

# QUEENSLAND FLOODS COMMISSION OF INQUIRY

## STATEMENT

**OSKAR KADLETZ of C/- Level 16, 61 Mary Street, Brisbane in the State of Queensland, Abandoned Mines Coordinator, states on oath:**

1. I am the Abandoned Mines Coordinator and manage the Abandoned Mine Lands Program, implemented by the Mines and Energy Division of the Department of Employment, Economic Development and Innovation (the Department).
2. This statement is provided in response to the requirements of the Commissioner of the Queensland Floods Commission of Inquiry, the Honourable Justice Holmes, made 8 and 9 September 2011, seeking statements in relation to certain points outlined below.

**Provide a brief description of the main flood related concerns at the Mt Oxide Mine (abandoned) (“the Mine”) (for example – hazards and contaminants at the Mine, effect of flood on the downstream environment)**

3. The abandoned Mt Oxide mine site is located on a cattle grazing tenement known as Chidna Station. The historic mining leases expired or were surrendered by August 1999 and there has been no mining on the site since the early 1990s. There is a company currently carrying out exploration activities to assess whether there are sufficient mineral reserves to develop another mine in the future. DEEDI is addressing the ongoing impact from the historic mine which includes rehabilitation works to minimise contaminated discharges. These works are not mining and are not carried out under a mining tenement. The landholder has primary control of the site.
4. The site is located approximately 25 kilometres by road from the Birla-Mount Gordon Mine, and is approximately two hours travel by road from the nearest township which is Mt Isa.
5. Flooding at Mount Oxide is in the context that the water courses are dry for most of the year and only flow during the wet season. The term flooding is generally used in the local context to describe the fact the watercourses are carrying water which impedes access to and around the site. The current understanding of DEEDI officers is, the yearly water flows stay within the current defined bed and banks of the natural water

course. Current understanding is during the wet season water does not go over the top of the natural formed banks of the watercourse.

6. The abandoned mine site contains two areas of possible concern:
  - a. a mine pit that is partially filled with water; and
  - b. waste rock dumps/stockpiles that contain mineralised material.
  
7. In relation to the mine pit, the water within the pit is contaminated from contact with naturally occurring mineralisation associated with the ore body that was mined. That is, the naturally occurring rock that forms the lining or walls of the pit is mineralised, and the result is that the minerals leach into the water held in the pit.
  
8. Potential flood related concerns with respect to the mine pit are overtopping, which would release contaminated water into surrounding streams. In my opinion, this is unlikely, because of the local relationship between rainfall, evaporation, and the size of the mine pit catchment. Annual rainfall varies from several hundred millimetres per year to around 800mm per year in a very wet year, but evaporation for the year is of the order of several metres. With respect to the mine pit catchment, the catchment area is approximately four the size of the mine pit, which is about 240 metres long by 90 metres wide. The average unused containment capacity within the mine pit is 5 – 6 meters, which allows sufficient room to accommodate rainfall from a number of years. Due to the limited size of the catchment, the ratio of the evaporation to rainfall, and the average depth of water in the pit, it is highly unlikely that the pit would overflow from rainfall.
  
9. To my knowledge, the mine pit has never overflowed.
  
10. Hydrological advice is that the water in the pit most likely leaks into the ground, and that some of this leakage impacts on the local streams. It is likely that there are other groundwater aquifers surrounding the mine pit and the local streams, and that these are to some extent connected. I **attach** a copy of this hydrological advice, marked “**OK-01**”. Over the coming year, DEEDI is preparing to undertake a number of investigations (referred to in Paragraph 21 of this statement) to better understand the relationship between the mine pit, streams and groundwater aquifers under the site. These investigations incorporate the recommendations of the hydrological report.

