

NORTHERN TERRITORY OF AUSTRALIA

URANIUM MINING (ENVIRONMENT CONTROL) ACT

As in force at 11 December 2001

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NORTHERN TERRITORY OF AUSTRALIA

As in force at 11 December 2001

URANIUM MINING (ENVIRONMENT CONTROL) ACT

**An Act to control the mining of uranium in the Alligator Rivers Region
with a view to lessening any damage which may be caused to the
environment of the region**

1 Short title

This Act may be cited as the *Uranium Mining (Environment Control) Act*.

2 Definitions

In this Act, unless a contrary intention appears:

authorization means an authorization granted under this Act.

Director of Mines means the Director of Mines appointed under the *Mine Management Act*.

explosives means explosives within the meaning of the *Explosives Act*.

inspector has the same meaning as in the *Mine Management Act*.

machinery means any kind of mechanical appliance, whether mobile or stationary, employed in, on or about a mine and includes:

- (a) boilers, pressure vessels and pressure piping;
- (b) electric wires and electric apparatus;
- (c) chains, cables, belts, ropes and the attachments to them; and
- (d) the structures and foundations belonging or attached to or associated with those appliances.

manager, in relation to a mine, means the person having immediate charge and direction of mining in the mine, and includes the manager and a deputy manager of the mine appointed under the *Mine Management Act*.

mine means a place within the region where any operation has been, is being or will be carried on, by which a prescribed substance may be obtained and a place where the products of that operation are to be, have been or are being treated or dealt with, and includes:

- (a) a quarry; and
- (b) so much of:
 - (i) the surface of a place as is occupied or used;
 - (ii) the buildings, workshops, power plant, change houses, laboratories, structures and other improvements of that place as are occupied or used; and
 - (iii) the machinery and works as are used,by the owner of the mine:
 - (iv) in connection with the working of that mine;
 - (v) for the treatment of or dealing with the products of that mine; or
 - (vi) for the removal from that mine of refuse, or the storage of waste material resulting from the treatment of products of that mine.

mining means any operation by means of which a prescribed substance in any state on or under the earth's surface may be extracted and includes:

- (a) any construction or other work carried out before mining is carried out;
- (b) the extraction of substances other than prescribed substances as part of an operation by means of which a prescribed substance is extracted;
- (c) the treatment of prescribed substances in a mine; and
- (d) the removal, transport and storage of waste material from a mine.

Nabarlek project area means the land shown on the plan of authorized survey deposited in the office of the Surveyor-General under section 12(3) of the *Licensed Surveyors Act* and numbered S 79/16 in that office.

owner, in relation to a mine, means a person who is the proprietor, lessee or occupier of the mine or a part of the mine and includes a contractor or tributor working there.

prescribed agreement means an agreement made under section 43, 44, 45 or 46 of the *Aboriginal Land Rights (Northern Territory) Act 1976* of the Commonwealth.

prescribed substance means prescribed substance within the meaning of the *Atomic Energy Act 1953* of the Commonwealth.

Ranger project area means the land described in the prescribed agreement dated 3 November 1978 between the Commonwealth and the Northern Land Council.

region means the Alligator Rivers Region within the meaning of the *Environment Protection (Alligator Rivers Region) Act 1978* of the Commonwealth.

relevant law means the *Soil Conservation and Land Utilization Act*, the *Control of Waters Act*, any regulation made under either of those Acts and any requirement imposed by or under either of those Acts or any such regulations.

3 Application

Nothing in this Act affects the operation of the *Jabiru Town Development Act*.

4 Control of mining for prescribed substances

No person shall mine land for prescribed substances within the region except in accordance with any requirements imposed by or under:

- (a) this Act; and
- (b) the relevant law.

5 Environment protection officer

The owner or manager of a mine shall not permit a mine to be worked unless a person who has qualifications and experience satisfactory to the Minister is carrying out the duties of environment protection officer or deputy environment protection officer in relation to the mine.

6 Instruction of staff

- (1) The manager of a mine shall instruct all staff under his control in:
 - (a) the need to protect the environment;
 - (b) any restrictions imposed on them by or under the *Aboriginal Land Rights (Northern Territory) Act 1976* of the Commonwealth and the *Aboriginal Land Act 1978*;
 - (c) the need for and nature of any monitoring programs required under any law in force in the Territory or any prescribed agreement applying to the mine; and
 - (d) the responsibilities, duties and powers, in respect of the mine, of persons under or pursuant to this Act, any authorization, the relevant law, the *Environment Protection (Alligator Rivers Region) Act 1978* of the Commonwealth and the *Atomic Energy Act 1953* of the Commonwealth.
- (2) Instruction required under subsection (1) shall be given in accordance with such directions as may from time to time be given by the Minister to the manager.

7 Plans

- (1) The Minister may, from time to time, by notice in writing served on the manager of a mine, require the manager to submit to the Minister such plans of the mine (including plans relating to any waste rock dump) as are specified in the notice within the time specified in the notice.
- (2) A manager of a mine served with a notice under subsection (1) shall comply with and not contravene the notice.

8 Construction and use of works, processes and equipment

- (1) Subject to this Act, the owner or manager of a mine shall not construct or use any works, processes or equipment with respect to mining except with, and in accordance with the conditions of, an authorization.
- (2) Subsection (1) applies in relation to an authorization granted in respect of works required by or authorized under or in pursuance of the relevant law only to the extent that the authorization is capable of operating concurrently with the requirement imposed by, or the authority granted under, the relevant law, as the case may be.

9 Use of explosives

The owner or manager of a mine shall not permit explosives to be used in any mine except with, and in accordance with the conditions of, an authorization.

10 Dust levels

- (1) The Minister may, from time to time, by notice in writing served on the owner or manager of a mine, specify a dust level in relation to the working of the mine.
- (2) The owner and manager of a mine shall at all times employ dust control measures so that dust levels to which persons are exposed are kept below the level, if any, for the time being specified under subsection (1).

11 Rehabilitation

- (1) The Minister may, from time to time, by notice in writing served on:
 - (a) the owner or manager of a mine; or
 - (b) if there is no owner of the mine at the time the notice is served, a person who at any time was the owner of the mine,require any mine, waste rock dump or any land the surface of which has been disturbed by mining to be rehabilitated (whether or not such rehabilitation includes covering with vegetation) or covered with vegetation in the manner and within the time specified in the notice.
- (2) A person served with a notice under subsection (1) shall comply with and not contravene the notice.

12 Special requirements for Ranger project area

- (1) This section applies to and in relation to the Ranger project area.
- (2) The owner or manager of a mine shall not carry out mining unless contour maps, satisfactory to the Minister, of the areas where it is proposed to mine, have been submitted to the Minister.
- (3) Within 5 years after the commencement of ore milling in the Ranger project area, the manager shall submit to the Minister a program satisfactory to the Minister for the covering of any waste rock dump in the Ranger project area with vegetation.

