Department of **Environment and Conservation**

Government of **Western Australia**

FILE NOTE

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DATE:	**30 May 2013**
LICENCE NUMBER:	**L8577/2011/1**
PROPONENT:	**Mincor Operations Pty Ltd**
SUBJECT:	**AMENDMENT LICENCE TO INCLUDE MINE DEWATER DISCHARGE TO DORDIE PIT** **Conversion of licence into REFIRE format**
FILE NO:	**2012/006881**

DEC is undertaking a statewide reform program known as REFIRE (Re-Engineering for Industry Regulation and the Environment). As part of the reform process, DEC is improving the consistency and appearance of licences issued under the Environmental Protection Act 1986.

The Goldfields Region has now converted the above licence into the new standardised REFIRE format. During the conversion process, the Goldfields Region has made the following changes:

- Amendment to allow for the dewatering of mine dewater into Dordie Pit.

The standard sector specific licence condition set, has been applied to the Premises and any existing emission control levels incorporated. This ensures consistency where appropriate and fairness across the sector. Due to the existing variability within existing licences, the number of conditions on converted licences is likely to vary from the number included within the existing licence.

Background

Mincor Operations Pty Ltd (Mincor) was first granted a licence (L8577/2011/1) on 15 July 2011 for category 6 mine dewatering. Since then two additional categories have been included in the licence, category 64 class II putrescible landfill facility and category 85 sewage facility.

Water abstraction is undertaken from Miitel and Mariners mines to allow for mining activities. The mine dewater is used for mining activities and dust suppression. The excess water is transported via buried pipelines from Miitel settling dams and Mariners transfer dams to Lake Fore and Lake Lefroy. Miitel's mean monthly abstraction for Q1 – 2013 was 61,640 kL or 23.8 L/s. Mariners' monthly abstraction for Q1 – 2013 was 110,643 or 42.7 L/s. Utilisation of Lake Fore during wet conditions is limited due to recent storage capacity. There are also limitations of the Lake Lefory pipeline capacity.

An alternative discharge location for Miitel mine dewater is necessary for the management of mine dewater.

This licence amendment will allow for the operation of an existing dewatering pipeline from Miitel settling dams to Dordie Pit. During a period of operation in 2007, the Dordie Pit groundwater was pumped to the Miitel Settling ponds and then to Lake Fore. Dewatering of the pit ceased in October 2007, however the dewatering infrastructure remains. The infrastructure consists of class 16 HDPE pipe linked directly to Dordite Pit and the Miitle storage dams.

In addition, the licence will be updated to the new REFIRE format, resulting in the addition of standard conditions to the licence. The following File Note will assess that additional and cumulative impacts associated with the use of the existing pipeline from Miitel settling ponds to Dordie Pit.

Proposal description

Mincor are proposing to include Dordie Pit as a third mine dewater discharge location in addition to the two existing locations, Lake Lefroy and Lake Fore. No modifications to existing pipeline or storage infrastructure are required with the exception of reinstatement of some sections of eroded land bunds and minor changes to pump shutdown telemetry.

The pipeline from Miitle settling ponds to Dordie Pit consists of class 16 HDPE, butt welded pipeline. Discharge of saline water into the environment will be managed by bunding of the pipeline or burial. The Miitel storage dams are also HDPE lined and are above ground with a spillway into a bunded area. Transfer pumps are linked to a communication system to alert site personnel of pump failure. In the event of pipeline failure, personnel will be informed by audible and visual alarms.

Local runoff is managed as all stormwater is diverted around the Dordie Pit and Miitel Dam infrastructure into natural runoff zones. Discharge levels will be monitored weekly via meters as the Miitel storage dams. The 2 meter Dordie Pit freeboard (40 000 kL) will be maintained to below the pit ramp crest.

Monitoring of the mine dewater will occur as part of Mincor's current monitoring program. Current monitoring includes the following:

Parameter	**Units**	**Frequency**
pH	N/A	Quarterly (June, September, December and March)
TDS	ppm	
TSS	ppm	
Metals: Cadmium (Cd), Selenium (Se), Iron (Fe), Cobalt (Co), Lead (Pb), Copper (Cu), Nickel (Ni), Zinc (Zn) and Arsenic (As)	mg/L	
Major Anions and Cations: Sodium (Na), Potassium (K), Calcium (Ca), Magnesium (Mg), Chlorine (Cl), Carbonate (CO_3), Bicarbonate (HCO_3), Sulphate (SO_4) and Nitrate (NO_2).	mg/L	

Groundwater licence GWL154213(4) has been retained allowing up to 2.545,000 kL annual abstraction, expiring 31 August 2020.

Environmental Risks

The groundwater chemistry demonstrates the low environmental risk associated with the operation of the dewatering pipeline from Miitel settling dams to Dordie Pit. Table 2 shows the groundwater chemistry of both Miitel dam and Dordie Pit. Due to the similarities, mine dewater is expected to form the same aquifer as Dordie Pit. Therefore, operation of the pipeline is able to be managed via a licence amendment given minimal risk demonstrated to the environment.

Table 2. Groundwater chemistry of Miitel Dam and Dordie Pit

Parameter	Unit	Miitel Dam 04.06.2012	Dordie Pit 19.04.2013
TDS	mg/L	210, 000	209, 000
pH	ph units	7.2	7.4
CO3	mg/L	<1.0	<1.0
Cl	mg/L	130, 000	110, 000
SO4	mg/L	9, 300	10, 000
Na	mg/L	61, 000	57, 000
K	mg/L	1, 000	940
Ca	mg/L	890	790
Mg	mg/L	6, 700	8, 000
NO3	mg/L	11	14
Co	mg/L	<1.0	<0.26
Cu	mg/L	<0.5	0.15
Pb	mg/L	<0.5	<0.4
Ni	mg/L	1.4	11
Se	mg/L	<2.0	<1.0
As	mg/L	<2.0	0.40

No construction is required as the there is an existing pipeline, therefore no clearing is required as part of this proposal. In addition there will be no dust generation.

Mincor has committed to visual inspections every four hours to ensure that any release of hypersaline water to land as a result of pipeline failure or rupture is attended to in a timely manner. Bunding and burial of pipeline will contain any leak or rupture and prevent damage to nearby vegetation.

Recommendations and conclusions

As no construction is required the proposal does not require a works approval and the licence will be amended to reflect the proposed activities. Licence conditions will be included to ensure adequate management of the mine dewater infrastructure. This will include monitoring conditions, bunding conditions and daily visual inspection of the pipeline.

It is also recommended that the licence will be updated to the new format. Existing conditions will remain on the licence; however optional standard conditions will replace the existing conditions due to the conversion of the old format to the new REFIRE format.

The landfill facility has been changed to a category 89 to remain consistent with similar facilities within the region.