

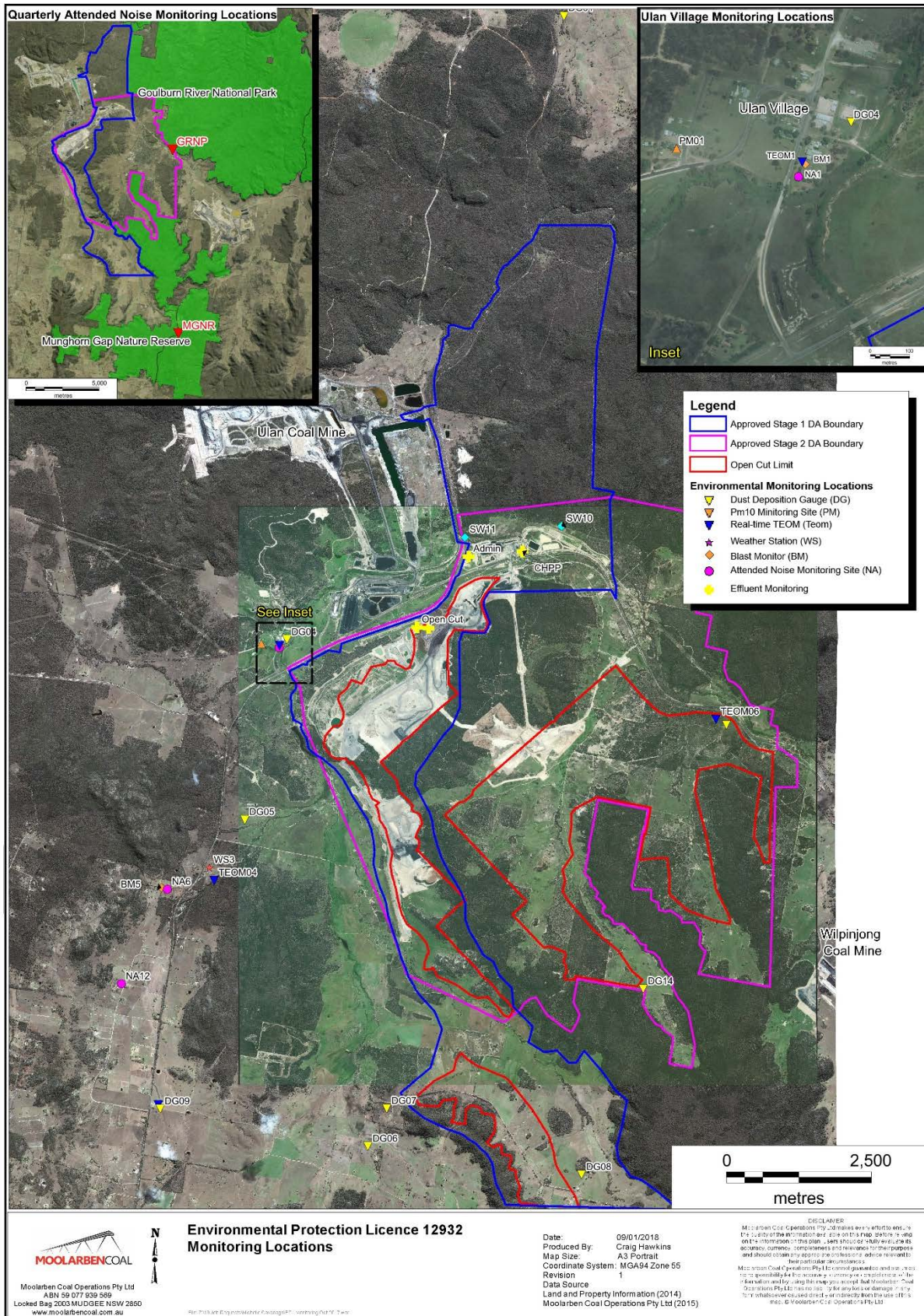


Monthly Environmental Monitoring Report

For the Month Ending 31 March 2018

Name of Operation	Moolarben Coal Complex
Name of License Holder	Moolarben Coal Operations Pty Ltd
Premises	Moolarben Coal Mine 4250 Ulan Road Mudgee NSW 2850
Environmental Protection Licence Number	12932
EPL Link	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=75423&SYSUID=1&LICID=12932
Premises	Moolarben Coal Mine
Reporting Period	1 March 2018 to 31 March 2018
Date last sampled data obtained	01 May 2018
Publication Date	04 May 2018
Version	1
Author	M. Frankham
Approver	G. Chase