11. In relation to the waste rock dumps/stockpiles, metals leach from the mineralised rock within the dumps through contact with rainfall which has infiltrated. Seepage then flows off the dumps into the local creeks. The leaching process within the dumps generates acid, and hence the discharges contain elevated metals and are acidic. By “leaching”, I am referring to the process where low pH or acidic water dissolves minerals into the water and is able to carry them away from the source with seepage.
12. Within the mineralised stockpiles, chemical reactions associated with the breakdown of sulphide-containing minerals upon contact with water which has infiltrated from rainfall, produces sulphuric acid. The sulphuric acid makes the water acidic, and it then has a much greater capacity to dissolve minerals (eg copper) than water at a neutral pH. Therefore seepage coming out of the bottom of the stockpiles is acidic and contains dissolved minerals.
13. The main metal of interest at this site is copper, and it is copper that appears to have the most impact downstream.
14. Potential flood related concerns (due to above average rainfall) are increased release of contaminants into streams through seepage from mineralised stockpiles. In addition, due to the location of stockpiles adjacent to a creek, there is the potential that in a flood event large stream flows may erode some of the stockpile material into the creek flow. The result of such erosion is difficult to assess, as the creek already flows across naturally exposed mineralised seams, resulting in natural mineralisation of the water flow.

**Provide details of any ongoing concerns regarding controlled or uncontrolled discharges from Mt Oxide mine (abandoned), including the quality of discharges**

15. The concerns described above in paragraphs 5 to 14 are the ongoing concerns that relate to discharge from the Mine.

**Provide details of flood preparedness activities undertaken by the Department in advance of the 2010/2011 wet season at the mine, including whether any particular activities were undertaken as a response to the forecast of an above-average rainfall**

**wet season, or any government communications to the Department regarding that forecast.**

16. In July to December 2010; DEEDI undertook a major project to place plastic covers over the stockpile areas that had been identified as the most mineralised. This work was undertaken so that the amount of rainfall infiltration into the most mineralised parts of the stockpiles could be minimised, hence reducing the discharge of contaminants to the local streams. This concept was developed during the 2010 Mount Oxide Expert Panel meeting held on 25 June, and was further refined by DEEDI using stockpile analysis information obtained from Perilya Limited, the holder of the current exploration permit over the area. A number of other site actions including some diversion works were also carried out at the same time. I **attach** a copy of the short term actions arising out of the Mount Oxide Expert Panel meeting of 25 June 2010, attached and marked “OK-02”.
  
17. Based on the recommendations of the Mount Oxide Expert Panel, DEEDI samples stream flows downstream of the mine site to assess the extent of impact that the abandoned mine is having. This is carried out at the tail end of the wet season, when the mine site becomes accessible and before all stream flows cease during the dry season (May – November). The sampling has been carried out by both a contractor and rehabilitation scientists to standard water quality sampling guidelines. The sampling involves travel to site and physical sample collection. Samples are analysed in a nationally accredited laboratory.
  
18. Rainfall events in this semi-arid area generally last from half an hour to several hours and are of high intensity, producing localised flooding. In some years, monsoonal rainfall occurs as weather patterns move down from the Gulf and extended periods of intermittent rainfall can occur for several days. During the wet season, the site becomes isolated because of stream flows and boggiess. The Department’s operating method for this site is to carry out works and investigations during the dry season. Because of the potential for personnel to become stranded, and the dangers related to flooding, no activities are carried out at the site during the wet season.
  
19. Given the mine’s location in the north-west, the upcoming 2010/11 wet season was not expected to be any different from normal. Forecasts from the Bureau of Meteorology were used to determine the likelihood of local rainfall and decide when the site was

safe to access. Due to the site's remote location and uncertain accessibility during the entire wet season, no measures could be taken after the start of the wet season. In any event, the standard design for site works incorporates an allowance for high intensity rainfall events and flooding.

20. There was potential for high rainfall at the site due to the remnants of Cyclone Yasi but this potential only became known as the cyclone developed in February 2011 towards the end of the wet season, and hence no special preparations were initiated.

