

THE CENTURY ZINC PROJECT, QUEENSLAND (AUSTRALIA) LEGAL AND ENVIRONMENTAL CONSIDERATIONS

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ABSTRACT

The Century Zinc Project in North Queensland has been opposed by the environmental lobby on a number of grounds among which are the perceived impacts of mine dewatering on the surface waters of the region which contains National Parks and Natural Resource reserves. Hydrogeological investigations and numerical modelling suggest that the impacts on surface waters will be minimal outside the mine site. The dewatering borefield was installed in 1995/6 and has been operating at a reduced rate since commissioning. Monitoring of drawdown due to the pre strip dewatering has shown that the fears of the environmentalists are unfounded. Legal constraints related to Native Title over the land have so far held up the issue of valid Mining Leases. Procedures set out under the Native Title Act are being followed in order that native title rights are appropriately addressed prior to the mine proceeding.

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Century is located approximately 250 Km North of the established mining centre of Mount Isa in North Queensland (Figure 1). The mean annual rainfall is 530mm and mean annual evaporation is in excess of 3000mm hence the majority of minor streams, which do not depend on groundwater as their source of baseflow, are ephemeral.

The Century Zinc deposit contains some 118MT of ore averaging 10.2% Zn, 1.5%Pb and 36g/tonne Ag and has an estimated mine life of 20 years at a production rate of 5MT/year. Mining will be by open pit and active dewatering at a rate of up to 600L/sec will be required to maintain stable pit walls and safe mining conditions. Ore will be crushed and concentrated on site and pumped as a slurry along a 300Km pipeline to the port of Karumba on the Gulf of Carpentaria where the slurry will be dewatered and concentrates loaded onto barges for transfer to ships anchored offshore.

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GEOLOGY AND HYDROGEOLOGY

The Century orebody lies within the Proterozoic Lawn Hill Formation, a sequence of up to 2300m of shales and siltstones with minor sandstones and dolomites. It is overlain unconformably by a doughnut shaped outlier of Cambrian limestone (Thorntonia Limestone) which measures approximately 13 km by 14 km and has a core of Proterozoic pelitic rocks.(Figure 2)

The Thorntonia Limestone is the only significant aquifer in the area and must be dewatered at the minesite to permit mining. The limestones are karstified in part but generally have a hydraulic conductivity of the order of 3m/day and specific yield of the order of 0.01 and attain a maximum thickness of greater than 400m to the north east of the minesite. The origins of the annular geological structure remain obscure but there is no evidence to suggest that the annular body of limestone is in any way hydraulically connected to other limestone occurrences in the region. Several major faults cross the area including several in the immediate vicinity of the mine. Current evidence indicates that these faults are zones of low permeability and will not act as conduits for rapid movement of groundwater under the steep hydraulic gradients induced by dewatering. The surrounding and underlying Proterozoic rocks are of low permeability which means that the limestone body is essentially an isolated, water filled, compartment which will restrict

