



Licensee: Perilya Broken Hill Limited
Environmental Protection Licenses: 2688
Locations: Southern Operations

Water Quality Monitoring

Water Quality Assessment

Perilya Broken Hill Limited (PBHL) makes every effort to reduce contamination of waters. PBHL's water quality monitoring program is a demonstration of this commitment.

A key component of this program is implementation of a routine water quality sampling program. Both the sampling and sample handling are conducted in accordance with the Australian/New Zealand Standard, AS/NZS 5667.1:1998. Samples are also transported under Chain of Custody protocols and delivered to a NATA accredited laboratory for analyses.

Environmental Protection License (EPL) 2688 stipulates that water quality must be monitored when waters are discharging from two nominated points, Point 1 and Point 2, which are located on the Southern Operation.

Water discharged from the Southern Operations site reports to waterways that traverse pastoral and other mining leases. In keeping with the EPL; inorganics, alkali and heavy metals are monitored in waters discharged from this site. The reference used for heavy metals is the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (2002). Results, as determined by the EPL, are reported to the EPA.

EPL2683 does not provide release points for waters at either the Northern Mine or Potosi sites. Structures are in place to intercept and contain site waters and prevent their release off-site to the environment. Passage of non-site water entering both sites is provided by drainage pipe and lined culvert system at North Mine for waters entering the site from the McCullough Street drain and a stream diversion for Mulga Creek that traverses the Potosi mine site. Both the McCullough Street and Mulga Creek through-pass systems convey non-site waters through their respective mine site, maintaining separation between non-site waters and site waters.

Results

Table 1 presents a daily breakdown of the water discharged from Point 1, located on the Southern Operations. A total of 40.52 megalitres (ML) was discharged for the month which is below the anticipated discharge volume of 76 ML/month.

Table 1. Volume of water discharged from Point 1 (EPL 2688).

Perilya Broken Hill Ltd (PBHL)

EPL No. 2688

Southern Operations

Published on website 22/01/2013

Site	Monitoring frequency required by licence	Sample Date (YYYY/MM/DD)	Discharge (ML)	Cumulative megalitres per year	Limit (ML/year)
Point 1	Continuous	2012/10/31		902.29	912
Point 1	Continuous	2012/11/01	0.00	902.29	912
Point 1	Continuous	2012/11/02	0.00	902.29	912
Point 1	Continuous	2012/11/03	0.00	902.29	912
Point 1	Continuous	2012/11/04	0.00	902.29	912
Point 1	Continuous	2012/11/05	0.00	902.29	912
Point 1	Continuous	2012/11/06	0.00	902.29	912
Point 1	Continuous	2012/11/07	3.92	906.21	912
Point 1	Continuous	2012/11/08	19.52	925.73	912
Point 1	Continuous	2012/11/09	9.94	935.67	912
Point 1	Continuous	2012/11/10	6.42	942.09	912
Point 1	Continuous	2012/11/11	0.72	942.81	912
Point 1	Continuous	2012/11/12	0.00	942.81	912
Point 1	Continuous	2012/11/13	0.00	942.81	912
Point 1	Continuous	2012/11/14	0.00	942.81	912
Point 1	Continuous	2012/11/15	0.00	942.81	912
Point 1	Continuous	2012/11/16	0.00	942.81	912
Point 1	Continuous	2012/11/17	0.00	942.81	912
Point 1	Continuous	2012/11/18	0.00	942.81	912
Point 1	Continuous	2012/11/19	0.00	942.81	912
Point 1	Continuous	2012/11/20	0.00	942.81	912
Point 1	Continuous	2012/11/21	0.00	942.81	912
Point 1	Continuous	2012/11/22	0.00	942.81	912
Point 1	Continuous	2012/11/23	0.00	942.81	912
Point 1	Continuous	2012/11/24	0.00	942.81	912
Point 1	Continuous	2012/11/25	0.00	942.81	912
Point 1	Continuous	2012/11/26	0.00	942.81	912
Point 1	Continuous	2012/11/27	0.00	942.81	912
Point 1	Continuous	2012/11/28	0.00	942.81	912

Point 1	Continuous	2012/11/29	0.00	942.81	912
Point 1	Continuous	2012/11/30	0.00	942.81	912

Table 2 presents the water quality limits that have been provided in the license and the results from water samples taken during discharge. Results outside of the license conditions have been highlighted in red.

Table 2. EPL water quality limits and results from waters discharged from license points, Point 1 and Point 2 (EPL2688).

Perilya Broken Hill Ltd (PBHL)
 EPL No. 2688
 Southern Operations

Date sampled submitted for analysis: As required
 Date results received: 20 days after submission
 Published on website: 22/01/2013

Heavy Metal limits as specified in Environmental Protection Licence									
	Arsenic (mg/L)	Biological Oxygen Demand (BOD) (mg/L)	Copper (mg/L)	Lead (mg/L)	Oils and Grease (mg/L)	pH	Total Suspended Solids (TSS) (mg/L)	Zinc (mg/L)	Cadmium (mg/L)
ANZECC drinking water limits	0.5	50	0.5	0.1	10	6.5-8.5	50	15	0.01

Site	Monitoring frequency required by licence	Sample Date	Inorganics							Alkali metals*
			BOD (mg/L)	Conductivity (uS/cm)	Oil & Grease (mg/L)	pH	Sulphate (mg/L)	TSS (mg/L)	Total Dissolved Solids (mg/L)	Calcium (mg/L)
Point 2	Daily during discharge	05/11/2012	<5	11000	7.5	7.1	1000	41	7600	890
Point 2	Daily during discharge	05/11/2012	<5	13000	15	7.3	1000	21	8300	880

Site	Monitoring frequency required by licence	Sample Date	Heavy metals								
			Arsenic (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Zinc (mg/L)
Point 2	Daily during discharge	05/11/2012	0.010	0.018	0.002	0.018	0.270	<0.0001	0.016	0.011	8.30
Point 2	Daily during discharge	05/11/2012	0.011	0.017	0.002	0.053	0.570	<0.0001	0.017	0.009	6.00

* No limits specified within the Environmental Protection Licence