13 Application for authorization

- (1) The owner or manager of a mine, or a person otherwise entitled under a law in force in the Territory to carry out mining on a mine, may apply in writing to the Minister for an authorization.
- (2) Subject to this Act, the Minister may by notice in writing served on the applicant for the authorization determine an application under subsection (1) by:
 - (a) granting, either conditionally or unconditionally; or
 - (b) refusing to grant,the authorization only if he is satisfied that the grant of the authorization, or the refusal to grant the authorization, as the case may be, will assist in protecting the environment from harmful effects of mining.
- (3) The Minister may refuse to determine an application under subsection (1) unless plans, reports, specifications, designs, management plans or other documents specified by him to the person who made the application are provided to him.
- (4) The Minister shall not refuse to grant an authorization if the effect of the refusal would be to prevent mining authorized by or under another law in force in the Territory unless the refusal is a refusal referred to in subsection (3).

14 Conditions

Without limiting the power of the Minister to impose conditions on an authorization, conditions which may be so imposed include conditions for or with respect to:

- (a) the control of dust, including dust of sulphur or uranium or uranium compounds;
- (b) the manner and standard of construction of buildings and equipment;
- (c) the measures to be taken to protect the environment during the construction and operation of the mine;
- (d) where the working of the mine involves the construction or use of an explosives magazine the location, manner and standard of construction of the magazine;
- (e) the lodging with the Minister of security in such form, in such amount and expressed to be for such term as may be

specified in the conditions to which the authorization is subject to secure compliance with this Act, any authorization granted in respect of the mine and the relevant law;

- (f) the manner and standard of construction of dams and retention ponds;
- (g) the use of buildings, equipment, dams and ponds;
- (h) the construction of fences;
- (j) the management of seepages from dams or ponds;
- (k) the rehabilitation and revegetation of the sites of mining; and
- (m) where the authorization relates to operations which involve the emission of substances into the atmosphere:
 - (i) the amount of any substance; and
 - (ii) the concentration of any substance in any other substances,

which may be released into the atmosphere.

15 Alteration, &c., of authorization

- (1) The Minister may, from time to time, by notice in writing served on the owner or manager of a mine:
 - (a) alter, either in whole or in part; or
 - (b) revoke,an authorization granted in respect of the mine if he is satisfied that the alteration or revocation of the authorization will assist in protecting the environment from harmful effects of mining.
- (2) The Minister shall not revoke an authorization granted in respect of a mine if the effect of the revocation would be to prevent mining authorized by or under another law in force in the Territory.
- (3) Where an authorization is altered under subsection (1)(a), the owner and manager of the mine to which the authorization relates shall comply with and not contravene the authorization as so altered.

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- (4) An alteration or revocation of an authorization under this section has effect on and from:
- (a) the day upon which the notice altering or revoking the authorization, as the case may be, is served on the owner or manager of the mine in respect of which the authorization was granted; or
 - (b) if a later date is specified in a notice so served that later date.

16 Environment protection

In exercising any power or performing any duty under this Act, the Minister shall have regard to the desirability of protecting the environment of the region from any harmful effects of mining.

17 Environmental requirements

The Minister shall have primary regard, in exercising or performing or considering whether to exercise or perform any power or duty conferred or imposed on him by this Act (and in particular in exercising or considering whether to exercise any power conferred on him by section 13, 14 or 15) to:

- (a) if the exercise of the power or the performance of the duty relates to the Ranger project area the terms of the document set out in Schedule 1 entitled "Environmental Requirements for the Ranger Project", being Appendix "A" to Schedule 1 of an authority issued on 9 January 1979 under section 41 of the *Atomic Energy Act 1953* of the Commonwealth relating to the Ranger project area;
- (b) if the exercise of the power or the performance of the duty relates to the Nabarlek project area the terms of the document set out in Schedule 2.

18 Matters to be taken into account

- (1) In considering whether to grant an authorization or exercise any other power or perform any duty under this Act, the Minister shall have regard to:
- (a) any prescribed agreement as that agreement relates to the matter in respect of which the authorization is sought;
 - (b) any advice furnished under subsection (2) or (3);
 - (c) the terms of any Special Mineral Lease issued under the *Mining Act* applying to the mine; and

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- (d) where the application or authorization relates to the storage or use of explosives:
 - (i) within the Ranger project area the location of Mount Brockman and any Aboriginal sacred sites on or near that place; and
 - (ii) in every case the location of any tailings dam, retention pond or evaporation pond;
 - (2) The Minister may, if he thinks fit, request:
 - (a) the Minister of State for the Commonwealth for the time being administering section 41 of the *Atomic Energy Act 1953* of the Commonwealth;
 - (b) the parties to any prescribed agreement relating to a mine in respect of which it is proposed to grant, alter or revoke an authorization; and
 - (c) the Supervising Scientist within the meaning of the *Environment Protection (Alligator Rivers Region) Act 1978* of the Commonwealth,to furnish him with advice.
 - (3) The Minister may, if he thinks fit, request the person applying for an authorization or, where it is proposed to alter or revoke an authorization, the person to whom the authorization was granted to furnish him with advice within the time specified in the request.

19 Powers of inspector

- (1) An inspector may, if he is of the opinion that the carrying out of mining or any other activity on any land in a particular manner constitutes a breach of this Act, an authorization or the relevant law, give such directions as he considers necessary to such persons as he thinks fit for the purpose of ensuring:
 - (a) the cessation of work in the mine or part of the mine or the cessation of the other activity; or
 - (b) compliance with this Act, the authorization or the relevant law.
- (2) A person to whom a direction under subsection (1) is given may refer the direction to the Director of Mines.

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- (3) Where a direction under subsection (1) is referred to the Director of Mines under subsection (2), the Director of Mines may:
 - (a) confirm;
 - (b) vary; or
 - (c) revoke,the direction.
 - (4) Subject to this section, a person to whom a direction under subsection (1) is given shall comply with and not contravene the direction until that direction is varied or revoked.
 - (5) Subject to this section, where a direction under subsection (1) is varied, the person to whom the direction was given shall comply with and not contravene the direction as so varied until the direction is revoked.
 - (6) Where a direction under subsection (1) has been referred to the Director of Mines under subsection (2), the Director of Mines may permit mining or the other activity to be carried on in contravention of the direction on such terms and conditions as he thinks fit until the direction is confirmed, varied or revoked under subsection (3).
 - (7) The person to whom the direction made under subsection (1) was given may, if he is dissatisfied with the decision of the director of Mines under subsection (3), appeal to the Minister.
 - (8) Where an appeal to the Minister has been made under subsection (7), the Minister has all the powers and duties conferred on the Director of Mines by subsections (3) and (6) in relation to the direction in respect of which the appeal was made.

20 Report

The Minister shall, from time to time, but not less than once in every calendar year, table in the Assembly a report on the operation of this Act.

21 Inquiries

- (1) An inspector may conduct such inquiries and examinations as he thinks fit for the purpose of ascertaining whether this Act and the relevant law are being complied with.