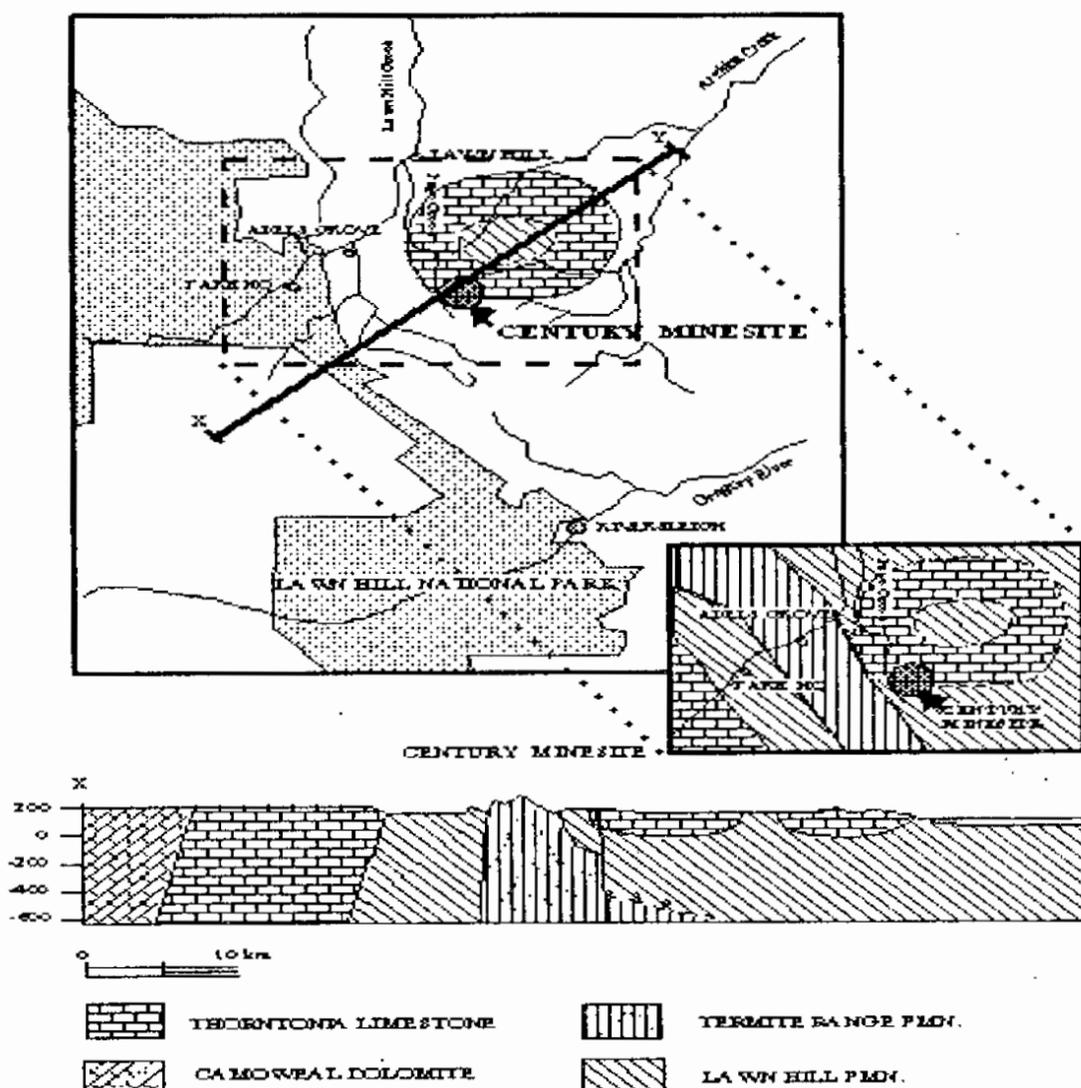


Figure 2: Geology of the Century Area

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the drawdown impacts of dewatering to the local mine area without affecting the regional surface and groundwater systems.

Numerical modelling carried out by Woodward Clyde/AGC, who are the main consultants responsible for the design of the mine dewatering system, has been progressively refined using data from the construction of the borefield, and subsequent operational drawdown results. The initial model was found to be conservative, yielding predictions of drawdown in areas especially to the west of the minesite, which were greater than drawdowns observed during operation of the wellfield. The current revised model now predicts drawdown which is in close agreement with field data and confirms the belief that drawdown impacts will largely be restricted to the limestone in the annular outlier.

There is an extensive network of observation bores consisting of 20 sites in the dewatering borefield area and 26 regional bores which are monitored regularly on a two weekly or monthly basis.

PERCEIVED IMPACTS OF MINE DEWATERING

Despite assurances to the contrary by the company, consultants and the government, the environmental lobby has persisted with objections to the project on the basis that they believe there to be a high probability that surface waters, including the Lawn Hill Creek and Gregory River will suffer significant reductions in flow due to the dewatering of the Thornton Limestone in the vicinity of the mine. As can be seen from Figure 2 there is a National Park close by and the Lawn Hill Creek flows through a delightful gorge near Adels Grove. The Lawn Hill Creek derives virtually all of its base flow from an extensive area of the same limestone unit which lies to the Southwest. Dewatering of the limestone outlier is not predicted to have any effect on this main area of limestone outcrop which is some 14 Km removed from the site.

Other concerns associated with water, expressed by the environmental lobby include:

- Dewatering may induce the development of sinkholes in the Thornton Limestone under the influence of heavy rainfall. (The structural integrity of the limestone and relatively deep water tables suggest that this is highly unlikely.)
- Reduction in yield from stock watering bores. (There are only 4 such bores in the area and all are more than 10 Km from the site.)
- Dewatering may reduce flows in Louie Creek to the West of the mine area. (Louie Creek rises in the main body of Thornton Limestone 11 Km from the mine and is thus not likely to be affected.)
- Flora and fauna associated with the surface drainage will be seriously disadvantaged by reductions in flow. (A North Queensland Conservation Council press release on 2nd May 1996 stated that "Our main concern is that draining that volume of water from the aquifer must harm adjacent ecosystems and the wildlife that relies on permanent water in an otherwise arid region"). There is no reason to believe that ecosystems will be affected outside the immediate mine area apart from two springs, located within the limestone annulus which may possibly suffer reductions in flow and could, if necessary, be maintained artificially.
- Dewatering pumpage may impact on the Riversleigh World Heritage Area "which contains fossil deposits of incalculable value". (The fossil localities at Riversleigh are in no way dependant on groundwater for their preservation 35 Km from the site.)
- Possible leaks from the slurry pipeline

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- Possible spills of concentrate during loading of ships offshore. (The Century Project Draft Impact Assessment Study (1994) quantified the limited risk of such spillage and describes the precautionary measures taken.)