EPL 12932 MCO Environmental Monitoring Network



Concentration Monitoring Summary

Air Quality Monitoring

EPL ID	Location	Pollutant	Unit of Measure	EPL Monitoring Frequency	No. of Samples collected and analysed	Date Sampled	Value	Annual Average (Rolling)	Annual 100%ile concentration limit
6	DG01	Particulates – Deposited Matter	g/m ² /month	Monthly	1	28/03/2018	0.8	0.6	4.0
7	DG12	Particulates – Deposited Matter	g/m ² /month	Monthly	1	28/03/2018	1.0	1.3	4.0
9	DG04	Particulates – Deposited Matter	g/m ² /month	Monthly	1	28/03/2018	1.0	1.0	4.0
10	DG05	Particulates – Deposited Matter	g/m ² /month	Monthly	1	28/03/2018	1.2	1.6	4.0
11	DG06	Particulates – Deposited Matter	g/m ² /month	Monthly	1	28/03/2018	1.5	0.7	4.0
12	DG07	Particulates – Deposited Matter	g/m ² /month	Monthly	1	28/03/2018	1.1	0.8	4.0
13	DG08	Particulates – Deposited Matter	g/m ² /month	Monthly	1	28/03/2018	1.5	1.0	4.0
14	DG09	Particulates – Deposited Matter	g/m ² /month	Monthly	1	28/03/2018	0.6	0.9	4.0
N/A	DG11	Particulates – Deposited Matter	g/m ² /month	N/A	1	28/03/2018	1.2	1.2	4.0
N/A	DG13	Particulates – Deposited Matter	g/m ² /month	N/A	1	28/03/2018	1.1	0.8	4.0
N/A	DG14	Particulates – Deposited Matter	g/m ² /month	N/A	1	28/03/2018	0.9	1.2	4.0

c*- sample contaminated

EPL ID	Location	Pollutant	Unit of Measure	No. of Samples collected and analysed	Date Sampled	12 mth rolling average			Annual 100%ile concentration limit
						Min Value	Mean Value	Max Value	
15	TEOM 6	PM10	µg/m ³	100%	Continuous	13.03	13.39	13.79	30
16	PM01	PM10	µg/m ³	4	Every 6 days	14.02	14.27	14.62	30
N/A	PM02	PM10	µg/m ³	4	Every 6 days	14.62	14.86	15.21	30
17	TEOM 1	PM10	µg/m ³	100%	Continuous	12.97	13.29	13.60	30
27	TEOM 7*	PM10	µg/m ³	100%	Continuous	**	**	**	30
N/A	TEOM 4	PM10	µg/m ³	100%	Continuous	15.93	16.37	16.79	30

* TEOM 5 replaced by TEOM 7

** Insufficient data for 12 month rolling average

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EPL ID	Location	Pollutant	Unit of Measure	EPL Monitoring Frequency	No. of Samples collected and analysed	Date Sampled	Min Value	Mean Value	Max Value	100%ile concentration limit
15	TEOM 6	PM10	µg/m ³	Continuous (24 Hr Average)	100%	Continuous	2.74	18.09	45.67 (74.65)*	50
16	PM01	PM10	µg/m ³	Every 6 days	4	Every 6 days	9.00	23.20	43.00	50
N/A	PM02	PM10	µg/m ³	N/A	4	Every 6 days	9.00	22.00	44.00	50
17	TEOM 1	PM10	µg/m ³	Continuous (24 Hr Average)	100%	Continuous	5.73	19.14	46.58 (59.63)*	50
27	TEOM 7	PM10	µg/m ³	Continuous (24 Hr Average)	100%	Continuous	5.50	22.34	49.07 (71.29)*	50
N/A	TEOM 4	PM10	µg/m ³	N/A (24 Hr Average)	100%	Continuous	5.80	24.06	41.8 (68.00)*	50