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- (2) For the purposes of conducting an inquiry or examination under subsection (1), an inspector may exercise any or all of the powers referred to in section 32(1)(b), (c)(i), (e), (f), (g) and (h) of the *Mine Management Act*.
- (3) For the purposes of subsection (2), a reference in section 32(1)(b), (c)(i), (e), (f), (g) and (h) of the *Mine Management Act* to **this Act** shall be read as a reference to this Act, any authorization and the relevant law.

22 Minister may commence proceedings

Proceedings for an offence against this Act may be commenced by and prosecuted in the name of the Minister.

23 Time within which proceedings to be commenced

Notwithstanding any other law in force in the Territory, a prosecution or proceedings for an offence against this Act, any authorization or the relevant law may be commenced at any time after the commission of the offence.

24 Averments as to facts

An averment by the prosecutor in a complaint or information that:

- (a) a specified person was, at a specified time:
- (i) the owner or manager of a mine; or
 - (ii) an inspector;
- (b) specified mining or other specified activity was, at a specified time, being carried out in the region;
- (c) specified land is in the region or the Ranger project area; or
- (d) an authorization in respect of a specified mine had been granted, altered or revoked in accordance with this Act,

is evidence of the fact so averred.

25 Service of notices

A notice under this Act may be served on a person:

- (a) by post;
- (b) by leaving the notice with the person; or

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- (c) by leaving the notice with a person who is apparently employed by the person on whom service of the notice is to be effected.

26 Joint liability

Where the manager of a mine is convicted of an offence against this Act the owner of the mine shall be guilty of the like offence.

27 Penalty

- (1) Subject to subsection (2), a person who contravenes or fails to comply with a provision of this Act is liable to a penalty not exceeding \$100,000 in respect of each such offence, and a daily penalty not exceeding \$10,000 in respect of each day during which the offence continues.
- (2) A person who contravenes or fails to comply with a direction given by an inspector under section 19(1) in relation to an activity other than mining is liable to a penalty not exceeding \$10,000 in respect of each such offence and a daily penalty not exceeding \$1,000 in respect of each day during which the offence continues.
- (3) An offence under subsection (2) is a regulatory offence.
- (4) Where a person damages any property or environment or removes any property or other thing by failing to comply or, as the case may be, acting in contravention of the direction of an inspector given in relation to an activity other than mining, an inspector may:
- (a) repair or restore the property or environment; or
 - (b) recover the property or other thing removed,

and the costs of and incidental to that repair, restoration or recovery may, upon the conviction of a person liable to a penalty under subsection (2) and whether a penalty has been imposed or not, be recovered from that person in the like manner as a fine.

Schedule 1 Environmental requirements for the Ranger Project

section 17(a)

Staffing and Environment

1. The Joint Venturers shall appoint:
 - (a) as Environment Protection Officer, a person having appropriate qualifications and experience who shall be responsible to the project management to ensure effective environmental control of the project, including the protection of:
 - (i) biological resources, including rehabilitation aspects, and
 - (ii) objects of material culture of concern to Aboriginals,
 - (b) persons to support the Environment Protection Officer in such numbers as they deem appropriate following consultation with the Supervising Authority,
 - (c) a person qualified in the principles and practices of radiation protection in the mining and milling of radioactive ores as Radiation Safety Officer, and
 - (d) a person qualified in the principles and practices of ventilation as they apply to the mining and milling of radioactive ores as Ventilation Officer,

provided that a person appointed as Radiation Safety Officer may also be appointed as Ventilation Officer.

2. The Joint Venturers shall instruct management and operating staff to the extent relevant and consistent with the conditions and requirements of this Authority in the need for environment protection, the monitoring programs and the role, responsibilities and powers of the relevant supervising authorities.
3. The Joint Venturers shall explain to the extent relevant, the environmental requirements of this Authority, the Plan of Management for the Kakadu National Park (when adopted), and the provisions of all applicable laws relating to the preservation of the natural environment (including Aboriginal sacred sites, relics and works of art) to all the officers, servants and employees of the Joint Venturers and of their contractors and subcontractors, as soon as possible after their first arrival in the Ranger Project Area.

4. The Joint Venturers shall make available, for perusal by all the officers, servants and employees of the Joint Venturers and of their contractors and subcontractors involved in the Ranger Project Area, copies of all relevant Commonwealth and Territory legislation relating to the protection of the natural environment (including the legislation dealing with the preservation of Aboriginal sacred sites, relics and works of art) and copies of this Authority and of the Plan of Management for the Kakadu National Park.

5.
 - (a) The Joint Venturers shall ensure that their officers, servants, employees, invitees, licensees and contractors observe the provisions of the Environmental Requirements. If any infringement is discovered the Joint Venturers shall immediately commence such remedial action as is necessary.

 - (b) If an officer, servant or employee of the Joint Venturers or of their contractors or subcontractors knowingly infringes the provisions of the Environmental Requirements, the Joint Venturers or their contractors or subcontractors, as the case may be, shall take such disciplinary action against that officer, servant or employee as may seem appropriate to the Joint Venturers in the circumstances and, in cases where dismissal is the appropriate remedy, shall dismiss that officer, servant or employee.

6.
 - (a) The Joint Venturers shall require that the officers, servants and employees of the Joint Venturers and of their contractors and subcontractors do not introduce or permit or suffer the introduction onto the Ranger Project Area of flora or fauna exotic to the Alligator Rivers Region save such flora or fauna as the Director of National Parks and Wildlife shall permit.

 - (b) The Joint Venturers shall require that the officers, servants and employees of the Joint Venturers and of their contractors and subcontractors do not introduce or permit or suffer the introduction of flora or fauna exotic to the Alligator Rivers Region onto the lands designated for inclusion in Stage 1 of the Kakadu National Park and lands intended for later declaration and inclusion as part of the Kakadu National Park, save such flora or fauna as may be permitted under the Plan of Management or pursuant to regulations made under the *National Parks and Wildlife Conservation Act*.

Control of Water

7.

- (a) A Restricted Release Zone is a zone which includes all material exposed, or about to be exposed, by excavation and which is defined on the ground by the Joint Venturers and approved by the Supervising Authority.
- (b) A Restricted Release Zone may be redefined by the Joint Venturers from time to time subject to approval by the Supervising Authority.
- (c) The plan of a Restricted Release Zone when defined and approved as aforesaid shall be provided by the Joint Venturers to the Supervising Authority who may make it available to members of the public whenever requested to do so.
- (d) Material shall not be taken outside the limits of a Restricted Release Zone.
- (e) Material shall be excavated from a Restricted Release Zone only.
- (f) Except as provided in the following subparagraphs the Joint Venturers shall not release or allow to flow from a Restricted Release Zone liquid water other than the natural subsurface flow of groundwater, provided that this requirement shall not apply to seepage which cannot be prevented by the use of the best practicable technology.
- (g) The water management system shall be established initially in a manner allowing no intentional releases to the environment and this system shall be maintained until such time as the Supervising Authority gives approval for the release of contaminated water.
- (h) The Joint Venturers shall not release to the environment outside a Restricted Release Zone water that is within such a zone except:
 - (i) by way of the outlet structures of Retention Pond No. 1 and Retention Pond No. 2, and
 - (ii) in accordance with release standards for the operations determined by the Supervising Authority. (In developing these standards the Supervising Authority shall have regard to, amongst other things, the broad principles set out in Attachment "A" to this Appendix.)

