Thalanga Copper Mines Pty Ltd

ACN 004 797 335 ABN 72 004 797 335

Locked Bag 1
Queenstown
Tasmania 7467

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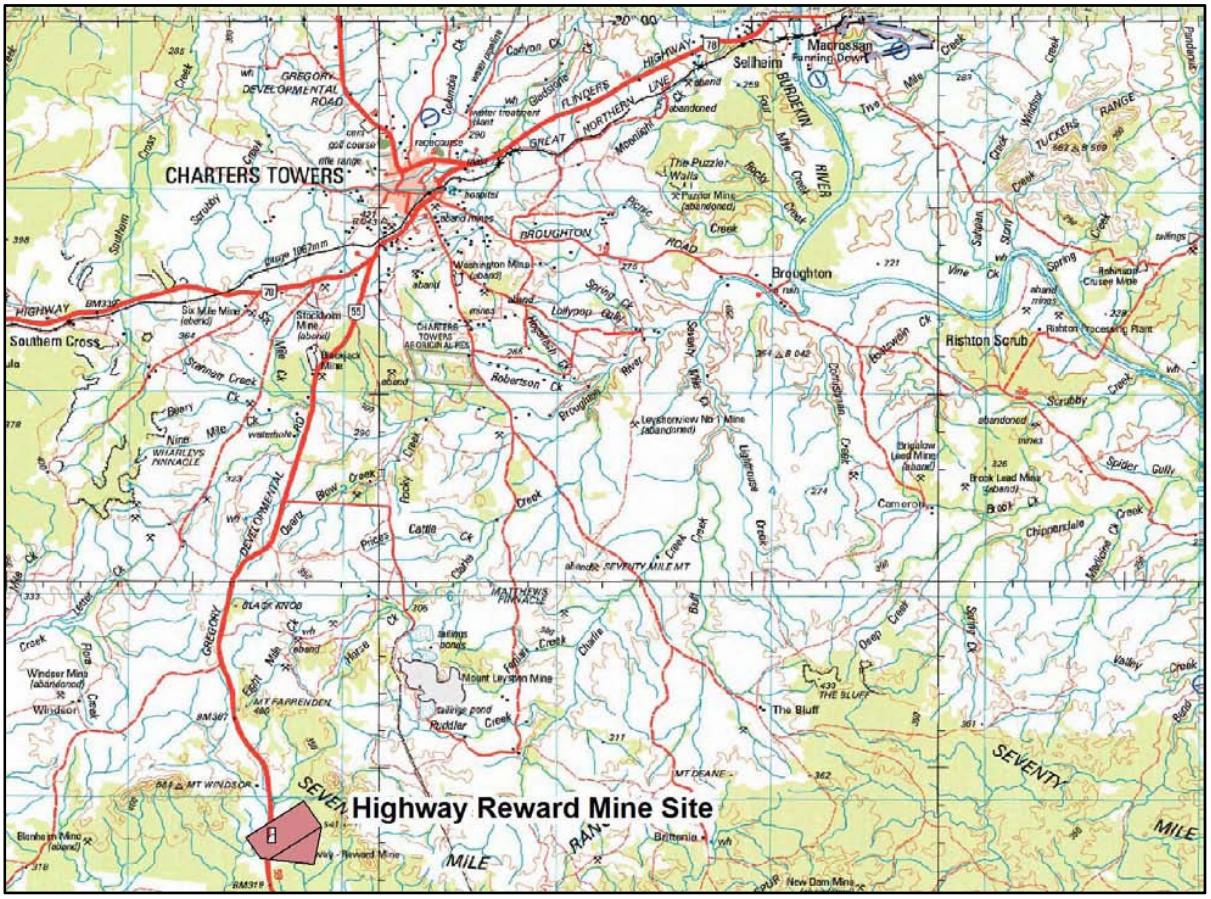
Draft Transitional Environmental Program Highway Reward Mine

Introduction

Background

The Highway Reward mine was an open cut and underground mining operation, 40 km south-west of Charter Towers, Queensland, in the Burdekin River Catchment (Figure 1). Open cut mining commenced in 1997 and ceased in early 2002. Open cut mining formed a single residual void with a surface area of 35ha. Waste rock from open pit mining was stored within two waste rock dumps on site: Highway dump and Reward dump, both adjacent to the open cut pit (Figure 2). These dumps occupied a total area of 132 ha and were rehabilitated from 2005 onwards.

Figure 1 Regional Location Highway Reward Mine



Underground mining of copper ore below the existing open cut began in July 2002. Copper ore mining was completed in June 2005. These mining operations involved underground mining of copper ore from the Reward Deeps, Lower Reward Deeps and Conviction ore bodies. Highway South was subject to mining in 2004 following dewatering from the pit into the temporary water storage. Approximately 300,000 tonnes of ore were mined up to December 2004. During this time all waste rock from the underground operations was utilised as fill or stored within the open cut pit.

Copper ore was stockpiled on site before being transported by road to be processed at the Thalanga mine site concentrator.

Environmental Authority Breaches

The Highway Reward mine operates as a rehabilitation project under Environmental Authority number EPML00550413.