* Elevated reading influenced by regional dust event

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Surface Water Quality Monitoring

EPL ID	Location	Pollutant	Unit of Measure	No. of samples required by Licence	No. of Samples collected and analysed	Date Sampled	Min Value	Mean Value	Max Value
N/A	SW01	Conductivity	µS/cm	N/A	1	14/03/2018	281	281	281
		pH	pH	N/A	1	14/03/2018	7.09	7.09	7.09
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	32	32	32
N/A	SW02	Conductivity	µS/cm	N/A	1	14/03/2018	1300	1300	1300
		pH	pH	N/A	1	14/03/2018	6.79	6.79	6.79
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	<5	<5	<5
N/A	SW04	Conductivity	µS/cm	N/A	1	14/03/2018	151	151	151
		pH	pH	N/A	1	14/03/2018	6.95	6.95	6.95
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	19	19	19
N/A	SW05	Conductivity	µS/cm	N/A	1	14/03/2018	529	529	529
		pH	pH	N/A	1	14/03/2018	6.96	6.96	6.96
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	12	12	12
N/A	SW07	Conductivity	µS/cm	N/A	1	14/03/2018	5430	5430	5430
		pH	pH	N/A	1	14/03/2018	7.82	7.82	7.82
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	10	10	10
N/A	SW08	Conductivity	µS/cm	N/A	1	14/03/2018	4460	4460	4460
		pH	pH	N/A	1	14/03/2018	6.7	6.7	6.7
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	8	8	8
N/A	SW09	Conductivity	µS/cm	N/A	1	14/03/2018	3970	3970	3970
		pH	pH	N/A	1	14/03/2018	6.71	6.71	6.71
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	<5	<5	<5
4	SW10	Conductivity	µS/cm	Special Frequency 1	0	14/03/2018	dry	dry	dry
		Oil and Grease	mg/L	Special Frequency 1	0	14/03/2018	dry	dry	dry
		pH	pH	Special Frequency 1	0	14/03/2018	dry	dry	dry
		Total Suspended Solids	mg/L	Special Frequency 1	0	14/03/2018	dry	dry	dry
3	SW11	Conductivity	µS/cm	Special Frequency 1	0	14/03/2018	dry	dry	dry
		Oil and Grease	mg/L	Special Frequency 1	0	14/03/2018	dry	dry	dry
		pH	pH	Special Frequency 1	0	14/03/2018	dry	dry	dry
		Total Suspended Solids	mg/L	Special Frequency 1	0	14/03/2018	dry	dry	dry

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EPL ID	Location	Pollutant	Unit of Measure	No. of samples required by Licence	No. of Samples collected and analysed	Date Sampled	Min Value	Mean Value	Max Value
N/A	SW12	Conductivity	µS/cm	N/A	1	14/03/2018	513	513	513
		pH	pH	N/A	1	14/03/2018	6.69	6.69	6.69
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	24	24	24
N/A	SW15	Conductivity	µS/cm	N/A	0	14/03/2018	dry	dry	dry
		pH	pH	N/A	0	14/03/2018	dry	dry	dry
		Total Suspended Solids	mg/L	N/A	0	14/03/2018	dry	dry	dry
N/A	SW16	Conductivity	µS/cm	N/A	1	14/03/2018	420	420	420
		pH	pH	N/A	1	14/03/2018	6.45	6.45	6.45
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	18	18	18
N/A	SW17	Conductivity	µS/cm	N/A	1	14/03/2018	68	68	68
		pH	pH	N/A	1	14/03/2018	6.76	6.76	6.76
		Total Suspended Solids	mg/L	N/A	1	14/03/2018	97	97	97
N/A	SW18	Conductivity	µS/cm	N/A	0	14/03/2018	dry	dry	dry
		pH	pH	N/A	0	14/03/2018	dry	dry	dry
		Total Suspended Solids	mg/L	N/A	0	14/03/2018	dry	dry	dry
N/A	SW19	Conductivity	µS/cm	N/A	0	14/03/2018	dry	dry	dry
		pH	pH	N/A	0	14/03/2018	dry	dry	dry
		Total Suspended Solids	mg/L	N/A	0	14/03/2018	dry	dry	dry
N/A	SW20	Conductivity	µS/cm	N/A	0	14/03/2018	dry	dry	dry
		pH	pH	N/A	0	14/03/2018	dry	dry	dry
		Total Suspended Solids	mg/L	N/A	0	14/03/2018	dry	dry	dry