- (i) The Joint Venturers shall not release water from Retention Pond No. 1 until they have carried out to the satisfaction of the Supervising Authority such investigations as he may require into the flow, mixing and dispersion characteristics that will exist in Coonjimba Creek at the time of a proposed release. The Joint Venturers shall use the information obtained from such investigations to develop release procedures to ensure that the receiving water quality standards specified by the Supervising Authority will be met.
- (j) The Joint Venturers shall not release any water from Retention Pond No. 2 except with the written approval of the Supervising Authority, which approval shall not be given unless:
 - (i) the flow rate in Magela Creek at the discharge point exceeds 20 cubic metres per second, and
 - (ii) there is a continuous flow of water between Jabiru and the northern end of the Magela flood plain and there is a high probability that this will last long enough for discharges to reach the estuary.

The approval of the Supervising Authority shall specify the following:

- (A) the approved rate of discharge,
- (B) the concentration of contaminants in water to be discharged,
- (C) the total quantity of contaminants to be released in any one discharge and in any one year (being a year commencing on 1 September and ending on 31 August), and
- (D) the length of the approved period of continuous discharge.
- (K) For the purposes of this clause, **material** means material which contains more than 0.02 per cent of uranium dry weight as measured on a truck or scraper load basis or by sampling of the relevant material in situ as appropriate but does not include yellowcake, or other mill products, in containers specified by the Supervising Authority, or specimens or samples of types approved by the Supervising Authority.

8. Erosion products resulting from the mining operations in the Ranger Project Area shall be prevented from entering the Magela Creek system and the method of so doing shall be the subject of approval by the Supervising Authority.
9. The quality and quantity of runoff water entering Georgetown Creek and in Georgetown Billabong is to be continually monitored by the Joint Venturers to the satisfaction of the Supervising Authority.
10. The Joint Venturers shall investigate the use of an impervious membrane to seal the walls and floor of the tailings dam and submit a report of this investigation to the Supervising Authority who shall decide whether such a system should be incorporated in the design of the tailings dam, with a view to reducing losses of contaminated liquid from the tailings dam to a level as low as is achievable with the use of best practicable technology. In the event that the Supervising Authority decides that such a system should not be so incorporated, the Joint Venturers shall install a seepage collector system which would provide for the collection, and return to the tailings dam, of as much seepage as can be collected by the use of best practicable technology.
11.
 - (a) The tailings dam, water retention ponds and evaporation ponds shall be designed and constructed in accordance with good engineering practice. No construction of the tailings dam shall commence until the Joint Venturers have submitted to the Supervising Authority a design study report and management plan containing detailed plans and specifications for the construction and use of the tailings dam and other water storages and the management of seepage and have received the Supervising Authority's written approval thereto.
 - (b) Seepage to groundwater from the tailings dam and water impoundments shall be managed by the Joint Venturers in accordance with the management plan approved by the Supervising Authority.
12. The Joint Venturers shall erect a fence around the tailings dam, to Specification A.S. 1725-1975, and shall take all necessary and practicable action to prevent animals from drinking water from the tailings dam or sources of water within the Ranger Project Area that as a result of mining and ore treatment operations in the Ranger Project Area may cause them harm.

Atmospheric Pollution Control

13.
 - (a) No emissions from the ore treatment operations at the Ranger site shall be released to the atmosphere by the Joint Venturers until a discharge authorization based on standards determined by the Supervising Authority has been issued. Emissions to the atmosphere from the ore treatment operations shall be managed as proposed by the Joint Venturers and approved by the Supervising Authority.
 - (b) The Joint Venturers shall progressively develop appropriate air quality models suitable for assisting in making operational decisions relating to the protection of human health, biological resources and material objects of Aboriginal culture. The models shall be approved by the Supervising Authority before being used for the purpose of making operational decisions.
14. Unless otherwise approved or directed by the Supervising Authority the total mass of sulphuric acid mist emitted from the acid plant to the atmosphere and the total mass of acid gases expressed as sulphur dioxide emitted from the acid plant to the atmosphere shall not exceed the values specified in paragraph 60.82 and paragraph 60.83 of Part 60 of Title 40 Protection of Environment Federal Register Vol. 36, No. 247, Thursday, December 23, 1971, Washington D.C., or such other lesser pollution values as can be achieved by the use of best practicable technology.
15. The Joint Venturers shall establish, operate and maintain a meteorological station. The station shall be situated at a site selected and equipped and operated to standards proposed by the Joint Venturers and agreed by the Supervising Authority taking account of the advice of the Bureau of Meteorology and other appropriate authorities. The meteorological station is to provide adequate data for air emission control purposes as well as to provide a climatological record and analysis for the site.
16. The Joint Venturers shall develop a test procedure for use during the initial start up of the calciner and the start up after any interruption to its operation to ensure that, before ignition, the system is operating satisfactorily.
17. The calciner and yellowcake processing plant shall be fitted with emission control equipment which reduces the emission of dust, uranium and uranium compounds to the environment to as low a level as can be achieved by the use of best practicable technology.

18. Appropriate dust control measures shall be employed at all times and in all phases of the mining and ore treatment operations to keep dust levels below values specified by the Supervising Authority with a view to avoiding if possible the need for habitual use of respiratory protective devices.

Technology

19. Taken as a whole, and in their component parts, the plant and the mine shall be designed, and the mining, milling and related operations within the Ranger Project Area shall be carried on, in accordance with best practicable technology.
20. All works, processes or equipment entailing modifications to the Ranger Project as presented in the document Environmental Impact Statement, Ranger Uranium Mines Pty Ltd, February 1974, and Supplements No. 1 and No. 2, May 1975, and presented by Ranger Uranium Mines to the Ranger Uranium Environmental Inquiry shall in so far as such modifications have a significant effect on the environment be approved in writing by the Supervising Authority prior to their employment or installation within the Ranger Project Area.
21. Nothing in the Environmental Requirements shall be interpreted to prevent or discourage the Joint Venturers from attaining higher environment standards than those specified.
22.
 - (a) Before commencement of removal of overburden involving blasting the Joint Venturers shall establish measuring sites at points to be agreed with the Supervising Authority and shall carry out and measure the effects of test blasts in collaboration with the Supervising Authority to provide information to define standard blasting practices. Records of measurements shall be made available to the Supervising Authority.
 - (b) The standard blasting practices to be adopted by the Joint Venturers shall first be approved by the Supervising Authority.
 - (c) All blasting operations shall be so conducted that Mt Brockman and the Aboriginal sacred sites in its environs are not damaged.
 - (d) The Joint Venturers shall locate an explosives magazine to store not more than 15 tons of explosives not less than 500 metres north west of the tailings dam and not less than 4900 metres distant from Mt Brockman.

