



OBERONQUARRIES

Licence Information

Environment Protection Licence (EPL) Number	4442
License Holder	Oberon Quarries Pty. Limited
Licensee Address	Licensee: Oberon Quarries Pty. Limited PO Box 3575 Rouse Hill NSW 2155 Premises: "Langley Heights" Hard Rock Quarry Hargraves Quarry Road Oberon NSW 2787
Link to the full licence on the EPA website	http://www.epa.nsw.gov.au/prpoeoapp/V iewPOEOLicence.aspx?DOCID=31414&SYS UID=1&LICID=4442



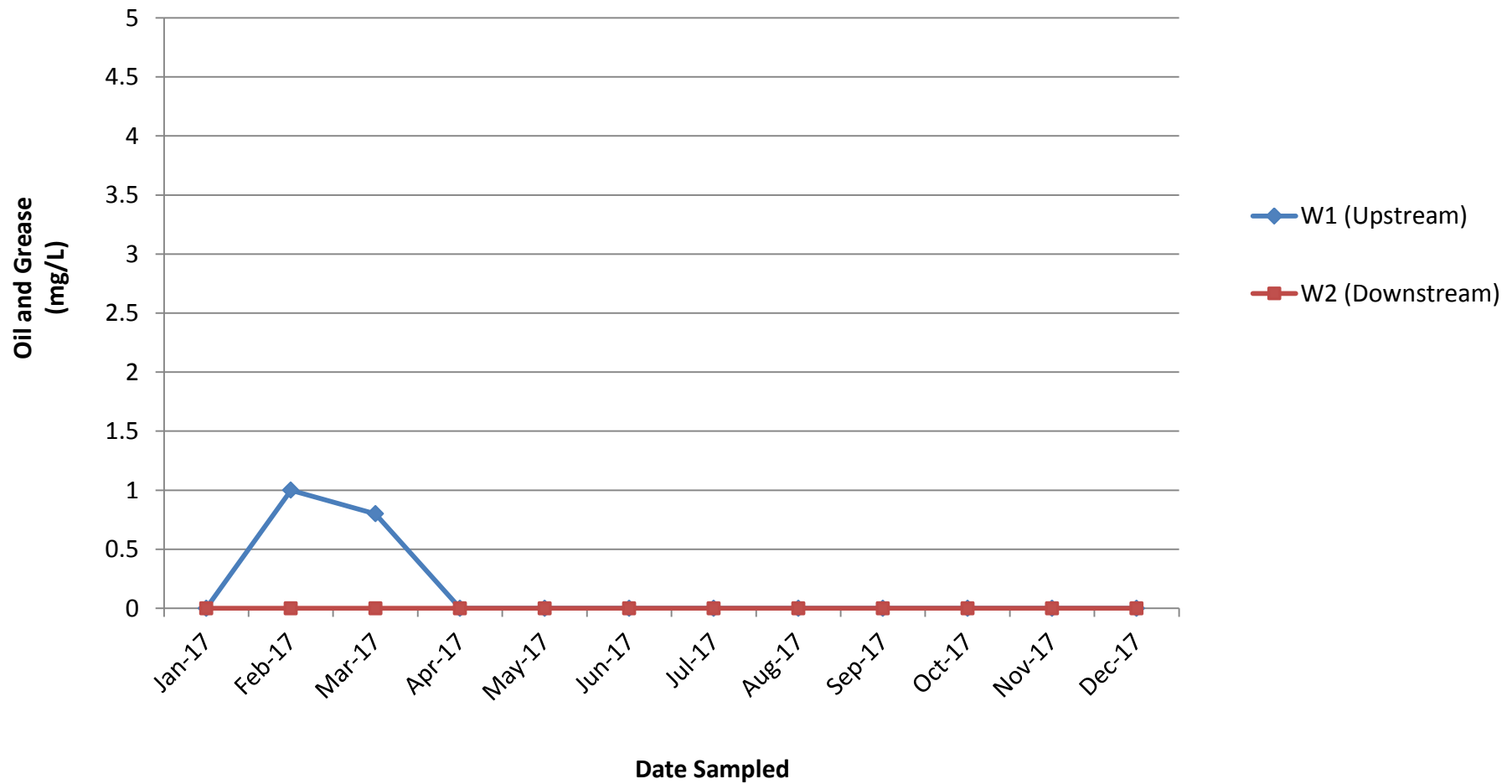
OBERON QUARRIES

Surface Water Quality Monitoring

						EPL Monitoring						Management Plan Monitoring			
Quarry Location Reference	EPA Identification Number	Sample Reference	Date of Sample	Date Results Recieved from Lab	Monitoring Frequency	Oil and Grease (mg/L)	Oil and Grease EPL Limit	pH (pH Unit)	pH EPL Limit	Total Suspended Solids (mg/L)	Total Suspended Solids EPL Limit	Conductivity (uS/cm)**	Turbidity (NTU)**	Total Kjeldahl Nitrogen (mg/L)**	Total Phosphorus (mg/L)**
W1	Point 5	SAL26207	20/01/2017	10/02/2017	Monthly	<0.5	N/A	6.5	N/A	53	N/A	155	30	1.4	0.2
W1	Point 5	SAL26236	23/02/2017	31/03/2017	Monthly	1.0	N/A	6.6	N/A	7.0	N/A	90	5.6	0.6	<0.1
W1	Point 5	SAL26286	29/03/2017	28/04/2017	Monthly	0.8	N/A	6.9	N/A	<2	N/A	105	11	0.5	<0.1
W1	Point 5	SAL26318	26/04/2017	30/05/2017	Monthly	<0.5	N/A	7.1	N/A	12	N/A	95	10	0.5	0.1
W1	Point 5	SAL26355	23/05/2017	19/06/2017	Monthly	<0.5	N/A	6.9	N/A	3.0	N/A	85	8.2	1.0	<0.1
W1	Point 5	SAL26393	23/06/2017	10/07/2017	Monthly	<0.5	N/A	6.8	N/A	<2	N/A	80	5.6	0.2	<0.1
W1	Point 5	SAL26422	20/07/2017	14/08/2017	Monthly	<0.5	N/A	6.9	N/A	5.0	N/A	95	7.0	0.4	<0.1
W1	Point 5	SAL26475	24/08/2017	13/09/2017	Monthly	<0.5	N/A	6.9	N/A	14	N/A	90	15	0.5	0.1
W1	Point 5	SAL26507	20/09/2017	6/10/2017	Monthly	<0.5	N/A	6.8	N/A	<2	N/A	95	7.0	<0.1	<0.1
W1	Point 5	SAL26547	25/10/2017	13/11/2017	Monthly	<0.5	N/A	6.9	N/A	37	N/A	95	15	0.5	<0.1
W1	Point 5	SAL26576	17/11/2017	28/11/2017	Monthly	<0.5	N/A	7.1	N/A	4.0	N/A	105	6.5	0.5	<0.1
W1	Point 5	SAL26621	21/12/2017	23/01/2018	Monthly	<0.5	N/A	7.1	N/A	18	N/A	130	6.0	0.8	<0.1