Conditions of EA subject to non-compliance

Schedule C – Table 1 (Receiving water monitoring locations and frequency)

Monitoring point	**Easting**	**Northing**	**Monitoring frequency**
SW1	418050	7748020	Event
SW2	417871	7746641	Event
SW3	416430	7748344	Event
SW4	415644	7746879	Event
SW5	416340	7747350	Event
SW6	416580	7748350	Event

Schedule C – Table 2 (Receiving water contaminant limits)

Parameter	Units	Limit type	Contaminant trigger levels
pH		Acceptable range	6–9
Total Dissolved Solids	mg/L	Maximum	4,000
Sulfate	mg/L	Maximum	1,000
Copper	mg/L	Maximum	1
Molybdenum	mg/L	Maximum	0.15
Arsenic	mg/L	Maximum	0.5
Selenium (Total)	mg/L	Maximum	0.02
Mercury	mg/L	Maximum	0.002
Lead	mg/L	Maximum	0.1
Zinc	mg/L	Maximum	20
Cyanide (WAD)	mg/L	Maximum	0.01
Cadmium	mg/L	Maximum	0.01

Breaches of EA conditions relating to surface water have occurred at sites SW5 and SW6 over recent years (See Figure 2).

Since 2008, SW5 has experienced EA exceedances on 16 occasions. These are shown highlighted in rose with red font in Table 1. Exceedances were due to low pH, and high concentrations of Total Cu, Cd, Pb and Zn.

SW6 has experienced exceedances on seven occasions (Table 2). These have all occurred since January 2011 and relate to low pH, high concentrations of Total Cd and, recently, high Total Cu.

The downstream sampling site in Policemans Creek at SW4, however only shows one high reading, that being in January 2008 (Table 3). The high concentrations of Pb and Cu at this time may have been influenced by high concentrations of Total Dissolved Solids (TDS) and Sulphate at SW3 which also flows into Policemans Creek upstream of SW4 (Table 4, Figure 2).

These results indicate that although the concentrations have occasionally been high as the surface flow paths leave the site (at SW5 and SW6), the flows are sufficiently low that the exceedances do not lead to environmental harm downstream (as indicated by no corresponding EA licence limit breaches).

Table 1 SW5 Water Quality

Limits	6-9	1000	0.5	0.01	1.0	0.1	0.15	0.02	20
Date	pH	SO4 mg/L	Total As mg/L	Total Cd mg/L	Total Cu mg/L	Total Pb mg/L	Total Mo mg/L	Total Se mg/L	Total Zn mg/L
30-Jan-08	6.24	261	0.009	0.0006	0.07	0.061	0.001	0.01	0.12
13-Feb-08	5.06	580	0.001	0.0779	16.90	0.013	0.001	0.01	5.54
22-Jul-08	4.36	236	0.001	0.0296	9.97	0.008	0.001	0.01	4.79
28-Jan-09	5.34	415	0.025	0.0362	11.00	0.173	0.001	0.01	5.36
14-Dec-10	6.2	97	0.001	0.0694	0.39	0.004	0.001	0.01	0.29
20-Jan-11	6.23	76	0.002	0.0062	0.50	0.006	0.001	0.01	0.33
05-Feb-11	3.18	149	0.003	0.0028	3.25	0.004	0.001	0.01	0.51
22-Mar-11	5.88	106	0.002	0.0054	1.00	0.007	0.001	0.01	0.66
05-Apr-11	2.89	181	0.002	0.0028	4.22	0.008	0.001	0.01	0.59
05-Apr-11	3.19	199	0.003	0.0031	5.83	0.003	<0.001	<0.01	0.84
29-Dec-11	4.32	144	<0.001	0.0079	1.77	0.006	<0.001	<0.01	1.16
16-Jan-12	5.59	31	0.007	0.0023	1.41	0.110	<0.001	<0.01	0.33
20-Jan-12	6.23	76	0.002	0.0062	0.50	0.006	<0.001	<0.01	0.33
26-Jan-12	5.51	19	0.008	0.0017	0.98	0.120	<0.001	<0.01	0.22
04-Feb-12	6.95	93	0.002	0.0021	0.53	0.012	0.001	<0.01	0.29
09-Feb-12	3.18	149	0.003	0.0028	3.25	0.004	<0.001	<0.01	0.51
27-Mar-12	6.83	121	0.001	0.0023	0.44	0.163	<0.001	<0.01	0.31
26-May-12	6.54	11	0.003	0.0007	0.73	0.059	<0.001	<0.01	0.11
10-Jul-12	5.17	21	0.008	0.0014	1.04	0.117	0.001	<0.01	0.21
17-Jul-12	7.33	28	<0.001	<0.0001	0.00	0.004	0.069	<0.01	0.03
24-Jan-13	5.18	5	0.002	0.0004	0.35	0.030	<0.001	<0.01	0.06
17-Jul-12	7.33	28	<0.001	<0.0001	0.00	0.004	0.069	<0.01	0.03
17-Jul-12	7.33	28	<0.001	<0.0001	0.00	0.004	0.069	<0.01	0.03
12-Apr-13	5.45	9	0.003	0.0004	0.36	0.047	<0.001	<0.01	0.05

