

Ass # 156

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State # 019



MINISTER FOR ENVIRONMENT

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

BODDINGTON GOLD MINE ENHANCEMENT OF FACILITIES

WORSLEY ALUMINA PTY 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 to the commitments given in the Environmental Management Programme for the Boddington Gold Mine (copy of commitments attached).
2. The proponent shall only pump water from the Hotham River when the river flow is in excess of 342 kilolitres per hour. Total pumping from the river must not cause the remaining flow to be reduced below a level of 342 kilolitres per hour (River flow measured at Marradong River bridge gauging station).
3. 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.
4. 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.
5. Subsequent to receiving the advice of the Water Authority of Western Australia pursuant to Condition 4, the Environmental Protection Authority may modify the minimum flow rate set in Condition 2.


Barry Hodge, MLA
MINISTER FOR ENVIRONMENT

15 FEB 1988

SUMMARY OF ENVIRONMENTAL COMMITMENTS

The following list is a summary of the major environmental commitments for the Boddington Gold Mine Project. Some of the commitments relate to the recommendations of the EPA report on the project proposal (October 1985), as noted emboldened in square brackets after these commitments:

- Clearing for project activities will be kept to a minimum, consistent with safe operating practices.
- Topsoil from areas cleared for project activities will be salvaged for use in decommissioning and other rehabilitation programmes [EPA Recommendation 12].
- Environmentally-sensitive construction and operational practices, including stringent forest hygiene measures, will be employed throughout the project area (see Exhibit H, Appendix A; Environmental Checklist, Appendix E).
- The operation will be licensed in accordance with the requirements of the Environmental Protection Act, 1986 (includes air, water and noise pollution control).
- The State will continue to be compensated for clearing of State Forest under the terms of the Alumina Refinery (Worsley) Agreement Act, 1973 (as amended).
- Alternative access from private land around the Water Supply Reservoir to State Forest to the west of the project area has been provided for local bush fire brigades and CALM.
- Biological monitoring programmes, based on information provided to the State in the draft report on baseline biological investigations, will be developed in consultation with the State. Results of these monitoring programmes will be reported to the State and changes to management and procedures developed as necessary with the State [EPA Recommendations 1 and 2].
- A quantified assessment of likely impacts of project clearing on streamflow and quality of Thirty-Four Mile Brook has been carried out with the Water Authority of Western Australia (see Appendix B). In consultation with the EPA and the Water Authority, existing surface and groundwater monitoring programmes are being extended to facilitate progressive planning and management of project activities, particularly mining and residue storage, to minimize adverse hydrological and hydrogeological effects [EPA Recommendations 9 and 10].
- Rehabilitation of project areas will be carried out in consultation with the State and, where appropriate, the land owner, with the aim of maintaining the water quality of Thirty-Four Mile Brook so that the Water Supply Reservoir would be a viable long-term source of public water supply. If, at the time of decommissioning, the State requires the Water Supply Reservoir as a potable water source, the water quality in the reservoir will be

reassessed and, should it prove to be unsuitable, the Joint Venturers will drain the dam, allowing it to refill naturally [EPA Recommendation 11].

- The downstream user of Thirty-Four Mile Brook is being compensated for reduced flows due to the construction of the Water Supply Reservoir.
 - A programme for regular assessments of forest health, including tree growth monitoring, is being established adjacent to the Mining Area in consultation with the EPA and CALM. If disease spread unacceptable to the State is detected, operational practices will be reviewed and modified [EPA Recommendation 3].
 - The State has been provided with the results of studies and assessments on the likely effects on the environment of cyanide, caustic soda and viscosity modifier used in the process and deposited with residue [EPA Recommendation 5].
 - As part of applications for permission to divert water (Rights in Water and Irrigation Act, 1914 [as amended]) and for a Works Approval (Environmental Protection Act, 1986), the State has been provided with the detailed design reports and reports on geotechnical, hydrological and hydrogeological investigations carried out for the Water Supply Reservoir and the Residue Management System, including monitoring/recovery borefields [EPA Recommendations 6 and 8].
- Additional information has been provided in relation to atmospheric emissions and noise aspects of the Works Approval.
- If unacceptable quality is detected in groundwater monitoring bores around the Residue Disposal Area, one of the remedial actions described in Section 8.3.3 will be adopted.
 - Material from residue and reclaim pipeline leaks/breakages will be contained at low points along the residue pipeline route and transported to the Residue Disposal Area. If spills are not fully contained, WAPL will carry out clean-up and rehabilitation of affected areas in consultation with the State.
 - In the unlikely event of a dam failure, including the overtopping of the Process Water Pond, the Joint Venturers will assume responsibility for clean-up and rehabilitation to the satisfaction of the State [EPA Recommendation 7].
 - The Hotham River Pump Station has been designed (size of structure, colour of structure and equipment) to minimize visual impact. Noise from the electrically-driven pumps and from temporary diesel alternators (permanent power is scheduled for connection in mid-1987) has been evaluated in relation to neighbourhood noise legislation and appears unlikely to be a problem; however, equipment modification will be evaluated should problems arise [EPA Recommendation 17].
 - All waste and spilt materials in the Metallurgical Treatment Plant area will be contained within the process operation for reuse, or disposed of as appropriate.
 - Caustic soda used in the Metallurgical Treatment Plant will have a mean mercury content of less than 100 µg/L, with a maximum value of 1,000 µg/L [EPA Recommendation 4].

- Stormwater runoff from the cleared area of the Plant Site will flow into the Process Water Pond, which has been lined with clay to minimize leakage. The pond will have sufficient capacity to accommodate rainfall runoff from a one in one hundred year storm event.
- Noise during blasting operations will be limited, by the conditions of the Mining Contractor's contract, to less than 120 dB linear at the nearest residence, some 6 km from the blast site.
- Drainage will be installed in the mine pits, with runoff either used for dust suppression, or drained via silt traps to natural watercourses.
- Perimeter drains will be installed around mine pits and stockpiles; water from these and from haul roads will drain through silt traps into natural watercourses.
- The objective of the management of runoff from the mining operations will be to minimize the potential spread of forest disease and to reduce the long-term salinity and turbidity impact on Thirty-Four Mile Brook.
- Mine waste not used in road construction will be returned as backfill to mine pits during the life of the project.
- If it is decided not to process marginal ore, this material will be returned to mined-out pits.
- Shallow mine pits will be contoured to slopes generally consistent with natural landforms [EPA Recommendation 13].
- Deeper pits will be rehabilitated if, at the time of completion of mining the weathered profile, no decision to mine bedrock has been made. Should a decision to mine bedrock be made, detailed plans will be submitted to the State for approval [EPA Recommendations 15 and 16].
- Final rehabilitation will ensure that runoff will drain to natural watercourses or into the deeper pits.
- Ten-year mining plans will be prepared and submitted to the State as part of the existing arrangements for the Worsley Alumina Project, and will be regularly updated [EPA Recommendation 14].
- The State will be provided with brief annual and comprehensive triennial environmental management reports as part of existing arrangements for the Worsley Alumina Project [EPA Recommendation 19].