The Aboriginal people of the region traditionally have a close affinity for the natural landscape. It features strongly in their mythology and different groups identify with specific features of the landscape which have been described as "sacred sites" in western terminology. They are concerned that mining induced changes to the hydrological regime may interfere with the spiritual significance and amenity values of watercourses and springs, and their concerns have been adopted by the environmental lobby who see the Aboriginal people as powerful allies in stopping mining in the area. The main concern for the Aboriginal community is that they are the original "owners" of the land with a history of

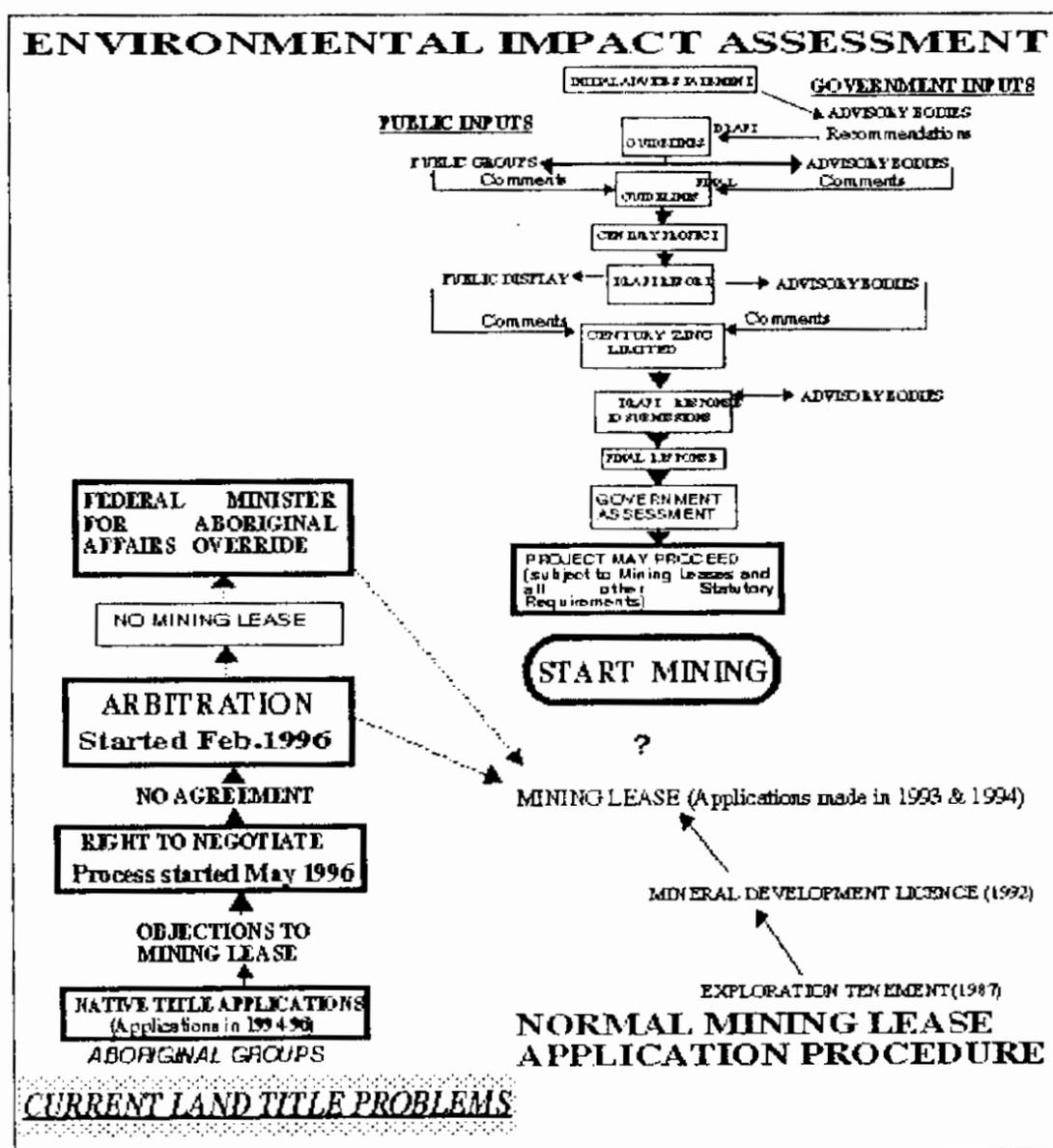


Figure 3. Summary of Mining Lease Application Procedure Century Zinc Project at least 40000 years of occupation prior to European settlement, which is often perceived as an invasion.