Table 2 **SW6 Water Quality**

Limits	6-9	1000	0.5	0.01	1.0	0.1	0.15	0.02	20
Date	pH	SO4 mg/L	Total As mg/L	Total Cd mg/L	Total Cu mg/L	Total Pb mg/L	Total Mo mg/L	Total Se mg/L	Total Zn mg/L
30-Jan-08	6.84	29	0.041	0.0007	0.073	0.072	0.001	0.01	0.33
13-Feb-08	6.29	85	0.004	0.0071	0.512	0.022	0.001	0.01	0.82
22-Jul-08	7.43	23	0.003	0.0004	0.086	0.005	0.001	0.01	0.04
28-Jan-09	7.11	47	0.005	0.0036	0.314	0.021	0.001	0.01	0.29
14-Dec-10	7.13	146	0.001	0.0084	0.269	0.001	0.001	0.01	0.67
20-Jan-11	7.47	127	0.001	0.1280	0.300	0.003	0.001	0.01	0.63
09-Feb-11	7.34	98	0.001	0.0023	0.108	0.002	0.001	0.01	0.12
22-Mar-11	6.40	182	0.001	0.0162	0.720	0.001	0.001	0.01	1.50
05-Apr-11	7.18	150	0.001	0.0050	0.095	0.001	0.001	0.01	0.39
05-Apr-11	7.46	15	0.003	0.0006	0.203	0.003	<0.001	<0.01	0.08
29-Dec-11	4.10	15	<0.001	0.0003	0.276	0.003	<0.001	<0.01	0.06
29-Dec-11	6.77	247	0.002	0.0171	0.987	0.007	<0.001	<0.01	1.68
16-Jan-12	7.00	101	0.004	0.0074	0.712	0.035	<0.001	<0.01	0.82
20-Jan-12	7.47	127	0.001	0.1280	0.300	0.003	<0.001	<0.01	0.63
26-Jan-12	7.28	56	0.001	0.0053	0.246	0.004	<0.001	<0.01	0.47
04-Feb-12	7.32	83	0.004	0.0041	0.783	0.035	0.001	<0.01	0.45
09-Feb-12	7.34	98	<0.001	0.0023	0.108	0.002	<0.001	<0.01	0.12
27-Mar-12	7.95	117	0.001	0.0009	0.075	0.064	<0.001	<0.01	0.07
26-May-12	7.35	40	0.001	0.0009	0.152	0.004	<0.001	<0.01	0.08
10-Jul-12	7.84	<1	0.004	0.0004	0.097	0.005	0.001	<0.01	0.10
24-Jan-13	5.18	5	0.002	0.0004	0.345	0.030	<0.001	<0.01	0.06
12-Apr-13	5.11	237	<0.001	0.0432	7.020	0.007	<0.001	<0.01	2.66

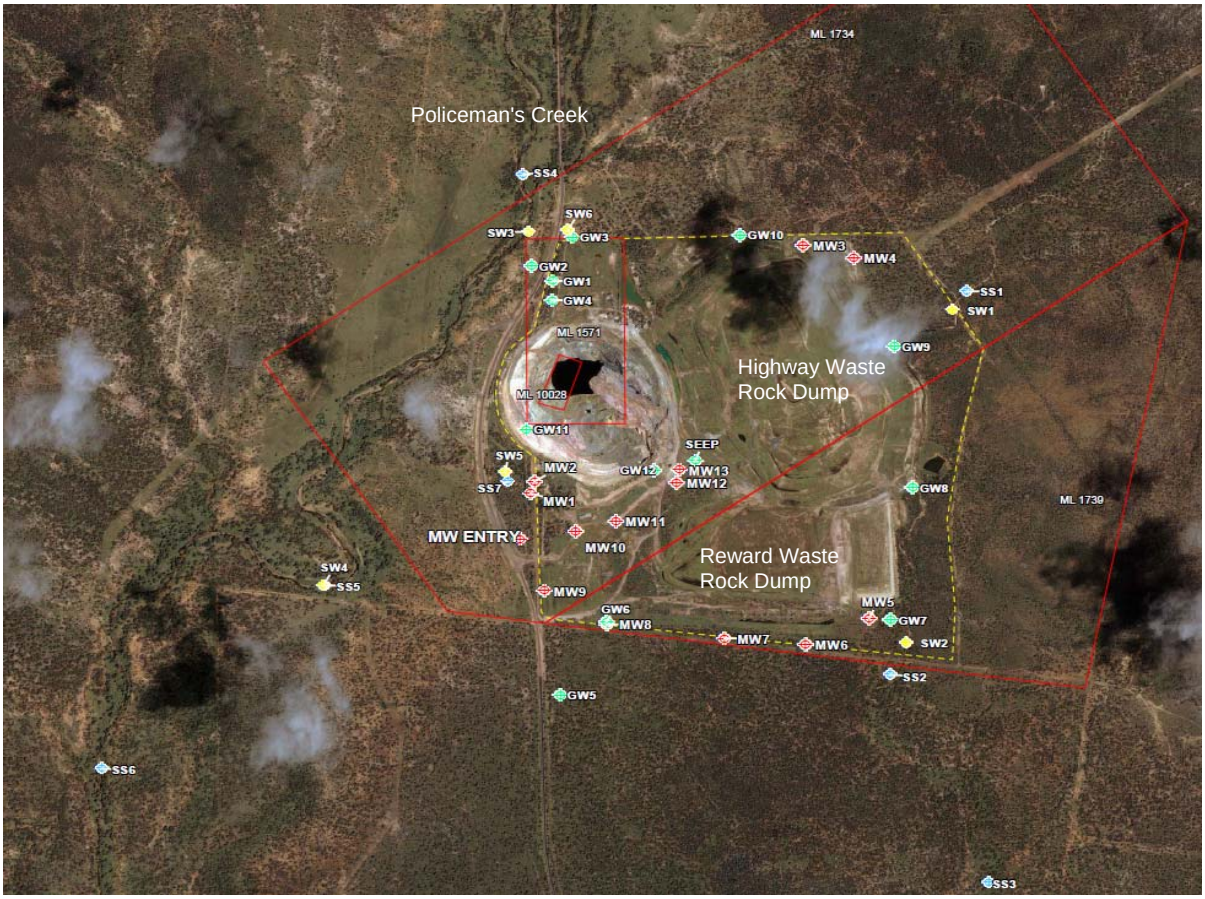
Table 3 **Downstream Water Quality at SW4**

