

Rehabilitation at Silvermines

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In early 1999 a number of cattle died from lead poisoning on a farm adjacent to the Gortmore Tailings Management Facility (TMF) in Silvermines, Co. Tipperary, Ireland. This TMF was associated with the Mogul of Ireland Ltd zinc-lead mine which was in operation from 1968-1982.

Concerns were expressed by local inhabitants and their public representatives as to whether these deaths had any wider significance for human and / or animal health in the area. Those fears were compounded by experiences in the 1980's of dust blows from the Gortmore TMF and also by a report by the Irish Environmental Protection Agency, produced in January 1999, which stated "that the TMF represents a perpetual risk to human health and the environment. Thus it requires structured, comprehensive, active and continued management". As a result, a detailed investigation by a Government Inter Agency Group into the influence of lead on human and animal health in the Silvermines area was undertaken. This Inter Agency

Group (IAG) comprised representatives of the Department of Agriculture, Food and Rural Development, the Environmental Protection Agency, Teagasc (the Agriculture and Food Development Authority), Mid-Western Health Board, Tipperary North Riding County Council and the Department of the Marine and Natural Resources. The Group first met on 22 June 1999 and published its report on 27 June 2000 under the title "Report of the Investigation into the presence and influence of

lead in the Silvermines area of County Tipperary".

Location

The area under investigation is located some 5 km from the town of Nenagh, Co. Tipperary and covers approximately 23 sq. km, an area which includes the Gortmore TMF, other mine workings, over 90 farms and the village of Silvermines itself.

This study area lies along the northern flank of the Silvermines Mountain where Lower Carboniferous limestones are faulted against Devonian Old Red Sandstones and Silurian Slates. The geology is dominated by a complex series of structures known as the Silvermines Fault Zone. Associated with those structures are extensive mineralized deposits. For over 1100 years, from the

9th century until 1993 mining of these deposits for zinc, lead, silver, copper and barite has been carried out intermittently. Evidence of this long mining history is visible along the hillside and includes remains of shafts, flooded open pits, mine buildings, tailings facilities, etc. spread over a distance of some 5 km from Silvermines village to Shallee crossroads (cf. Map).

The Silvermines area is best known for the major zinc and lead deposits mined by Mogul of Ireland Ltd from 1968-1982 and the barite deposit operated by Magcobar between 1963 and 1993. A number of distant but related zones of zinc-lead mineralization which are spatially related to the Silvermines Fault Zone were also mined by Mogul. Production over the life of the mine amounted to 10.7 Mt at 7.36% Zn and 2.7% Pb. >>



<< showed very high lead concentrations the study concluded that these areas should be immediately fenced off to prevent human and animal access.

Dust deposition monitoring undertaken in the vicinity of the TMF at Gortmore indicated that the majority of the readings obtained were well below the German T.A. Luft limit of 250mg/m³/d. The elevated concentrations were all obtained from gauges located close to the base of the TMF embankment and occurred during periods of activity on the embankment.

Human Health

For the human health component of the study, blood sampling of the inhabitants of the area was carried out. In accordance with international standards the IAG decided on a level of 10 mg/dl as the safety threshold for the concentration of lead in human blood. Test results found that lead concentrations in the blood in the population of the area were within acceptable international concentrations, although 1% of individuals had borderline or slightly raised results. On the basis of these results, the IAG concluded that the high lead concentrations in the local environment are not being transferred to the human population. However, there is the potential for such transfer, especially to children, given the very high levels of lead in the soils of the Silvermines school playground and the Ballygowan area to the south of the village.

Animal Health

In addition to the 1999 outbreak which gave rise to this study occasional lead poisoning in animals in the Silvermines area was reported in the late 60s and early 80s and further multi-case poisoning was confirmed in April 2000. While it was not

possible to determine the source of the lead in these cases, it was considered to be most probably environmental in origin i.e. river sediment, tailings, soil or dust. These outbreaks were restricted to two farms where animals had access to areas of high lead concentration.