Sulphur Stockpiles

23. The Joint Venturers shall take all practicable steps to prevent sulphur from being blown from the sulphur stockpile.
24. The Joint Venturers shall construct embankment walls completely surrounding the sulphur stockpile. The embankment walls shall be constructed in such a way as to contain all molten or burning sulphur and prevent it from spreading from the stockpile in the event that the stockpile is ignited.

Waste Rock Dump

25. The Joint Venturers, whenever required to do so by the Supervising Authority, shall submit to the Supervising Authority such plan or plans of the waste rock dump as the Supervising Authority may require showing the size, shape, significant material type and its location within the dump, and the silt collection system.
26. Prior to the completion of the first five years of milling of ore, the Joint Venturers shall submit to the Supervising Authority a detailed program with supporting experimental evidence for the revegetation of the waste rock dump.

Vegetation Protection

27.
 - (a) For the purpose of protecting vegetation in the Project Area, the Joint Venturers shall fence all areas in which mining and ancillary operations take place.
 - (b) The Joint Venturers shall take all practicable steps to protect from trampling, cutting, unplanned and uncontrolled burning, picking or other disturbance all vegetation in the Ranger Project Area, disturbance of which is not essential to mining operations.
28. The Joint Venturers shall carry out soil conservation measures within the Ranger Project Area specified by the Supervising Authority from time to time.
29.
 - (a) Subject to paragraph (b) of this clause, all tailings shall be dealt with by being deposited in or transferred to the mine pits in a manner approved by the Supervising Authority not later than five (5) years after the cessation of mining (whether under this Authority or otherwise in accordance with law) on the Ranger Project Area.

- (b) If after 10 years from the date of issue of the Authority but before the cessation of mining on the Ranger Project Area, the Supervising Scientist reports that he is satisfied that, by dealing with the tailings in the manner outlined in the report, the environment will be no less well protected than by depositing or transferring the tailings to the mine pits and, following receipt of such report, the Minister for Environment, Housing and Community Development, the Council and the Joint Venturers agree that the tailings should be dealt with in the manner outlined in the report, all tailings shall be dealt with in the manner outlined in the report.

30.

- (a) The sites of mining excavations, tailings dam and other areas where ground has been disturbed shall be rehabilitated and revegetated to the satisfaction of the Supervising Authority.
- (b) In revegetation, the Joint Venturers shall establish appropriate ground cover plants in accordance with the directions of the Supervising Authority and shall fence, protect and, if necessary, renew the establishing vegetation as may be necessary to bring about the rapid restoration of stable vegetation native to the region.
- (c) The Joint Venturers' obligations under (a) and (b) above shall cease upon issue of a certificate of revegetation by the Supervising Authority.
- (d) Prior to the commencement of works, the Joint Venturers shall prepare contour maps in sufficient detail to permit restoration of mined or disturbed areas to their original contours or to such other contours as the Supervising Authority may approve.
- (e) The Joint Venturers shall conduct a vegetation survey of the Ranger Project Area to the satisfaction of the Supervising Authority.
- (f) Sufficient topsoil from areas that have been disturbed shall be stored and used for the purpose of surface rehabilitation.
- (g) The Joint Venturers shall establish a nursery of such plants as may be approved by the Supervising Authority for use in site rehabilitation.

31. Except where otherwise authorised by the Supervising Authority, all structures which remain in the Ranger Project Area at the end of the mining and ancillary operations and which it is the intention of the Joint Venturers to abandon shall be dismantled and removed

entirely; unwanted materials and rubbish including concrete shall be buried, covered with waste rock and topsoil and the surface revegetated.

32. Should approval be given for the conversion of a mine pit to a lake, the Joint Venturers shall prepare a plan of the appropriate foreshore development of the lake for approval by the Supervising Authority and shall carry out such developments in accordance with the requirements of the Supervising Authority.

Monitoring

33. The Joint Venturers shall design a monitoring program to the approval of the Supervising Authority. The program shall be designed to continue without interruption, and shall include measurements in relation to biota, water, sediments and air within the Ranger Project Area. A basic program shall be brought into operation before mining and treatment of ore commence. Monitoring as approved by the supervising Authority shall continue for the duration of the project and for such time after its termination as is necessary for the environment to return to conditions acceptable to the Supervising Authority.
34.
 - (a) The Joint Venturers shall monitor emissions from installations and operations in the Ranger Project Area to (i) air, and (ii) water.
 - (b) The Joint Venturers shall monitor ambient conditions in the Ranger Project Area in accordance with the Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores (Australian Department of Health, 1975) and any revisions from time to time.
35. The Joint Venturers shall comply with the directions of the Supervising Authority relating to the co-ordination of monitoring programs and the standardization of equipment and methods used in monitoring programs.
36. The Joint Venturers shall ensure that their monitoring standards and methods are conducted in such a way that the laboratory could obtain registration with the National Associates of Testing Laboratories, Australia, and in accordance with the quality control program required by the Supervising Authority. The Joint Venturers shall maintain continuous records of performance of monitoring systems referable to independent laboratories participating in international intercomparison and calibration programs.

37. The Joint Venturers shall, as far as practicable and as required by the Supervising Authority, present data in a format compatible with computer analysis and suitable for data interchange with relevant national organizations.
38. The Joint Venturers shall ensure proper analysis of monitoring results and shall make data available to the Supervising Authority in a form prescribed by him.
39.
 - (a) The Joint Venturers shall develop a contingency plan, to be approved by the Supervising Authority, that shall provide for immediate defined action for the continuation of monitoring in the event of probable emergencies.
 - (b) All emergency events, including details of unscheduled interruption to monitoring, shall be recorded and a report made to the Supervising Authority.
 - (c) The Joint Venturers shall keep a record of such emergency events together with a log of service for all monitoring equipment; copies of these, together with reports of the causes of such events, shall be forwarded to the Supervising Authority.
40. The Joint Venturers shall employ staff with appropriate qualifications and experience to establish, operate and maintain the onsite monitoring program.

Research

41. The Joint Venturers shall undertake appropriate investigations and research required by the Supervising Authority to define the design and operating conditions capable of meeting environmental protection criteria applied to the Ranger Project.
42. The Joint Venturers shall cooperate with the Supervising Authority in undertaking appropriate research and in providing information relevant to identifying and overcoming environmental problems within or relevant to the Ranger Project Area.
43. The results of environmental research and investigations performed by the Joint Venturers may be submitted for publication in technical literature. The Joint Venturers may permit their staff to take part in technical conferences held to report on and review research investigations and monitoring relating to environmental aspects of the Ranger Project.

Definition

44. **Best practicable technology** is that technology from time to time relevant to the Ranger Project which produces the minimum environmental pollution and degradation that can reasonably be achieved having regard to:
- (a) the level of effluent control achieved, and the extent to which environmental pollution and degradation are prevented, in mining and milling operations in the uranium industry anywhere in the world,
 - (b) the total cost of the application or adoption of that technology relative to the environmental protection to be achieved by its application or adoption,
 - (c) evidence of detriment, or of lack of detriment, to the environment after the commencement of the Ranger Project,
 - (d) the physical location of the Ranger Project,
 - (e) the age of equipment and facilities in use on the Ranger Project and their relative effectiveness in reducing environmental pollution and degradation, and
 - (f) social factors including possible adverse social effects of introducing new technology.
45. **Supervising Authority**, in respect of any action, activity or matter specified herein, means the person having responsibility for or in relation to that action, activity or matter under an applicable law or if there is no applicable law the person for the time being performing the duties of Supervising Scientist under the *Environment Protection (Alligator Rivers Region) Act 1978*.