Limits	6-9	1000	0.5	0.01	1.0	0.1	0.15	0.02	20
Date	pH	SO4 mg/L	Total As mg/L	Total Cd mg/L	Total Cu mg/L	Total Pb mg/L	Total Mo mg/L	Total Se mg/L	Total Zn mg/L
30-Jan-08	7.00	123	0.016	0.0062	2.750	0.488	0.001	0.01	0.954
13-Feb-08	7.10	14	0.001	0.0002	0.013	0.001	0.001	0.01	0.011
01-Apr-08	7.72	51	0.001	0.0001	0.005	0.001	0.001	0.01	0.005
28-Jan-09	7.46	4	0.002	0.0010	0.025	0.010	0.001	0.01	0.042
14-Dec-10	7.81	30	0.001	0.0003	0.004	0.001	0.001	0.01	0.003
20-Jan-11	8.14	31	0.001	0.0015	0.007	0.001	0.001	0.01	0.023
09-Feb-11	7.99	41	0.001	0.0002	0.005	0.001	0.001	0.01	0.031
22-Mar-11	7.97	39	0.001	0.0004	0.008	0.001	0.001	0.01	0.011
05-Apr-11	8.29	39	0.001	0.0001	0.003	0.013	0.001	0.01	0.003
05-Apr-11	7.88	67	0.001	<0.0001	0.027	0.002	0.001	<0.01	0.013
29-Dec-11	7.93	<1	<0.001	<0.0001	0.014	<0.001	0.001	<0.01	<0.005
16-Jan-12	7.91	44	<0.001	0.0001	0.030	0.003	<0.001	<0.01	0.028
20-Jan-12	8.14	31	<0.001	0.0015	0.007	<0.001	<0.001	<0.01	0.023
26-Jan-12	8.11	34	<0.001	<0.0001	0.006	<0.001	0.001	<0.01	<0.005
04-Feb-12	7.81	14	<0.001	<0.0001	0.021	0.006	<0.001	<0.01	0.017
09-Feb-12	7.99	41	<0.001	0.0002	0.005	<0.001	<0.001	<0.01	0.031
27-Mar-12	8.21	53	<0.001	<0.0001	0.002	0.019	0.001	<0.01	<0.005
26-May-12	7.98	96	<0.001	<0.0001	0.016	0.002	0.002	<0.01	<0.005
10-Jul-12	8.21	129	<0.001	<0.0001	0.023	<0.001	0.002	<0.01	0.006
12-Apr-13	7.92	34	0.002	0.0022	0.416	0.014	<0.001	<0.01	0.186

Table 4 **Jan 2008 SW Results**

Site	Date	pH	TDS mg/L	SO4 mg/L	Total As mg/L	Total Cd mg/L	Total Cu mg/L	Total Pb mg/L	Total Mo mg/L	Total Se mg/L	Total Zn mg/L
SW1	30-Jan-08	6.77	1,900	455	0.001	0.0220	0.016	0.007	0.001	0.01	0.014
SW2	30-Jan-08	6.34	732	18	0.001	0.0007	0.021	0.011	0.001	0.01	0.003
SW3	30-Jan-08	7.49	12,900	2,930	0.001	0.0002	0.005	0.001	0.001	0.01	0.003
SW4	30-Jan-08	7.00	2,160	123	0.016	0.0062	2.750	0.488	0.001	0.01	0.954
SW5	30-Jan-08	6.24	1,430	261	0.009	0.0006	0.073	0.061	0.001	0.01	0.118
SW6	30-Jan-08	6.84	3,490	29	0.041	0.0007	0.073	0.072	0.001	0.01	0.326

Figure 2 **Highway Reward Monitoring Locations**



Transitional Environmental Program

Following an internal site evaluation and investigation in response to the continuing exceedances, Thalanga Copper Mines Joint Venture (TCMJV) submitted a Program Notice on 7 June 2013. In return the Department of Environment and Heritage Protection (DEHP) served notice on the JV, requiring submission of a draft Transitional Environment Program (TEP) by 9 August 2013.

The investigation noted that several previously unknown seeps appeared to be leaching high-acidity water from the base of the Highway waste rock dump into the flow path to the SW6 sampling site (Figure 3). This contaminated water contained high concentrations of Total Cu as well as low pH water and indicated acid rock drainage formation. A recently eroded structure was also showing signs of sulphide oxidation along the drain in question (Figure 4).

