Ass # 148

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State # 020

MINISTER FOR ENVIRONMENT

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

HEDGES GOLD PROJECT

ALCOA OF AUSTRALIA LTD

This proposal may be implemented subject to the following conditions:

1. The proponent adhering to the proposal as assessed by the Environmental Protection Authority and fulfilling the commitments made for this project (copy of commitments attached).

2. The proponent shall comply with hygiene measures for jarrah dieback disease, to the satisfaction of the Department of Conservation and Land Management, in the detailed design and implementation of the project.

3. The alignment of the haul road in the State Forest shall be to the satisfaction of the Department of Conservation and Land Management.

4. The proponent shall prepare, to the satisfaction of the Environmental Protection Authority, a biological baseline report prior to commissioning of the plant. Any changes from the biological baseline, as determined by an ongoing biological monitoring programme, and any consequent changes to management, must be documented and shall be provided to the Environmental Protection Authority for assessment.

5. The proponent shall not cause or allow any waters emanating from the property boundary of the project to be contaminated with cyanide in excess of current measurable limits of detection (ie 0.05 ppm).

6. The proponent shall use low mercury caustic soda in which the mercury level does not exceed those limits set for the use of caustic soda in the alumina industry in Western Australia.

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7. The proponent shall submit the tailings dam design including safety features, recovery systems and underdrain design to the Environmental Protection Authority, the Department of Mines and the Water Authority of Western Australia and dam construction is prohibited until such design be found to be acceptable.

8. A groundwater monitoring programme shall be developed by the proponent and approved by the Environmental Protection Authority before commissioning of the tailings dam. The groundwater monitoring programme shall include:

   - measurements of dissolved salts, pH and cyanide;
   - monitoring results and notification to the Environmental Protection Authority of any detected seepage, and
   - proposals of remedial action, to the Environmental Protection Authority's satisfaction, in the event that seepage is detected.

9. Pumping from the Hotham River shall only take place when the river flow is in excess of 342 kilolitres per hour. Total pumping from the river shall not cause the remaining flow to be reduced below a flow of 342 kilolitres per hour (River flow measured at Marradong River bridge gauging station). The proponent shall negotiate agreements, to the satisfaction of the Minister for Water Resources, with any other major user of water from the Hotham River in order to ensure that overall pumping does not reduce flow below 342 kilolitres per hour.

10. The minimum flow rate of 342 kilolitres per hour shall be reviewed by the Water Authority of Western Australia after two winter flows and advice given to the Environmental Protection Authority as to whether this rate is having undesirable environmental impacts.

11. Subsequent to receiving the advice of Water Authority of Western Australia pursuant to Condition 10, the Environmental Protection Authority may modify the minimum flow rate set in Condition 9.

12. The proponent shall conduct hydrological studies to determine changes in salinity in surface water and groundwater arising from mining operations. A programme for such studies shall be submitted to the Environmental Protection Authority and its approval gained prior to commissioning.

13. The proponent shall present proposals for rehabilitation of areas affected by the project within 12 months of commissioning, as follows:

   - rehabilitation of landscape, soils and vegetation appropriate for the land use priority for that area within State forest and to standards appropriate to bauxite mining, to the satisfaction of the Department of Conservation and Land Management;
   - rehabilitation of areas affected by chemical spills should they occur and monitoring of chemical concentrations until they decline to background levels, to the satisfaction of the Department of Mines;

. rehabilitation of haul roads in State Forest, to the satisfaction of the Department of Conservation and Land Management;

. rehabilitation of the water supply dam, to the satisfaction of the Water Authority of Western Australia; and

. rehabilitation of the tailings dam, to the satisfaction of the Department of Mines.

14. With the exception of the material used in road construction, mine waste shall be returned as backfill to mine pits during the life of the project. If it is decided not to process marginal ore, this material shall also be returned to mined out pits. Should a decision to mine bedrock be made in the future, then detailed plans must be submitted to the Environmental Protection Authority for further assessment.

15. The proponent shall ensure that noise levels generated by blasting operations do not exceed 115 dB peak linear. Noise levels from machinery will be set during works approval and licensing under the Environmental Protection Act, 1986.

16. The proponent shall produce an environmental management programme to the satisfaction of the Environmental Protection Authority, prior to each separate construction or development stage being implemented. These reports shall be consolidated into a document suitable for public information and include information provided subsequent to conditions 2, 4, 8, 12 and 13.

17. Following its review of the monitoring and management reports required to be submitted by the proponent to the Environmental Protection Authority pursuant to condition 16, the Environmental Protection Authority shall make these reports available to the public.

18. The proponent shall provide decommissioning plans for:

    . the tailings dam;

    . the water supply dam; and

    . the removal of waste and equipment.

    Plans shall be finalised at least twelve months prior to the proposed date for decommissioning and be to the satisfaction of the Environmental Protection Authority and appropriate Government agencies.

Barry Hodge, MLA
MINISTER FOR ENVIRONMENT

25 FEB 1988

SUMMARY OF COMMITMENTS TO ENVIRONMENTAL MANAGEMENT

The following represents a summary of commitments made by Alcoa of Australia Limited in respect of environmental management of the Hedges Gold Mine.