**Provide details of any remediation works planned and the intended outcome of those works**

21. During the 2011-12 year, the remediation works that DEEDI intends to progress are outlined below. Some of these works will be commenced prior to the onset of the 2011-12 Wet Season:

- a. Hire of a large capacity water evaporator and its installation at the mine pit, with view to reducing pit water volume prior to this wet season. This may also provide some information on the interconnectedness of groundwater aquifers.
- b. Carry out maintenance works on the plastic covers
- c. Carry out a hydrological assessment of the value of reshaping of creek and removing material to allow for better stream flow.
- d. Carry out an assessment of geophysical survey methods to determine their suitability for local groundwater investigations. Dependent on results carry out a further detailed survey to assess the status and location of groundwater.
- e. Continue to conduct, review, and revise site monitoring to address the priorities confirmed by the Mount Oxide Expert Panel
- f. Begin the development of a hydrological model to help assess surface and groundwater interrelationships.
- g. Clean out site catch dams, and investigate opportunities for installing automatic pump back systems to the Mine Pit (to handle post rainfall seepage).
- h. Begin defining the scope for tender documents to seek offers for the final removal or remediation of the mineralised stockpiles.

**Provide details of flood preparedness activities to precede the 2011/12 wet season.**

22. The flood preparedness activities for the 2011/12 Wet Season are the items described in Paragraph 21.

**Provide details of any regulation of discharge from the Mine by any environmental authority, transitional environmental program, emergency direction or any other government regulatory document during the period 1 October 2010 to 30 July 2011.**

23. The discharges from the abandoned mine site are not regulated, and there are no structures in place which would normally be regulated i.e dams. The local creek system flows are unregulated by either legislation or infrastructure. There are no site activities related to DEEDI's rehabilitation works that require an environmental authority. DEEDI does not carry out any mining operations on the site. To DEEDI's knowledge, there are no relevant environmental programs that regulate discharge from the site.

**Provide, to the knowledge of the Department, details of any adverse effects to drinking water quality, any plant or animal species, any industry or agriculture, the environment or public health that occurred as a result of discharge during the period 1 October 2010 to 30 July 2011.**

24. There was no out of the ordinary flooding at Mount Oxide during the period from 1 October 2010 to 30 July 2011. The wet season rainfall for 2010-11 at the Mine was average.

25. As discussed in paragraphs 16, 17 and 21 above, DEEDI is actively taking steps to reduce the adverse effects from the abandoned Mount Oxide mine site. Site remediation is being undertaken with review and recommendations by the Mount Oxide Expert Panel. I **attach** a copy of the draft minutes and action items from the latest expert panel meeting held on 26 July 2011, attached and marked "**OK-03**" and "**OK-04**" respectively.

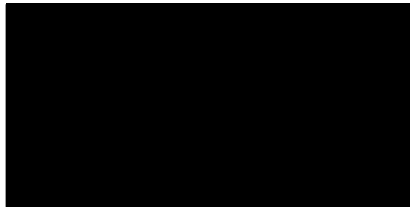
26. Notwithstanding this, blue discolouration occurred in the creeks downstream of the mine for several hundred metres beyond the confluence of the local streams at the mine site; ie, to 1 and 2 kilometres downstream. This tributary feeds into a larger creek approximately 5.2 km downstream from the mine site. DEEDI, in consultation with DERM and the Mount Oxide Expert Panel, will be undertaking further monitoring to assess downstream impacts to water quality and to stream sediment. I attach four Excel files containing monitoring compilations for the Mount Oxide site and downstream, attached and marked "**OK-05**", "**OK-06**", "**OK-07**" and "**OK-08**". To help mitigate the likelihood of copper contamination in cattle, DEEDI is continuing to

provide supplementary lick blocks for the cattle to help reduce their attraction to impacted areas.

27. Potential adverse impacts downstream could arise from the uptake of copper and possibly other metals as cattle and wildlife drink the water or lick mineralised salts in the first few kilometres of the stream downstream of the mine site. The water from this zone is not used for potable purposes. The stream metal levels could be toxic to fish and other aquatic fauna. DEEDI is investigating these impacts through its monitoring program as discussed in paragraph 25 above, and is also consulting with Biosecurity Queensland to assess and address potential livestock impacts.

28. This area is within a heavy mineralised landscape. The further downstream one goes, the more difficult it is to identify and quantify the amount of the local impact that is due to Mount Oxide alone.

Sworn by Oskar Kadletz on . 20th Sept 2011  
at Brisbane in the presence of:



Solicitor/Barrister/Justice of the Peace/  
Commissioner for Declarations