Figure 3 Potential Highway Waste Rock Dump Seepage

The site in question is situated at the north-western end of the Highway waste rock dump and was exposed during maintenance works to recut a drain in late 2011. The yellow discolouration and signs of bubbling indicate exposed sulphidic material is oxidising, producing acid rock drainage (ARD). Solutions to this are to remove exposed boulders containing sulphides to the pit void and cap the remaining sulphidic material to prevent oxygen access. This would provide an effective solution if the exposed sulphidic material is the sole source of ARD. The JV is concerned however, that this may not provide a long-term solution if the waste rock dump contains stored acidity and is leaching the ARD. As a result, a TEP has been proposed to provide time for the JV to monitor water quality and flows from the site. This will enable the JV to determine whether the ARD is being produced from localised rainfall seeping over the sulphidic material or whether the ARD is from dump seepage and thus requires a different long-term solution.

Figure 4 Eroded Structure with Exposed Sulphides

The yellow discolouration above the drain again shows evidence of ARD formation. In this case the drop structure which was repaired in 2012 has eroded, exposing the sulphides. As a localised source of ARD this area is undergoing reconstruction in 2013 to provide a stable long-term solution for this problem.

Other potential sources of contamination along this drain are to be investigated during the coming wet seasons. Given the ephemeral nature of surface flows at the site and the short flow periods experienced, at least two wet seasons are proposed to allow the JV to find all sources of contamination through an on-site upstream monitoring program. This will then be followed by a works program to remedy the problems. Areas where the capping surface over the Highway and Reward waste rock dumps is known to be bare of vegetation are already scheduled for recapping and revegetation in the 2013 works program currently underway.

Figure 5 shows the previous flow path between the site and the SW5 sample site. This flow on site has already been redirected into the pit void to eliminate the possibility of contamination on site flowing overland towards SW5 and then Policemans Creek to the immediate west of the site. A line of rocks just inside the fence line appear to contain sulphides as evidenced by yellow discolouration. As such these rocks are being removed to the pit void during the 2013 works program on site to prevent environmental harm for occurring. The TEP program proposes to monitor the site to demonstrate, over the coming wet seasons, that no contaminated flow from the site now runs towards SW5.

Figure 5 SW5 Flow Path from the site

Much rehabilitation on site is structured around the pit void into which some contaminated water flows. Previous studies have indicated that the pit void will act as a sink with no adverse impact on groundwater or surface water. During the TEP the JV plans to confirm this through surface flow measurements and calibration of the site's pit water balance model and groundwater model.

Given that the JV has good knowledge of the site and its problems, and that the exceedances which led to the submission of a Program Notice are not causing environmental harm downstream, and as such are relatively low risk, the JV contends that emission limits at SW5 and SW6 should not apply for the duration of the TEP.

The draft TEP is proposed for a period of three years, notionally commencing in September 2013 with completion by September 2016.

TEP Objectives

To prevent the release of contaminants, being low pH water and heavy metals, from the Highway Reward mine which have caused breaches of conditions of Environmental Authority EPML00550413 at designated monitoring points SW5 and SW6.

The TEP activities will transition to compliance by discovering sources of contamination, carrying out earthworks and revegetation to prevent further release of contaminants and, where contamination cannot be prevented through cost-effective works, ensuring that there is no flow of contaminants off site and that the future risk of surface water or groundwater contamination re-occurring is acceptable.

TEP Proposed Program

The proposed TEP runs over three years and contains measures for three areas:

- surface flow towards SW6 on the north-west of the site.
- surface flow towards SW5 to the west of the site.
- surface water-groundwater interactions which impact on the amount of contaminated water which can be directed into the pit void.

The program is described below and presented as a project schedule in Table 5 and in tabular format in Table 6.

Surface Water Flow towards SW6

Investigation and Analysis

Carrying out a program of surface water monitoring to identifying sources of metal concentrations and low pH affecting runoff at monitoring point SW6. This will include:

- longitudinal sampling along the flow path after rain events
- measuring major drainage flows from the Highway waste rock dump at a dedicated v-notch weir
- measuring rainfall on site
- measuring flows at each potentially contaminated seep emanating or potentially emanating from the Highway waste rock dump
- sampling standing pools of water after rain
- analysing the results of the sampling programs and flow measurements to quantify pollutant sources and fluxes and differente sources of contamination
- carrying out a program of visually inspecting the Highway and Reward waste rock dumps to identify flaws in the capping which could cause contamination
- assessing bare patches on waste rock dumps for growth in size which might indicate scalding and the scale of the remedial works needed.

Monitoring to be undertaken over a two-year period from the TEP commencement - sampling will, by necessity, be restricted to flows after rain events and will coincide with the wet season between November and May each year.

Reporting to DEHP is proposed on a six monthly basis —reports provided by 30 December and 30 June for each year of the TEP.

Remedial Works

- Instigating earthworks programs to repair erosion problems which could be exposing sulphides
- Instigating earthworks programs to recap area of waste rock dump found to have thin or potentially underperforming capping

- Instigating revegetation programs to stabilise surfaces and prevent further erosion.

Initial earthworks are to be undertaken before 30 September 2013 with a report on the works to be provided to DEHP by 30 October 2013. A follow up works program is to be undertaken before 30 September 2014 with a report on the works to be provided to DEHP by 30 October 2014.