Alcoa of Australia Limited would:

(1) comply with the requirements of applicable Acts and Regulations;

(2) minimise clearing of land consistent with safe and efficient operations;

(3) compensate the State for all clearing of State Forest;

(4) establish environmental regulations for both construction and permanent workforces; ensure that these regulations are complied with through environmental education, supervision and enforcement; take full responsibility for the environmental performance of both permanent employees and sub-contractors;

(5) establish ongoing liaison with Mines Department for pit safety and face stability;

(6) progressively rehabilitate mined areas during the project, if mining sequence and production drilling data indicate that this is possible. Alternatively, rehabilitate all areas after project completion;

(7) where practicable, return waste to mined areas. Landscape and rehabilitate the remaining waste stockpile according to principles in (8);

(8) return affected areas to appropriate and achievable land uses in accordance with agreements with the State Government and Worsley Timber Company, using prescriptions developed in consultation with relevant State Government authorities;

(9) monitor and maintain rehabilitated pits, waste stockpile, haul road and reside disposal areas until such time as it is agreed, with the State, that the objectives of such rehabilitation have been met;

(10) design and operate a water quality, drainage and stormwater management system throughout the project area which will minimise the discharge of turbid water, plant chemicals or tailings spills into nearby streams, and minimise erosion.

(11) ensure mining operations do not have a negative impact on the long term quality of water in the BGM water supply reservoir, by developing and implementing appropriate drainage control and rehabilitation programmes;

(12) monitor stream flow for quality and quantity in 34 Mile Brook upstream and downstream of the mine;

(13) in consultation with CALM, plan and apply appropriate disease control strategies for the haul road alignment through, and mining operations in, State Forest;

(14) apply appropriate dieback management procedures to activities conducted in other forest areas;

(15) conduct forest upgrading planting in disease affected State Forest immediately adjacent to operations, if required and considered appropriate by CALM;

(16) develop a sanitary landfill area for the disposal of office and domestic wastes generated by the project;

(17) if necessary, provide accommodation for the construction workforce following discussions with local authorities;

(18) control fugitive dust from the Project Area;

(19) monitor faunal populations in the Project Area;

(20) restrict human and non-avian faunal access to potentially hazardous areas by fencing. If necessary, contruct and place avifaunal deterrents in the tailings impoundment;

(21) monitor noise levels in the Project Area and its surrounds; use Blast Acoustic Modelling procedure developed at Alcoa's bauxite mine sites to predict and reduce noise impact on Boddington town site and neighbours;

(22) advise nearby populations and relevant Government officers of likely blasting times;

(23) utilise requisite safety equipment and procedures in the handling and storage of hazardous chemicals;

(24) carry out detailed investigations and design of tailings impoundment in accordance with Government requirements. Minimise seepage from the tailings dam by provision of an underdrainage system, by selection of suitable low permeability materials for dam wall construction, and inclusion of seepage cutoff features in the design of the dam wall;

(25) monitor surface water quality in streams immediately downstream of the tailing dam (and plant site) and the water supply dam. Monitor groundwater quality downstream of the tailings dam and implement a detailed monitoring, recovery and recycle/treatment strategy if elevated pollutant levels and detected in seepage or groundwater;

(26) in the event of contaminated groundwater being detected, be prepared to establish a recovery bore system downflow of the tailings area;

(27) modify residue management system and operations to the reasonable satisfaction of the State if unexpected problems occur;

(28) notify the Water Authority, EPA and downstream users promptly if any spillage occurs which has potential to affect downstream water users; conduct clean-up or containment operations if necessary;

(29) remove contaminated material and carry out appropriate rehabilitation if a tailings pipeline failure occurs;

(30) establish surface contouring and drainage to prevent the rise of contaminated waters in residue areas during rehabilitation, and permit vegetation establishment. Establish a drainage collection system to retain runoff so that it can be monitored and if necessary treated prior to discharge;

(31) continue monitoring the water residue system until it is decided, in consultation with the State, that such activity is no longer required;

(32) carry out investigations in conjunction with WAJV, or independently, on residual process chemicals in the gold tailings and their possible effects on underlying soils and groundwater. Include a comprehensive survey after the first 12 months operation of the chemical status of the tailings deposit;

(33) keep abreast of developments in gold tailings disposal technology for possible future application in treating contaminated seepage or runoff if it proves necessary;

(34) provide access for CALM and local Bush Fire Brigades;

(35) submit an annual report of environmental management and monitoring programmes, then content of which is to be determined by agreement with the State;

(36) construct more positive cut off features or seepage collection systems for the tailings dam, if unacceptable seepage occurs;

(37) design the initial tailings dam and its extensions to store runoff from a net year with a 1:1000 year frequency;

(38) carry out or sponsor studies on the interactions between tailings leachate and foundation soils after the commencement of operations;

(39) carefully monitored water quality changes prior to and following start-up and if adverse trends develop then measures will be taken to protect downstream uses;

(40) in the event that unacceptable water pollution occurs downstream, carry out remedial action to the satisfaction of the State;

(41) process make-up water would be drawn from the Hotham River during the winter months when salinities can be in the range 1000-9000 mg/l;

(42) commence a hydrogeological monitoring and assessment programme prior to start-up and would update it continuously;

(43) monitor the water and salt balances for the tailings circuit;

(44) ensure that mining of the stream zone orebody only took place during summer months and that rehabilitation of this part of the pit would commence immediately mining was completed;

(45) with regard to monitoring of water quality and quantity of 34 Mile Brook, coordinate monitoring with that of BGM and WAWA requirements;

(46) ensure that domestic waste disposal within the the 34 Mile Brook Catchment would use self contained toilets and enclosed garbage bins;

(47) establish a correlation between the minimum flow at the Marradong Gauging Weir and the river level at pump suction. An automatic cutoff system would ensure that pumping ceases at this time;

(48) transport chemicals according to standard government safety requirements;

(49) provide access for fire control purposes; and

(50) take action to the reasonable satisfaction of the State if actual or potential risks, not adequately addressed in this ERMP, occur.