ATTACHMENT A

reference para. 7(h)

Broad Principles are recommended by the Ranger Uranium Environment Inquiry (Second Report, page 326) to be taken into account by the Supervising Authority in developing water release standards:

- (a) The total amount of contaminants to be released from the operations should be minimised. This requires the introduction of all practicable modifications to the water management program which would result in diminished releases of contaminants, whether by runoff or by deliberate releases, both during and after mining.
- (b) Deliberate releases should only be permitted under conditions of high flow in Magela Creek (flow at Jabiru exceeding 20 cubic metres per second) and when there is a continuous flow between Jabiru and the northern end of the Magela plains.
- (c) Deliberate releases should not be permitted late in the wet season since there would be a greater risk than of contaminants being trapped in billabongs and swamps within the Magela system. The precise timing in any year would have to be determined by reference to the hydrological meteorological water quality model proposed in Chapter 17.
- (d) Initial release standards for toxic materials should be based on acute toxicity bioassay tests and application factors.
- (e) Release standards for other contaminants should be based on achieving the minimum practicable disturbance to the environment.
- (f) Standards for deliberate releases should take account of the total amounts of each contaminant discharged, the concentrations in the retention ponds, the dilution actually achieved in Magela Creek and the length of time of each release. If discharges are to be permitted directly into the flooded creek, a mixing zone, where initial rapid dilution to the effluent would take place, will need to be defined and the required dilution stated. Maximum contaminant levels in this zone should be restricted to below derived **fish avoidance levels**.

Schedule 2 Environmental requirements for the Nabarlek Uranium Project

section 17(b)

Staffing and Environment

1. Queensland Mines Limited shall appoint:
 - (a) as Environment Protection Officer, a person having appropriate qualifications and experience who shall be responsible to the project management to ensure effective environmental control of the project, including the protection of:
 - (i) biological resources, including rehabilitation aspects, and
 - (ii) objects of material culture of concern to Aboriginals,
 - (b) persons to support the Environment Protection Officer in such numbers as is deemed appropriate by the Supervising Authority,
 - (c) a person qualified in the principles and practices of radiation protection in the mining and milling of radioactive ores as Radiation Safety Officer, and
 - (d) a person qualified in the principles and practices of ventilation as they apply to the mining and milling of radioactive ores as Ventilation Officer

provided that a person appointed as Radiation Safety Officer may also be appointed as Ventilation Officer.

2. Queensland Mines Limited shall instruct management and operating staff to the extent relevant and consistent with these environmental requirements in the need for environment protection, the monitoring programs and the role, responsibilities and powers of the relevant Supervising Authorities.
3. Queensland Mines Limited shall explain to the extent relevant the requirements of, or having effect under, a prescribed instrument as defined in the *Environment Protection (Alligator Rivers Region) Act 1978* of the Commonwealth, in so far as these requirements relate to any matter affecting the environment in relation to the Nabarlek Project to all the officers, servants and employees of Queensland Mines Limited and of their contractors and subcontractors, as soon as possible after their first arrival in the

Nabarlek Project Area.

4. Queensland Mines Limited shall make available, for perusal by all officers, servants and employees of Queensland Mines Limited and of their contractors and subcontractors involved in the Nabarlek Project Area, copies of all relevant Commonwealth and Territory legislation relating to the protection of the environment (including the legislation dealing with the preservation of Aboriginal sacred sites, relics and works of art).
5.
 - (a) Queensland Mines Limited shall ensure that their officers, servants, employees, invitees, licensees and contractors observe the provisions of the Nabarlek Uranium Project Final Environmental Impact Statement and the Environmental Requirements. If any infringement is discovered Queensland Mines Limited shall immediately commence such remedial action as is necessary.
 - (b) If an officer, servant or employee of Queensland Mines Limited or of their contractors or subcontractors knowingly infringes the provisions of the Nabarlek Uranium Project Final Environmental Impact Statement or the Environmental Requirements, Queensland Mines Limited or their contractors or subcontractors as the case may be, shall take such disciplinary action against that officer, servant or employee as may seem appropriate to Queensland Mines Limited in the circumstances and, in cases where dismissal is the appropriate remedy, shall dismiss that officer, servant or employee.
6. Queensland Mines Limited shall require that officers, servants and employees of Queensland Mines Limited and of their contractors and subcontractors do not introduce or permit or suffer the introduction onto the Nabarlek Project Area of flora or fauna exotic to the Alligator Rivers Region save such flora or fauna as the Supervising Authority shall permit.

Control of Water

7.
 - (a) A Restricted Release Zone is a zone which includes all material exposed, or about to be exposed, by excavation and which is defined on the ground by Queensland Mines Limited and approved by the Supervising Authority prior to commencement of excavation of the mine pit.

- (b) A Restricted Release Zone may be redefined by Queensland Mines Limited from time to time subject to approval by the Supervising Authority.
 - (c) The plan of a Restricted Release Zone when defined and approved as aforesaid shall be provided by Queensland Mines Limited to the Supervising Authority who may make it available to members of the public whenever requested to do so.
 - (d) Material shall not be taken outside the limits of a Restricted Release Zone unless approved by the Supervising Authority.
 - (e) Material shall be excavated from outside a Restricted Release Zone only with the approval of the Supervising Authority.
 - (f) The water management system shall be established in a manner allowing no intentional releases to the environment of water from the Restricted Release Zone and Queensland Mines Limited shall not allow to flow from a Restricted Release Zone liquid water other than the natural subsurface flow of groundwater, provided that this requirement shall not apply to seepage which cannot be prevented by the use of the best practicable technology. This system shall be maintained unless the Supervising Authority gives approval for the release of water from the zone in a manner approved by the Supervising Authority.
 - (g) In the event that water is released from the Restricted Release Zone it shall not be discharged generally but shall be piped directly to Coopers Creek and discharged during a period of high volume flow in a manner approved by the Supervising Authority.
 - (h) For the purposes of this clause, 'material' means material which contains more than 0.02% of uranium dry weight as measured on a truck or scraper load basis or by sampling of the relevant material in situ as appropriate, but does not include yellowcake or other mill products, in containers specified by the Supervising Authority, or specimens or samples of types approved by the Supervising Authority.
8. Erosion products resulting from the mining operations in the Nabarlek Project Area shall be prevented by Queensland Mines Limited from entering the Buffalo and Cooper Creek systems and the method of so doing shall be the subject of approval by the Supervising Authority.

