

## WATER QUALITY AND ACTIVITIES THAT CAUSE RIVER BED DISTURBANCE

### RMLA CONFERENCE 2002 – QUEENSTOWN WORKSHOP PRESENTATION BY BILL RAINEY

#### *Introduction*

My role in this workshop is to talk about activities that conflict with rivers and water quality. Because we are in Queenstown I'm going to use two local case studies and illustrate the effects of modern alluvial goldmining on rivers, the conflicts that arise, and the consultation processes adopted.

My examples span just over a decade, the earlier one occurred just before the advent of the RMA. It is a mining licence application in the bed of the Shotover River that was heard by the Planning Tribunal in May 1991.

The second example is currently subject to an appeal before the Environment Court and involves gold mining on the Ernsclough Flats near Alexandra. The proposed mine path goes directly through sections of the Fraser River, necessitating a permanent diversion. The status of this case means my discussion of it is restricted to factual descriptions, which are in the public record.

My purpose in choosing these two examples is to show the changes to process (if any) brought about by the RMA. Both cases involve mining in rivers. They attracted considerable opposition, and resulted in diverse issues. We are able to see what interventions and processes have been used to address the issues.

#### *Overview of Mining Law*

Before I go on, a brief refresher of mining law as it applies to the two case studies.

In the Shotover example, mining operations required a mining licence under the Mining Act 1971, and water rights under the Water & Soil Conservation Act 1967 (take, use and discharge). The Mining Act inquiry involved *inter alia* consideration of the matters of national importance in s.3(1) of the Town & Country Planning Act 1977.

In the Fraser River example, (under the RMA), resource consents are required from both the District Council (relating to land disturbance), and the Regional Council (relating to water and dust matters). Section 5 RMA excludes minerals from part of its definition of sustainable management. That is, minerals need not be sustained to meet the needs of future generations. In other respects minerals are a natural resource and mining extraction is an activity like any other.

The statutory processes for resolving the conflicts in my two examples are different. In the first case, Mining licence applications were heard, in the first instance by the Planning Tribunal which, after holding an inquiry, made a recommendation to the Minister of Energy who then made the final decision. Water rights were dealt with separately from the mining licence. Water right appeals (from decisions of catchment and regional water boards) were heard and decided by the Planning Tribunal.

Under the RMA all land (including river) use matters are decided at the first instance by district and regional councils, and on appeal the Environment Court. Mediation is specifically provided for.

Mining licences previously allowed access to private land open for mining. Now access is obtained by agreement with landowners.

The allocation of minerals now requires a mining permit obtained from the Minister of Energy.

Criticism of the pre-RMA process included it being fragmented, costly, fraught with delays, and pro-development.

Post-RMA criticisms are that the process needs a major overhaul, the system is open to abuse by anti-development groups, there is an overkill in consultation, delays are excessive and the process far too long-winded.

### **CASE STUDY #1 - SHOTOVER RIVER**

Gold was discovered in 1862 in the lower Shotover River. Within several months over 3600 miners were resident on the river and its tributaries. Mining progressed from hand methods utilising shovels, gold pans, small cradles and sluice boxes to dredging by the late 1880's and early 1900's. Access by machinery was restricted in narrow "canyon" sections of the river. Nevertheless, hydraulic elevators combined with sluice boxes and then small suction dredges were common methods used. It is thought the Shotover is the second richest gold producing river in the World – after the Yukon.

Since the late 1970's, "modern" mining methods developed with hydraulic excavators being used to feed gravels into efficient floating gold processing plants.

**[Photo #1 Shotover mining]**

This type of mining involves shifting riverbed gravels by hydraulic excavator working on either natural beaches, in shallow water or on the river bottom, or on man-made beaches formed by double handling of riverbed gravels. The gravels are fed into a hopper and screened by gravity action. Once processed, the gravels are placed immediately behind the plant and are progressively restored by another excavator or bulldozer.