Surface water flow towards SW5

Investigation and Analysis

- Implementing a program of surface water sampling on the western side of the mining lease including flows directed into the pit
- Developing a record of photographic monitoring to show and accompany surface water flow sampling for identification of surface water flow or pooling
- Analysing results to confirm presence or absence of contaminated water flows on site towards monitoring point SW5.

Reporting to DEHP is proposed on a six-monthly basis with reports to be provided to DEHP by 30 December and 30 June for each year of the TEP.

Remedial Works

- Carrying out a program of visually inspecting the areas to the south and west of the Highway Reward pit void which could cause contamination
- Instigating earthworks programs to repair erosion problems which could be exposing sulphides
- Instigating earthworks programs to cap or dispose of exposed sulphides and redirect contaminated flows into the pit void
- Instigating revegetation programs to stabilise surfaces and prevent further erosion
- Completing earthworks and diversion programs to prevent contaminated flows from the lease towards SW5.

Surface Water - Groundwater Interaction

- Measuring surface water flows at v-notch weirs
- Assessing the flows against rainfall events
- Calculating the runoff co-efficient from various areas of the site
- Assessing the runoff expected from different areas and calculating the maximum flows expected
- Measuring the pit height and calculating the pit volume on a quarterly basis
- Calibrating the pit water balance based on the measured results and analysis
- Measuring the groundwater height and quality at dedicated groundwater bores on a quarterly basis
- Calibrating the current groundwater model
- Developing a model for surface water runoff versus evaporation.

Reporting to DEHP is proposed by 30 December in each year of the TEP.

Future Surface Water Flows

- Determining which areas of the site provide a stable contaminant-free runoff

- Determining which areas of the site do not provide a stable contaminant-free runoff
- Developing measures to prevent off-site release of contaminants, such as diverting contaminated water into the pit, maximising evaporation on site, or using earthworks and revegetation to minimise waste rock dump seepage development.

A report will be provided to DEHP by 30 September 2015 after monitoring flows for two wet seasons and assessing the interaction between surface water and groundwater. The report shall evaluate prospective earthworks which can maximise clean water flows off site and contaminated water into the pit void between October 2015 and August 2016 and commit to a works program to be completed by September 2016.

Management of Environmental Harm

The risk of environmental harm occurring is characterised by:

- the impact of low pH and high metal concentration surface water flows entering Policemans Creek
- the impact of contaminated water from the pit void either flowing from the pit into surface water systems or into regional groundwater aquifers.

The risk of environmental harm occurring during the TEP will be managed by:

- minimising flows into the pit until the surface and groundwater models have been calibrated and conservative allowances have been made for into-pit flows
- measuring flows into the pit
- initiating earthworks and revegetation works to identify and cap exposed sulphides on site as soon as practicable.

As described earlier, the poor quality water emanating from the site in recent years as sampled at SW5 and SW6 (Table 1 and Table 2) has not shown up downstream at SW4 in Policeman's Creek (Table 3).

TEP Performance Indicators

- Stable self-sustaining vegetation on waste rock dumps
- Reduction of contaminated flows off site
- No breaches of EA conditions Schedule C – Tables 1 and 2.

Monitoring and Reporting

- Reporting on surface water flows to DEHP on a six-monthly basis. Reports to be provided to DEHP by 30 December and 30 June for each year of the TEP.
- Report to DEHP on surface water - groundwater interactions by 30 December in each year of the TEP.
- Report on proposed earthworks (rationale, list of proposed actions) for each year to be provided with 30 June Surface flow reports in 2014 and 2015.
- Report on the initial earthworks works to DEHP by 30 November 2013.
- Report on follow up earthworks program to DEHP by 30 November 2014.
- Report on final proposed remedial works to DEHP by 30 September 2015.
- Final TEP Report by 30 September 2016.