9. The quality and quantity of runoff water entering Buffalo and Cooper Creeks from the Nabarlek Project Area is to be continually monitored by Queensland Mines Limited to the satisfaction of the Supervising Authority.
10.
 - (a) The tailings retention system, water retention ponds and evaporation ponds shall be designed and constructed in accordance with good engineering practice.
 - (i) No construction of the water retention system shall commence until Queensland Mines Limited has submitted to the Supervising Authority a design study report and management plan containing detailed plans and specifications for the construction and use of water storages and the management of seepage from them and has received the Supervising Authority's written approval thereto.
 - (ii) No tailings shall be discharged from the mill until Queensland Mines Limited has submitted to the Supervising Authority a design study report and management plan containing detailed plans and specifications for the construction and use of the tailings retention system and the management of seepage from it and has received the Supervising Authority's written approval thereto.
 - (b) Seepage to groundwater from the tailings retention system and water impoundments shall be controlled by Queensland Mines Limited in accordance with the management plan approved by the Supervising Authority.
11. Queensland Mines Limited shall erect a fence around the tailings retention system to Specification A.S. 1725-1975 and shall take all necessary and practicable action to prevent animals from drinking water from the tailings retention system or sources of water within the Nabarlek Project Area that, as a result of mining and ore treatment operations in the Nabarlek Project Area, may cause them harm.

Atmospheric Pollution Control

12.
 - (a) No emissions from the ore treatment operations at the Nabarlek site shall be released to the atmosphere by Queensland Mines Limited until a discharge authorisation based on standards determined by the Supervising Authority

has been issued. Emissions to the atmosphere from the ore treatment operations shall be managed as proposed by Queensland Mines Limited and approved by the Supervising Authority.

- (b) Queensland Mines Limited shall progressively develop appropriate air quality models suitable for assisting in making operational decisions relating to the protection of human health, biological resources and material objects of Aboriginal culture. The models shall be approved by the Supervising Authority before being used for the purpose of making operational decisions.
13. Queensland Mines Limited shall establish, operate and maintain a meteorological station. The station shall be situated at a site selected and equipped and operated to standards proposed by Queensland Mines Limited and agreed by the Supervising Authority taking account of the advice of the Bureau of Meteorology and other appropriate authorities. The meteorological station is to provide adequate data for air emission control purposes as well as to provide a climatological record and analysis for the site. Data so obtained will be made available to the Supervising Authority.
14. Queensland Mines Limited shall develop a test procedure for use during the initial start up of the calciner and the start up after any interruption to its operation to ensure that, before ignition, the system is operating satisfactorily.
15. The calciner and yellowcake processing plant shall be fitted with emission control equipment which reduces the emission of dust, uranium and uranium compounds to the environment to as low a level as can be achieved by the use of best practicable technology.
16. Appropriate dust control measures shall be employed at all times and in all phases of the mining and ore treatment operations to keep dust levels below values specified by the Supervising Authority with a view to avoiding, if possible, the need for habitual use of respiratory protective devices.

Technology

17. Taken as a whole, and in their component parts, the plant and the mine shall be designed, and the mining, milling and related operations within the Nabarlek Project Area shall be carried on in accordance with best practicable technology.
18. All works, processes or equipment entailing modifications to the Nabarlek Project as presented in the Nabarlek Uranium Project Final Environmental Impact Statement, Queensland Mines Limited,

January 1979, shall, in so far as such modifications have a significant effect on the environment, be approved in writing by the Supervising Authority prior to their employment or installation within the Nabarlek Project Area.

19. Nothing in the Environmental Requirements shall be interpreted to prevent or discourage Queensland Mines Limited from attaining higher environmental standards than those specified.
20. The Northern Territory Minister may from time to time, after consultation with the Commonwealth Minister for the time being administering section 41 of the *Atomic Energy Act 1953* of the Commonwealth, require the operations to be carried on in accordance with such further and other conditions (of which he shall give notice to Queensland Mines Limited) as, in his opinion, will render the Environmental Requirements applicable to the operations more effective for the protection of the environment, and are reasonably practicable in the circumstances.

Blasting

21.
 - (a) Before commencement of removal of overburden involving blasting, Queensland Mines Limited shall establish measuring sites at points to be agreed with the Supervising Authority, and shall carry out and measure the effects of test blasts in collaboration with the Supervising Authority to provide information to define standard blasting practices. Records of measurements shall be made available to the Supervising Authority.
 - (b) The standard blasting practices to be adopted by Queensland Mines Limited shall first be approved by the Supervising Authority.

Waste Rock Dump

22. Queensland Mines Limited, whenever required to do so by the Supervising Authority, shall submit to the Supervising Authority such plan or plans of the waste rock dump and the below ore grade mineral stockpile, as the Supervising Authority may require, showing the size, shape, significant material type and its location within the dumps and the silt collection system.
23. Prior to the completion of the first 3 years of milling of ore, Queensland Mines Limited shall submit to the Supervising Authority, a detailed program with supporting experimental evidence for the revegetation of the Nabarlek Project Area.

Vegetation and Landscape Protection

- 24.
- (a) For the purpose of protecting vegetation in the Project Area, Queensland Mines Limited shall fence all areas in which mining and ancillary operations take place.
 - (b) Queensland Mines Limited shall take all practicable steps to protect from trampling, cutting, unplanned and uncontrolled burning, picking or other disturbance, all vegetation in the Nabarlek Project Area, disturbance of which is not essential to mining operations.
25. Queensland Mines Limited shall carry out soil conservation measures within the Nabarlek Project Area specified by the supervising Authority from time to time.
- 26.
- (a) All tailings shall, as soon as practicable, be dealt with by being deposited in or transferred to the mine pit in a manner approved by the Supervising Authority.
 - (b) No tailings shall be deposited or transferred to the pit before the pit is prepared in a manner designed to minimise seepage and approved by the Supervising Authority.
- 27.
- (a) The sites of mining excavations, the tailings retention system and other areas where ground has been disturbed shall be rehabilitated and revegetated to the satisfaction of the Supervising Authority.
 - (b) In revegetation, Queensland Mines Limited shall establish appropriate ground cover plants in accordance with the directions of the Supervising Authority and shall fence, protect and, if necessary, renew the establishing vegetation as may be necessary to bring about the rapid restoration of stable vegetation native to the region.
 - (c) The obligations of Queensland Mines Limited under (a) and (b) above shall cease upon issue of a certificate of revegetation by the Supervising Authority.
 - (d) Prior to the commencement of any excavation, Queensland Mines Limited shall prepare contour maps in sufficient detail to permit restoration of mined or disturbed areas to their original contours or to such other contours as the Supervising

Authority may approve.

- (e) Queensland Mines Limited shall conduct a vegetation survey of the Nabarlek Project Area to the satisfaction of the Supervising Authority.
 - (f) All topsoil from areas that have been disturbed shall be stored and used for the purpose of surface rehabilitation.
 - (g) Queensland Mines Limited shall establish a nursery of such plants as may be approved by the Supervising Authority for use in site rehabilitation.
28. Except where otherwise authorised by the Supervising Authority, all structures which remain in the Nabarlek Project Area at the end of the mining and ancillary operations and which it is the intention of Queensland Mines Limited to abandon shall be dismantled and removed entirely; unwanted materials and rubbish including concrete shall be buried, covered with waste rock and topsoil and the surface revegetated.