**[Photo #2 Shotover mining]**

These methods use settling ponds constructed from riverbed gravels ahead of the plant, and from processed tailings.

Because alluvial gold is being recovered, no chemicals are used for gravel processing or gold recovery. Gravity and water action is sufficient to separate gold from the gravels.

L&M Mining Limited operated within the Shotover River in the late 1980's. Concern about the mining operations were expressed by other commercial users of the river (raft and jet boat operators) and by local environmental groups. An organisation of commercial river users known as the Shotover River Protection Action Group was formed.

A series of discussions were held in late 1989 and early 1990 regarding L&M's operating procedures and allegations of non-compliance with conditions of the mining licence and water right. This led to a temporary shutdown of one of the Shotover operations until a satisfactory resolution of concerns regarding appropriate working procedures.

In May 1990 L&M produced a revised work plan to the Ministry of Energy, Otago Regional Council and Department of Conservation for review and approval.

All concerned parties were also consulted to seek their agreement to the revised plan.

The mining company specifically agreed to vary the conditions of another (but related) mining licence and to vary the conditions of the relevant water right to resolve ambiguities and interpretations of conditions in both permits, and to update conditions to current prevalent use and interpretation. This made conditions more restrictive for the mining company, but the new operating regime was acceptable.

Specific understandings were reached concerning on-site work. For example, L&M agreed not to mine the Rock Garden rapid, a significant area within the licence area for the rafters. Boundaries of the downstream and upstream limit of the rapid were established through on-site inspection with the Shotover River Protection Action Group and various regulatory agencies. The exclusion areas were indicated on the plans attached to the revised work plan. An application was made to the Ministry of Commerce to exclude this rapid from the mining licence.

A revised work plan indicated that when reaching the downstream limit of the Rock Garden rapid, the mining plant would be dismantled and transported overland past the rapid via an existing track. The plant was then reassembled upstream of the rapid and mining recommenced.

Approval for portage of the mining plant was obtained from DOC which owned the existing track.

### **[Photo #3 Shotover portage track]**

Work plans were a significant feature of the Shotover mining licences and it was a condition of the licence that a work plan be required prior to mining. This plan included mining in fully contained settling ponds, and progressive rehabilitation of the tailings as the mining proceeded upstream.

The work plan recognised exclusion zones around two significant sections of rapids and the scenic riverbank areas.

So the main features of this operation, crafted under the legislation and procedures immediately prior to the RMA were:

- Entire operation was situated within the Shotover River but isolated from the river by fully contained settling ponds.
- Tailings were restored within the river as the mining progressed upstream.

- Gold recovery was by gravity separation with no chemicals being used.
- Fully contained ponds were used to effect water recycling.
- Settling ponds aided by artificial walls of non-porous textiles were used.
- Very little discolouration of the river occurred, enabling water quality to be vastly improved when compared with previous operations.
- The river banks were excluded from excavation operations.
- Major rocks in the river that affected or created rapids were excluded from the mining operations.

The conflict resolution processes and interventions used included multi-party discussions following allegations of non-compliance, temporary shutdown of operations, revision of work plan, variation of conditions of water right, agreements reached concerning on-site operations and work program to protect environment such as voluntary exclusion areas.

As a result, a cocktail of measures was adopted after discussions with the Otago Regional Council, Shotover River Protection Action Group, Ministry of Commerce, and Department of Conservation, and other interested parties. Most of the objections were resolved by consent. The outcome was that after a Planning Tribunal hearing with the outstanding submitters, the new licence was granted and mining in this environmentally sensitive area took place. The joint use of the river by commercial tourist and mining interests was possible. Within the constraints of then applicable mining and water legislation, the parties were able to make a concerted effort to understand the relevant issues and address them effectively. In this case the process occurred over a space of 1.5 yrs.

#### **CASE STUDY #2 - FRASER RIVER**

The Fraser River forms part of L&M's Earnscleugh project. It is proposed to mine 255 hectares of land over a period of eight years, using similar mining technology as the Shotover, ie. a floating plant being fed by hydraulic excavator and progressive rehabilitation and restoration.