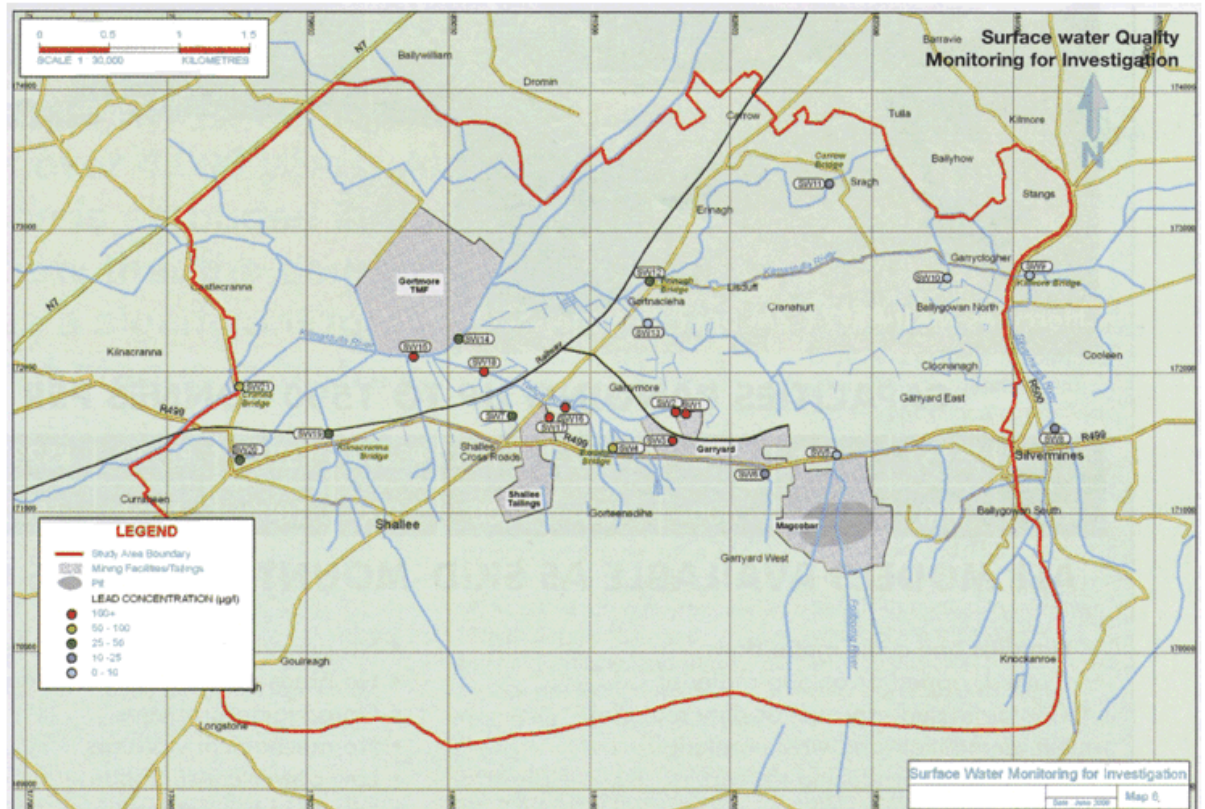
Other than these cases no evidence of widespread clinical lead toxicity in animals in the area was identified. The study concluded that the risk of sporadic outbreaks of lead poisoning will persist in a small number of farms with access to the highest concentrations of environmental lead.

the Silvermines area, these risks can be clearly identified and managed".

As the present condition and management of former mine workings, especially the Gortmore TMF, the Garryard mine complex, the Shallee East tailings and the Ballygowan area to the south of Silvermines village, were found to be unacceptable from the point of view of protection of human and animal health in the area, the IAG recommended that costed management plans for these and other mining-related areas be drawn up as a matter of urgency. While the Minister for the

enables the Minister to require specific works to be carried out on a once-off basis to rectify lands affected by the lessees mining activity. During the course of the investigation it also became evident that it was necessary to quantify the extent and location of all mining-related activities in the Silvermines area.

Accordingly, the Department of the Marine and Natural Resources has undertaken a study in compliance with Recommendations included in the IAG report to provide costed management and/or rehabilitation plans for the Silvermines Mining District.



Conclusions And Future Work

The IAG concluded that the issues which initiated the investigation were a consequence of elevated lead concentrations in the local environment. These in turn reflect the natural geology of the area and the impact of over a thousand years of mining. The investigation concluded that the "Silvermines area is a safe place in which to grow up, live and work, provided that certain precautions are taken. Overall, the IAG considers that while there are risks arising from certain characteristics of

Marine and Natural Resources has responsibility for the regulation and development of mineral resources under the terms of the Minerals Development Acts 1940-1999, most of the mining within the study area was outside the mandate of these Acts. Mining in the area which was subject to the Minerals Development Acts comprised portions of the Mogul of Ireland operations and the underground portion of the Magcobar Ireland Ltd operation. Clause K of the State Mining Lease, issued in 1965 to Mogul under the Mineral Development Acts 1940-1960,

SRK Consulting Engineers and Scientists of Cardiff, UK were awarded the contract and commenced work on the consultancy in March 2001. ☉

References

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