Transportation

29. Transportation of yellowcake from Nabarlek shall be undertaken in a manner approved by the Supervising Authority. During the 'wet season', as defined by the Supervising Authority, transportation of yellowcake from Nabarlek shall not be undertaken by surface transport outside the project area and within the Alligator Rivers region except in a manner and by a route approved by the Supervising Authority.
30. Prior to commencement of excavation of the mine pit, Queensland Mines Limited shall design a monitoring program to the approval of the Supervising Authority. The program shall be designed to continue without interruption, and shall include measurements in relation to biota, water, sediments and air within the Nabarlek Project Area and will include a personal and environmental radiation monitoring program. The program will include details of numbers and the level of training of staff involved, methods to be used and logistics. A basic program shall be brought into operation before mining and treatment of ore commence. Monitoring as approved by the Supervising Authority shall continue for the duration of the project and for such time after its termination as is necessary for the environment to return to conditions acceptable to the Supervising Authority.

31.
 - (a) Queensland Mines Limited shall monitor emissions from installations and operations in the Nabarlek Project Area to (i) air, and (ii) water.
 - (b) Queensland Mines Limited shall monitor ambient conditions in the Nabarlek Project Area in accordance with the Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores (Australian Department of Health, 1975) and any revisions from time to time.
32. Queensland Mines Limited shall comply with the directions of the Supervising Authority relating to the coordination of monitoring programs and the standardisation of equipment and methods used in monitoring programs.
33. Queensland Mines Limited shall ensure that their monitoring standards and methods are conducted in such a way that the laboratory could obtain registration with the National Association of Testing Laboratories, Australia, and in accordance with the quality control program required by the Supervising Authority. Queensland Mines Limited shall maintain continuous records of performance of monitoring systems referable to independent laboratories participating in international intercomparison and calibration programs.
34. Queensland Mines Limited shall, as far as practicable and as required by the Supervising Authority, present data in a format compatible with computer analysis and suitable for data interchange with relevant national organisations.
35. Queensland Mines Limited shall ensure proper analysis of monitoring results and shall make data available to the Supervising Authority in a form prescribed by the Supervising Authority.
36.
 - (a) Queensland Mines Limited shall, prior to commencement of excavation of the pit, develop a contingency plan, to be approved by the Supervising Authority, that shall provide for immediate defined action for the continuation of monitoring in the event of probable emergencies.
 - (b) All emergency events, including details of unscheduled interruption to monitoring, shall be recorded and a report made to the Supervising Authority within 14 days.

(c) Queensland Mines Limited shall keep a record of such emergency events together with a log of service for all monitoring equipment; copies of these, together with reports of the causes of such events, shall be forwarded to the Supervising Authority.

37. Queensland Mines Limited shall employ staff with appropriate qualifications and experience to establish, operate and maintain the onsite monitoring program.

Research

38. Queensland Mines Limited shall undertake appropriate investigations as required by the supervising Authority to define the design and operating conditions capable of meeting environmental protection criteria applied to the Nabarlek Project.

39. Queensland Mines Limited shall co-operate with the Supervising Authority in undertaking appropriate investigations and in providing information relevant to identifying and overcoming environmental problems within or relevant to the Nabarlek Project Area.

40. The results of environmental research and investigations performed by Queensland Mines Limited may be submitted for publication in technical literature. Queensland Mines Limited may permit their staff to take part in technical conferences held to report on and review research investigations and monitoring relating to environmental aspects of uranium mining projects.

Definitions

41. **Best practicable technology** is that technology from time to time relevant to the Nabarlek Project which produces the minimum environmental pollution and degradation that can reasonably be achieved having regard to:

(a) the level of effluent control achieved, and the extent to which environmental pollution, and degradation are prevented, in mining and milling operations in the uranium industry anywhere in the world;

(b) the total cost of the application or adoption of that technology relative to the environmental protection to be achieved by its application or adoption;

(c) evidence of detriment, or of lack of detriment, to the environment after the commencement of the Nabarlek Project;

(d) the physical location of the Nabarlek Project;

- (e) the age of equipment and facilities in use on the Nabarlek Project and their relative effectiveness in reducing environmental pollution and degradation; and
 - (f) social factors including possible adverse social effects of introducing new technology.
42. **Nabarlek Project Area** means the area described in the First Schedule to the Special Mineral Lease to be issued by the Northern Territory Government to Queensland Mines Limited in relation to this Project.
43. **Applicable law** means every law (whether Commonwealth, Territory or other) from time to time validly in operation in the Northern Territory which is applicable according to its tenor to any aspect of the operations.
44. **Supervising Authority** in respect of any action, activity or matter specified herein, means the person having responsibility for or in relation to that action, activity or matter under an applicable law or if there is no applicable law, the person for the time being performing the duties of Supervising Scientist under the *Environment Protection (Alligator Rivers Region) Act 1978* of the Commonwealth.

ENDNOTES
1 KEY

Key to abbreviations

amd = amended	od = order
app = appendix	om = omitted
bl = by-law	pt = Part
ch = Chapter	r = regulation/rule
cl = clause	rem = remainder
div = Division	renum = renumbered
exp = expires/expired	rep = repealed
f = forms	s = section
Gaz = <i>Gazette</i>	sch = Schedule
hdg = heading	sdiv = Subdivision
ins = inserted	SL = Subordinate Legislation
lt = long title	sub = substituted
nc = not commenced	

2 LIST OF LEGISLATION***Uranium Mining (Environmental Control) Amendment Act 1979 (Act No. 46,1979)***

Assent date	10 May 1979
Commenced	10 May 1979

Uranium Mining (Environmental Control) Amendment Act 1981 (Act No. 61,1981)

Assent date	14 July 1981
Commenced	1 July 1982 (s 2, s 2 <i>Mining Act 1980</i> (Act No. 15, 1982) and <i>Gaz G25</i> , 25 June 1982, p 10)

Uranium Mining (Environmental Control) Amendment Act 1987 (Act No. 50,1987)

Assent date	16 November 1987
Commenced	16 November 1987

Statute Law Revision Act 1993 (Act No. 6,1993)

Assent date	18 March 1993
Commenced	18 March 1993

Statute Law Revision Act (No. 2) 2001 (Act No. 62, 2001)

Assent date	11 December 2001
Commenced	s 6: 15 July 2001; s 8: 1 January 2001; s 9(2): 29 June 2001; rem: 11 December 2001

3 LIST OF AMENDMENTS

s 2	amd No. 61, 1981, s 4; No. 6, 1993, s 3
s 19	amd No. 61, 1981, s 5; No. 50, 1987, s 3
s 21	amd No. 50, 1987, s 4; No. 6, 1993, s 8; No. 62, 2001, s 15
s 24	amd No. 50, 1987, s 5
s 27	amd No. 50, 1987, s 6