Table 5 TEP Timetable

Task Name	Start	Finish
Surface Flow Sampling	**Fri 1/11/13**	**Thu 1/05/14**
SW6 flow path drain	Fri 1/11/13	Thu 1/05/14
SW6 flow path WRD	Fri 1/11/13	Thu 1/05/14
SW5 flow path	Fri 1/11/13	Thu 1/05/14
Pit v notch	Fri 1/11/13	Thu 1/05/14
Earthworks	**Tue 17/09/13**	**Mon 5/09/16**
Remedial drainage and cap repairs	Tue 17/09/13	Mon 28/10/13
2014 earthworks program	Thu 15/05/14	Wed 17/09/14
2015 earthworks program	Mon 18/05/15	Fri 18/09/15
2016 earthworks and surface diversion pr	Tue 17/05/16	Mon 5/09/16
Groundwater / Pit water Balance	**Tue 17/09/13**	**Mon 20/06/16**
Measure surface flwos at V notches	Tue 17/09/13	Mon 20/06/16
Survey pit water height	Tue 1/10/13	Mon 14/10/13
Survey pit water height	Wed 1/01/14	Tue 14/01/14
Survey pit water height	Tue 1/04/14	Mon 14/04/14
Survey pit water height	Tue 1/07/14	Mon 14/07/14
Survey pit water height	Wed 1/10/14	Tue 14/10/14
Survey pit water height	Thu 1/01/15	Wed 14/01/15
Survey pit water height	Wed 1/04/15	Tue 14/04/15
Survey pit water height	Wed 1/07/15	Tue 14/07/15
Survey pit water height	Thu 1/10/15	Wed 14/10/15
Survey pit water height	Fri 1/01/16	Thu 14/01/16
Survey pit water height	Fri 1/04/16	Thu 14/04/16
Survey pit water height	Wed 24/06/15	Tue 7/07/15
Groundwater model calibration	Wed 15/04/15	Tue 7/07/15
Surface water model calibration	Wed 15/04/15	Tue 7/07/15
Surfacer diversion assessment	Wed 8/07/15	Tue 18/08/15
Surface Flow Sampling	**Mon 3/11/14**	**Fri 1/05/15**
SW6 flow path drain	Mon 3/11/14	Fri 1/05/15
SW6 flow path WRD	Mon 3/11/14	Fri 1/05/15
SW5 flow path	Mon 3/11/14	Fri 1/05/15
Pit v notch	Mon 3/11/14	Fri 1/05/15
DEHP Reporting	**Tue 29/10/13**	**Fri 30/09/16**
Surface flow sampling update report	Mon 30/12/13	Mon 30/12/13
Surface flow sampling update report	Mon 30/06/14	Mon 30/06/14
Surface flow sampling update report	Tue 30/12/14	Tue 30/12/14
Surface flow sampling update report	Tue 30/06/15	Tue 30/06/15
Surface flow sampling update report	Wed 30/12/15	Wed 30/12/15
Runoff & pit water report	Fri 20/12/13	Mon 30/12/13
Runoff & pit water report	Mon 21/12/15	Wed 30/12/15
2013 Eatrhworks update report	Tue 29/10/13	Wed 30/10/13
2014 earthworks update report	Thu 18/09/14	Wed 29/10/14
Surface water diversion asessment report	Wed 19/08/15	Tue 29/09/15
Final TEP Report	Tue 6/09/16	Fri 30/09/16