Blasting

EPL ID	Location	Pollutant	Unit of Measure	Frequency	No. of Blasts during the reporting period	Min Value	Mean Value	Max Value	Limits dBL
49	BM1 Ulan School	Blast Overpressure	dBL	Every Blast	10	86.2	96.6	111.4	115 (95% of Blasts) 120 (100% of Blasts)
		Ground Vibration	mm/s	Every Blast		0.12	0.19	0.26	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)
N/A	BM5 Ridge Rd	Blast Overpressure	dBL	Every Blast	10	78.8	97.4	112.1	115 (95% of Blasts) 120 (100% of Blasts)
		Ground Vibration	mm/s	Every Blast		0.1	0.3	0.7	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)

Noise

Location	Start Date and Time ²	Measured Level ¹ L _{A1,1minute} dB	Measured Level ¹ L _{Aeq} dB	Limit(s) ²	Weather ⁴	Observation	(Potential) Non-Compliance/Breach ⁵
NA1	28/03/18 14:32	NA	IA	Daytime (07:00 – 18:00) L _{Aeq,15minute} : 43 dB	Cloud Cover 0/8, wind at 10m 1.2m/s, Stability Class A	<p>Attended monitoring, nomination of noise sources:</p> <p>Continuum and impacts from the nearby industrial area primarily generated all measured noise levels. Road traffic and breeze in foliage generated the measured L_{A90}.</p> <p>Estimate of contribution of subject noise source: MCO was inaudible.</p>	No
NA6	28/03/2018 22:24	35	30	Night time (22:00 – 07:00) L _{Aeq,15minute} : 37 dB L _{A1,1minute} : 45 dB	Cloud Cover 0/8, wind at 10m 0.5m/s, Stability Class G	<p>Attended monitoring, nomination of noise sources:</p> <p>Road traffic generated the measured L_{A1}, L_{A10}, and L_{Aeq}. Road traffic noise and MCO continuum were responsible for the measured L_{A50}. Mining continuum from MCO generated the measured L_{A90}.</p> <p>Estimate of contribution of subject noise source: A mining continuum from MCO was audible throughout the measurement generating the site-only L_{Aeq} of 30 dB. Surges generated the measured L_{A1,1minute} of 35 dB.</p>	No

Location	Start Date and Time ²	Measured Level ¹ L _{A1,1minute} dB	Measured Level ¹ L _{Aeq} dB	Limit(s) ²	Weather ⁴	Observation	(Potential) Non-Compliance/Breach ⁵
NA12	28/03/2018 22:00	27	<25	Night time (22:00 – 07:00) L _{Aeq,15minute} : 35 dB L _{A1,1minute} : 45 dB	Cloud Cover 0/8, wind at 10m 0.7m/s, Stability Class G	<p>Attended monitoring, nomination of noise sources:</p> <p>Dogs generated the measured L_{A1} and primarily generated the measured L_{Aeq}. Road traffic generated the measured L_{A10} and contributed to the measured L_{Aeq}. Insects and a mining continuum from MCO generated the measured L_{A50} and L_{A90}.</p> <p>Estimate of contribution of subject noise source:</p> <p>A low-level continuum from MCO was audible throughout the measurement generating the site-only L_{Aeq} of less than 25 dB. Surges in this continuum generated the site-only L_{A1,1minute} of 27 dB.</p>	No