**[Photo #4 Arahura example]**

There would be four phases to this mining operation, namely:

- Soil removal
  
- Overburden stripping
  
- Mining
  
- Restoration and rehabilitation

**[Photo #5 Earnsclough mine plan]**

The mine would follow a snake-like path over a confined application site on the Earnsclough Flats. It would occupy approximately 17 hectares at any one time.

**[Photo #6 Fraser diversions]**

Two permanent diversions of the Fraser River would occur. Consent was obtained from the Otago Regional Council to disturb the bed of the Fraser River and construct temporary bunds during the diversion and subsequent reinstatement. A water permit to divert the river was also granted.

Other consents granted were:

- discharge permit to discharge dust from the mining operations,
  
- land use consent to undertake earthworks during the operations,
  
- water permits to divert water from the Fraser River to the mine site and to take ground water to process gravels,
  
- water permit to discharge treated mine water and contaminated stormwater runoff to the ground

- water permit to discharge water to the Fraser River and to the ground.

### **[Photos #7 & #8 FraserRiver]**

Permanent diversion of the Fraser River would have an obvious impact on the existing river habitat. The diversion would be carried out in consultation with Otago Fish & Game, and the Regional Council.

### **[Photos #9 & #10 Diversion designs]**

Diversions are designed to assist habitat recovery and the river flows altered in a way that minimises the impact on in-stream fauna. Fish salvage takes place and the diversion occurs over a period of 24 hours.

When it was notified, this project received numerous submissions from residents, commercial organisations, statutory bodies seeking appropriate conditions, and other organisations and individuals with responsibility for the welfare of local residents.

Extensive public consultation was undertaken, both before and after notification of the application.

The approach adopted by the mining company when it commenced public consultation in February 2000 was as follows:

- It categorised potentially affected people and organisations including orchardists and residents living close to the project area, specific users of resources such as the Fraser River and ground water, organisations with statutory or assumed representation of local interest such as the Community Board and local environmental groups, iwi, government organisations with an oversight of resource use such as DOC and the Historic Places Trust. The net was spread widely and included all residents within 1km width around the application site.
- Newsletters were prepared and sent to all box holders on the Ernsclough Flats (approximately 130 households) to introduce the project and the mining company – L&M Mining Ltd.
- L&M met directly with all identified affected and interested people and groups. In most instances meetings were organised with households and small groups. House meetings and a public meeting (organised by L&M) were held. These were followed up with forms being

distributed for people to request further information on specific issues. As a result many issues were clarified at an early stage.

- A draft AEE was prepared and distributed. This drew comments from the local authorities and from residents. These comments and suggestions were incorporated into the final AEE which was submitted with the resource consent applications.
- Following the receipt of 32 submissions, a pre-hearing meeting was convened. Nine submitters attended.
- Since the pre-hearing meeting, the consultation process continued with L&M preparing draft proposed conditions for discussion with the submitters as well as a background information document on environmental effects and controls.

A joint council's committee heard the application in April 2001 and granted the various consents sought, subject to conditions. Three appeals were lodged. One has since been withdrawn and another struck out by the Court. One environmental group has joined as a s.274 party. The applicant and remaining appellant are in the process of negotiations, and have indicated a preparedness to embark on mediation.

In summary, the conflict assessment and resolution steps applicable to this recent mining example have so far spanned 2.5 yrs and include:

- Identification of affected persons
- Dispersal of information
- Consultation and feedback to address issues and concerns
- Dissemination of draft application documents, particularly the AEE, followed by
- Further consultation
- Pre-hearing meeting jointly convened by district and regional councils

- Council hearing
  
- Court intervention at procedural level concerning status of appellant
  
- Negotiations between parties to determine issues and possible consent terms
  
- Mediation
  
- Court hearing

There is no certainty as to when the process might end. This will depend on the success or otherwise of negotiations, and/or mediation, and/or the availability of Court hearing time.

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