIGURE 1:** FRAMEWORK TO ACHIEVE NECHAKO SYSTEM CHINOOK PRODUCTION GOAL



# SCHEDULE "C"

## SCHEDULE OF SHORT TERM WATER RELEASES FOR NECHAKO RESERVOIR

	<u>Column I</u> Reservoir Release (mean monthly)	<u>Column II</u> Approximate Nechako River Flow below Cheslatta Falls measured at hydro-metric station no. 08JA017 (mean monthly)
	m <sup>3</sup> /s cfs	m <sup>3</sup> /s cfs
Jan	29.2 (1031)	31.1 (1098)
Feb	29.3 (1035)	31.1 (1098)
Mar	29.4 (1038)	31.1 (1098)
Apr	54.6 (1928)	56.6 (2000)
May	47.2 (1667)	56.6 (2000)
Jun	40.9 (1444)	56.6 (2000)
Jul	45.6 (1610) *	56.6 (2000) *
Aug	50.4 (1780) *	56.6 (2000) *
Sep	27.6 (975)	31.1 (1098)
Oct	28.6 (1010)	31.1 (1098)
Nov	28.8 (1017)	31.1 (1098)
Dec	29.1 (1028)	31.1 (1098)
Annual Mean	36.8 (1300)	41.7 (1472)

\* plus additional flows as are determined to be required for cooling purposes.

# SCHEDULE "D"

## SCHEDULE OF LONG TERM WATER RELEASES FOR NECHAKO RESERVOIR

	Column I Reservoir Release (mean monthly)	Column II Approximate Nechako River Flow below Cheslatta Falls measured at hydro- metric station no. 08JA017 (mean monthly)
	m <sup>3</sup> /s cfs	m <sup>3</sup> /s cfs
Jan	12.3 (434)	14.2 (501)
Feb	12.4 (438)	14.2 (501)
Mar	12.5 (441)	14.2 (501)
Apr	29.1 (1028)	31.1 (1098)
May	21.7 (766)	31.1 (1098)
Jun	15.4 (544)	31.1 (1098)
Jul	20.1 (710) *	31.1 (1098) *
Aug	24.9 (879) *	31.1 (1098) *
Sep	24.8 (876)	28.3 (1000)
Oct	25.8 (911)	28.3 (1000)
Nov	23.2 (819)	25.5 (900)
Dec	12.2 (431)	14.2 (501)
Annual Mean	19.60 (692)	24.53 (866)

\* plus additional flows as are determined to be required for cooling purposes.



August 28, 1987

SCHEDULE "E"

The Honorable Tom Siddon  
Minister  
Department of Fisheries and Oceans  
200 Kent Street  
Ottawa, ON  
K1A 0E6

Dear Mr. Siddon:

The purpose of this letter is to confirm the intention of the Province of British Columbia to retain the present recreational fisheries values of the Upper Nechako River watershed.

The full impact of the proposed water release regime from the Nechako Reservoir on the above freshwater fishery is unknown. However, our studies indicate that there may be significant impact on the resident trout and char populations particularly by the proposed winter flow regime.

Our strategy for maintaining the recreational fishery in the Upper Nechako, based on a no net loss principle, is as follows:

1. Maintain populations in the Upper Nechako River at the level that the resultant habitat and flows will support.
2. Mitigate losses in the Nechako River by developing off-site river and lake fisheries on tributaries within the Upper Nechako River Basin.
3. Mitigate losses in the Nechako River by developing off-site river and lake fisheries elsewhere in the Nechako River Basin.

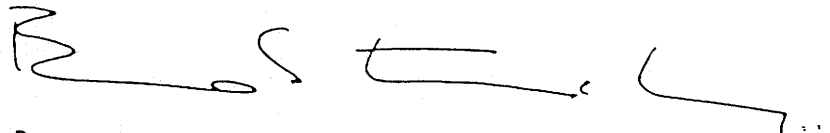
It is proposed to implement the above management strategies in sequence as monitoring confirms the degree of loss and effectiveness of mitigation processes.

The Honorable Tom Siddon  
28/8/87  
Page 2

One of the best opportunities for off-site mitigation is in the rehabilitation of the Murray/Cheslatta system. With reduced releases from the Skins Lake Spillway, enhancement of the freshwater fisheries in this watershed could proceed. We have identified a number of enhancement projects for Cheslatta Lake.

The Province of British Columbia will be a full participating party in the Upper Nechako River fishery program, and will implement the above freshwater fishery management strategy cooperatively with that program.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Bruce Strachan', with a long horizontal line extending to the right.

Bruce Strachan  
Minister  
Ministry of Environment and Parks  
Province of British Columbia