THE LEGAL PROBLEM AND MINING LEASE APPROVAL

A series of events which has led to considerable confusion over the issue of land tenure and the rights of indigenous peoples started with a recent Australian High Court Judgement (Mabo 1992) which rejected the European doctrine of "terra nullius" (that Australia was land belonging to no one at the time of European settlement) and established the principle that where Aboriginal people have maintained their connection with the land and their title has not been extinguished by acts of Imperial, Colonial, State, Territory or Federal Governments, a form of customary Native Title exists.

Federal Government legislation (The Native Title Act 1993) set out the conditions under which Native Title could be claimed and required that clear, unambiguous wording in documents issued when granting various forms of land title (other than Freehold) in the past were necessary for Native Title to have been extinguished.

In January 1996, the Federal Court decided that a claim for Native Title by the Wik and Thayorre People over part of the Cape York Peninsula on Queensland could not be granted because the previous grant of pastoral leases by the Queensland Government extinguished any native title rights. The Wik People appealed against the ruling in the High Court and that Court found that, amongst other things, native title rights could continue at the same time as the land was subject to a pastoral lease and that a pastoral lease did not give exclusive possession to the pastoralist. This has brought about a great deal of concern in the pastoral and mining industries and the matter of interpretation of the Native Title Act is now subject to review by the Commonwealth Government of the day.

If Native Title has been granted, or a claim for Native Title has been registered, over country containing a proposed mining lease (which is a similar kind of title to a pastoral lease), the Act provides for a mining lease to be granted where there is no objection from the holders of Native Title or registered claimants as a "permissible future act". If the affected parties object to the issue of a mining lease, the Native Title holders or registered claimants have a "right to negotiate" (see Figure 3) which is subject to arbitration if agreement cannot be reached over the future act. The responsible Government Minister has the power to overrule the decision of the arbitrating body (Native Title Act 1993).

Prior to the High Court's Wik ruling, there had been over 18 months of legal proceedings regarding the acceptability or otherwise of a native title claim over Century. It was resolved that the claim was able to be accepted for consideration and the Right to Negotiate Process commenced under the Native Title Act in May 1996. While a majority of Aboriginal stakeholders reached agreement for mining to proceed after 10 months of negotiation the matter had to proceed to arbitration as unanimous acceptance was not forthcoming.

The matter of Native Title carries with it significant implications for water management aspects of the Century Zinc Project. The claims for Native Title include claims for "the right to possession of the lands and waters and attributes of the land and waters ("resources"), to the exclusion of all others and, inter alia, the right to conduct ceremonies, move freely about, hunt and fish on, take and use plants animals and minerals from, and manage, conserve and care for the land, waters and resources." There are clearly many potential conflicts related to the management of water by Century Zinc Ltd., particularly in the near vicinity of the mining lease but a responsible approach by both parties should facilitate resolution of such conflicts. It will be necessary, in the interests of safety, to restrict access to areas where mining operations carry a risk of injury to Aboriginal People

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but such areas do not usually fall within the domain of water management with the exception of artificial storages and tailings dams.

lobby, which appears to be opposed to almost all new projects, sees the current uncertainty as a window of opportunity which is creating a situation in which they can feed anti mining (or anti development) information, often involving serious misinterpretation of the scientific facts, to the Aboriginal People in order to make it as difficult as possible for any new project to proceed. Until the Native Title uncertainties are clarified, there are now two major areas in which the anti mining lobby can exert its influence regardless of the possible benefits to the Australian economy. In the case of the Century Zinc Project there is a significant majority of Aboriginal People in the Gulf country who are in favour of the development which will create job opportunities and help to raise their living standards. It is however most important that due consideration be given to retaining the opportunity for Aboriginal People to maintain their traditional and cultural connections with the land and waters of the area as far as possible and ensuring that decommissioning procedures on completion of mining are designed to minimise or prevent any future adverse environmental impacts.

ACKNOWLEDGEMENTS

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REFERENCES

1. Draft Impact Assessment Study Report The Century Project October 1994 Century Zinc,
2. Native Title Act 1993 Commonwealth Government Printer, Canberra