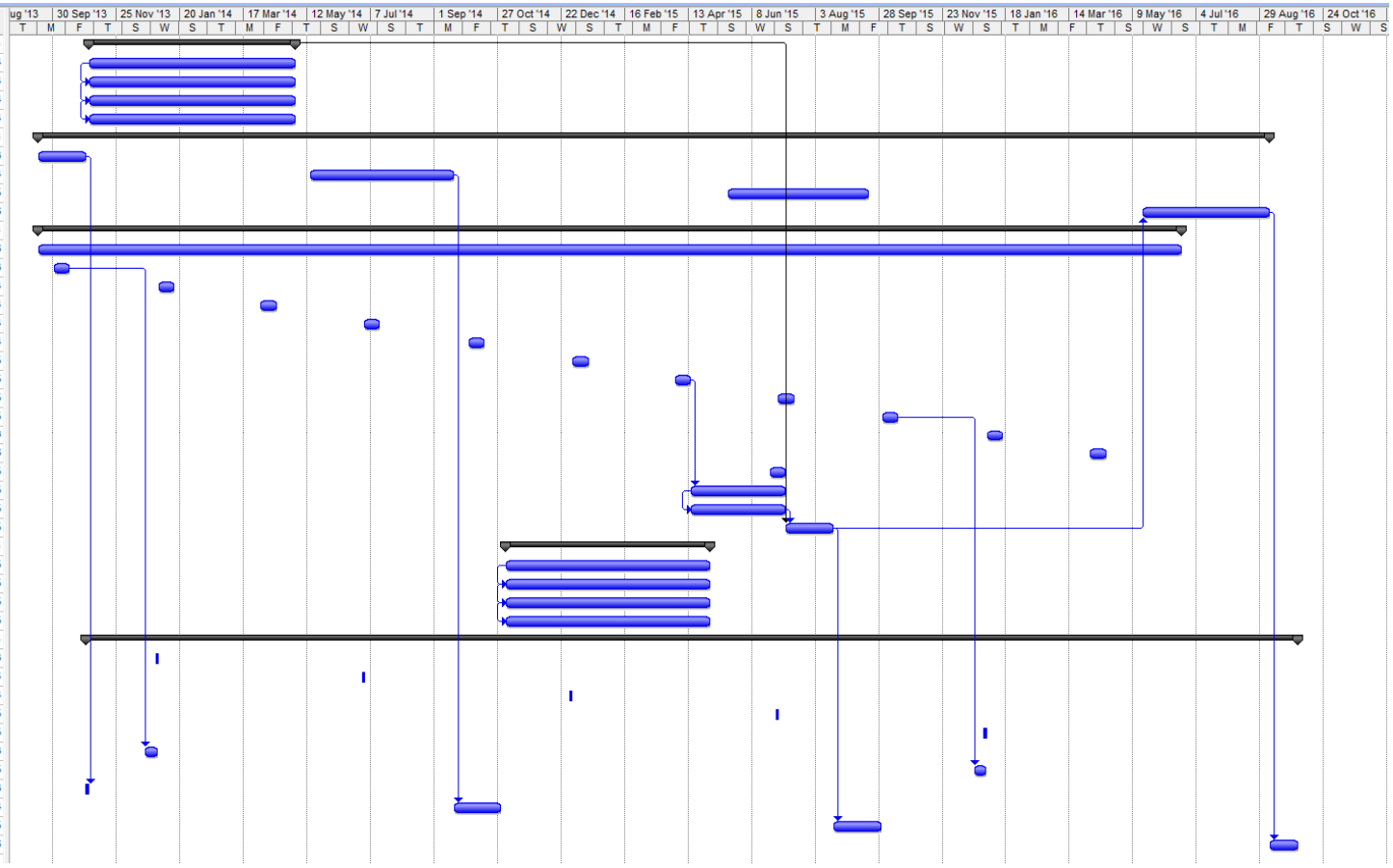


Table 6 TEP Tabular Format

Task	Action Item	Description of action item	Date	Performance Indicator/Reporting
1. Surface Flow Sampling	1.1 SW6 Flow path drain		1 November 2013 – 1 May 2014	6 monthly 'surface flow sampling update' report to DEHP by 30 December 2013
				6 monthly 'surface flow sampling update' report to DEHP by 30 June 2014
	1.2 SW6 flow path WRD		1 November 2013 – 1 May 2014	6 monthly 'surface flow sampling update' report to DEHP by 30 December 2013
				6 monthly 'surface flow sampling update' report to DEHP by 30 June 2014
	1.3 SW5 flow path		1 November 2013 – 1 May 2014	6 monthly 'surface flow sampling update' report to DEHP by 30 December 2013
				6 monthly 'surface flow sampling update' report to DEHP by 30 June 2014
	1.4 Pit V-notch		1 November 2013 – 1 May 2014	6 monthly 'surface flow sampling update' report to DEHP by 30 December 2013
				6 monthly 'surface flow sampling update' report to DEHP by 30 June 2014
	1.5 SW6 Flow path drain		1 November 2014 – 1 May 2015	Provision of 6 monthly 'surface flow sampling update' report to DEHP by 30 December 2014
				Provision of 6 monthly 'surface flow sampling update' report to DEHP by 30 June 2015
	1.6 SW6 flow path WRD		1 November 2014 – 1 May 2015	Provision of 6 monthly 'surface flow sampling update' report to DEHP by 30 December 2014

				Provision of 6 monthly 'surface flow sampling update' report to DEHP by 30 June 2015
	1.7 SW5 flow path		1 November 2014 – 1 May 2015	Provision of 6 monthly 'surface flow sampling update' report to DEHP by 30 December 2014
				Provision of 6 monthly 'surface flow sampling update' report to DEHP by 30 June 2015
	1.8 Pit V-notch		1 November 2014 – 1 May 2015	Provision of 6 monthly 'surface flow sampling update' report to DEHP by 30 December 2014
				Provision of 6 monthly 'surface flow sampling update' report to DEHP by 30 June 2015
2. Earthworks	2.1 Remedial drainage and cap repairs	2.1.1 Remove exposed boulders containing sulphides from NW of Highway WRD to the pit 2.1.2 Cap remaining sulphidic material at Highway WRD 2.1.3 Revegetation of bare patches on Highway and Reward WRD 2.1.4 Removal of sulphidic rocks from fence line at SW5 to pit.	17 September 2013 – 28 October 2013	Earthworks update report by 30 October 2013
	2.2 2014 earthworks program		15 May 2014 – 17 September 2014	Earthworks update report by 29 October 2014
	2.3 2015 earthworks program		18 May 2015 – 18 September 2015	Earthworks update report by 29 October 2015 including proposed surface water diversion assessment

				report
	2.4 2016 earthworks and surface diversion program		17 May 2016 – 5 September 2016	Earthworks update and Surface water diversion works report by 29 September 2016
3. Groundwater / Pit Balance	3.1 Measure surface flows at V notches		17 September 2013 – 20 June 2016	Proposed surface water diversion assessment report by 29 October 2015
	3.2 Survey pit water height		1 October 2013 – 14 October 2013	Runoff and pit water report by 30 December 2013
	3.3 Survey pit water height		1 January 2014 – 14 January 2014	Runoff and pit water report by 30 December 2014
	3.4 Survey pit water height		1 April 2014 – 14 April 2014	
	3.5 Survey pit water height		1 July 2014 – 14 July 2014	
	3.6 Survey pit water height		1 October 2014 – 14 October 2014	
	3.7 Survey pit water height		1 January 2015 – 14 January 2015	Runoff and pit water report by 30 December 2015
	3.8 Survey pit water height		1 April 2015 – 14 April 2015	
	3.9 Survey pit water height		1 July 2015 – 14 July 2015	
	3.10 Survey pit water height		1 October 2015 – 14 October 2015	
	3.11 Survey pit water height		1 January 2016 – 14 January 2016	Runoff and pit water report by 30 September 2016
	3.12 Survey pit water height		1 April 2016 – 14 April 2016	
	3.13 Survey pit water height		24 June 2016 – 7 July 2016	
	3.14 Groundwater model calibration		15 April 2015 – 7 July 2015	Proposed surface water diversion assessment report by 29 October

				2015
	3.15 Surface water model calibration		15 April 2015 – 7 July 2015	Proposed surface water diversion assessment report by 29 October 2015
	3.16 Surface diversion assessment		8 July 2015 – 18 August 2015	Proposed surface water diversion assessment report by 29 October 2015
4. Final TEP report	4.1 Submission of final TEP report		30 September 2016	Submit final TEP report to DEHP by 30 September 2016

2013 task
2014 task
2015 task
2016 task