Notes:

1. Levels in these columns are MCO only;
2. Measurement period is 15 minutes;
3. As detailed in the EPL, noise emission limits apply under all meteorological conditions except:
 - Wind speeds greater than 3 m/s at 10 metres above ground level; or
 - Stability class F temperature inversion conditions, and wind speeds greater than 2 m/s at 10 metres above ground level; or
 - Stability class G temperature inversions;
4. Cloud cover from field sheet observations. Wind speed, wind direction and stability class based on WCM weather station data; and
5. NA in last column means atmospheric conditions outside those specified in EPL and so criterion is not applicable.

Effluent Discharge Points

EPL ID	Pollutant	Unit of Measure	No. of samples required by Licence	No. of Samples collected and analysed	Date Sampled	Min Value	Mean Value	Max Value
5	BOD	mg/L	Quarterly	0				
	Nitrogen (total)	mg/L	Quarterly	0				
	Oil and Grease	mg/L	Quarterly	0				
	pH	pH	Quarterly	0				
	Phosphorus (total)	mg/L	Quarterly	0				
	Total Suspended Solids	mg/L	Quarterly	0				
22	BOD	mg/L	Quarterly	0				
	Nitrogen (total)	mg/L	Quarterly	0				
	Oil and Grease	mg/L	Quarterly	0				
	pH	pH	Quarterly	0				
	Phosphorus (total)	mg/L	Quarterly	0				
	Total Suspended Solids	mg/L	Quarterly	0				
23	BOD	mg/L	Quarterly	0				
	Nitrogen (total)	mg/L	Quarterly	0				
	Oil and Grease	mg/L	Quarterly	0				
	pH	pH	Quarterly	0				
	Phosphorus (total)	mg/L	Quarterly	0				
	Total Suspended Solids	mg/L	Quarterly	0				
48	BOD	mg/L	Quarterly	0				
	Nitrogen (total)	mg/L	Quarterly	0				
	Oil and Grease	mg/L	Quarterly	0				
	pH	pH	Quarterly	0				
	Phosphorus (total)	mg/L	Quarterly	0				
	Total Suspended Solids	mg/L	Quarterly	0				

Discharge Points

Moolarben Coal did not have any licensed discharges during the period.

EPL ID	Pollutant	Unit of Measure	No. of samples required by Licence	No. of Samples collected and analysed	Date Sampled	Min Value	Mean Value	Max Value	100%ile concentration limit
1	Conductivity	µS/cm	Continuous during discharge	0					900
	Iron	mg/L	Daily During Discharge	0					
	Oil and Grease	mg/L	Daily During Discharge	0					10
	pH	pH	Continuous during discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Continuous during discharge	0					25
	Zinc	mg/L	Daily During Discharge	0					
	Discharge Volume	Megalitres per day	Continuous during discharge	0					10
2	Conductivity	µS/cm	Continuous during discharge	0					900
	Iron	mg/L	Daily During Discharge	0					
	Oil and Grease	mg/L	Daily During Discharge	0					10
	pH	pH	Continuous during discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Continuous during discharge	0					25
	Zinc	mg/L	Daily During Discharge	0					
	Discharge Volume	Megalitres per day	Continuous during discharge	0					10
24	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
26	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5

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	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
28	Conductivity	µS/cm	Continuous during discharge	0					900
	Iron	mg/L	Daily During Discharge	0					
	Oil and Grease	mg/L	Daily During Discharge	0					10
	pH	pH	Continuous during discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Continuous during discharge	0					25
	Zinc	mg/L	Daily During Discharge	0					
	Discharge Volume	Kilolitres per day	Continuous during discharge	0					1
29	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
30	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
31	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
33	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5

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	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
35	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25