* '<' denotes monitoring results are below detection limit. ** Not an EPL parameter						Min. value	<0.5	6.5		<2.0		80	5.6	<0.1	<0.1
						Mean value	<0.5	6.9		17.0		101.7	10.6	0.6	0.2
						Max. value	1.0	7.1		53		155	30.0	1.4	0.2

						EPL Monitoring						Management Plan Monitoring			
Quarry Location Reference	EPA Identification Number	Sample Reference	Date of Sample	Date Results Recieved from Lab	Monitoring Frequency	Oil and Grease (mg/L)	Oil and Grease EPL Limit	pH (pH Unit)	pH EPL Limit	Total Suspended Solids (mg/L)	Total Suspended Solids EPL Limit	Conductivity (uS/cm)**	Turbidity (NTU)**	Total Kjeldahl Nitrogen (mg/L)**	Total Phosphorus (mg/L)**
W2	Point 6	SAL26207	20/01/2017	10/02/2017	Monthly	<0.5	N/A	6.6	N/A	62	N/A	155	27	1.6	0.2
W2	Point 6	SAL26236	23/02/2017	31/03/2017	Monthly	<0.5	N/A	6.7	N/A	5.0	N/A	90	5.6	0.5	<0.5
W2	Point 6	SAL26286	29/03/2017	28/04/2017	Monthly	<0.5	N/A	6.9	N/A	6.0	N/A	105	9.8	0.4	<0.1
W2	Point 6	SAL26318	26/04/2017	30/05/2017	Monthly	<0.5	N/A	7.1	N/A	15	N/A	95	11	0.5	0.1
W2	Point 6	SAL26355	23/05/2017	19/06/2017	Monthly	<0.5	N/A	6.9	N/A	<2	N/A	85	8.4	0.5	<0.1
W2	Point 6	SAL26393	23/06/2017	10/07/2017	Monthly	<0.5	N/A	6.9	N/A	<2	N/A	85	6.5	<0.1	0.1
W2	Point 6	SAL26422	20/07/2017	14/08/2017	Monthly	<0.5	N/A	6.9	N/A	3.0	N/A	90	7.6	0.8	<0.1
W2	Point 6	SAL26475	24/08/2017	13/09/2017	Monthly	<0.5	N/A	7.0	N/A	33	N/A	90	20	0.7	0.3
W2	Point 6	SAL26507	20/09/2017	6/10/2017	Monthly	<0.5	N/A	6.9	N/A	2.0	N/A	95	6.8	0.2	<0.1
W2	Point 6	SAL26547	25/10/2017	13/11/2017	Monthly	<0.5	N/A	7.0	N/A	3.0	N/A	95	7.0	0.3	<0.1
W2	Point 6	SAL26576	17/11/2017	28/11/2017	Monthly	<0.5	N/A	7.1	N/A	2.0	N/A	105	5.7	0.2	<0.1
W2	Point 6	SAL26621	21/12/2017	23/01/2018	Monthly	<0.5	N/A	7.0	N/A	37	N/A	130	7.0	0.8	<0.1
* '<' denotes monitoring results are below detection limit. ** Not an EPL parameter						Min. value	<0.5	6.6		<2		85	5.6	<0.1	<0.1
						Mean value	<0.5	6.9		16.8		101.7	10.2	0.6	0.2
						Max. value	<0.5	7.1		62		155	27.0	1.6	0.3

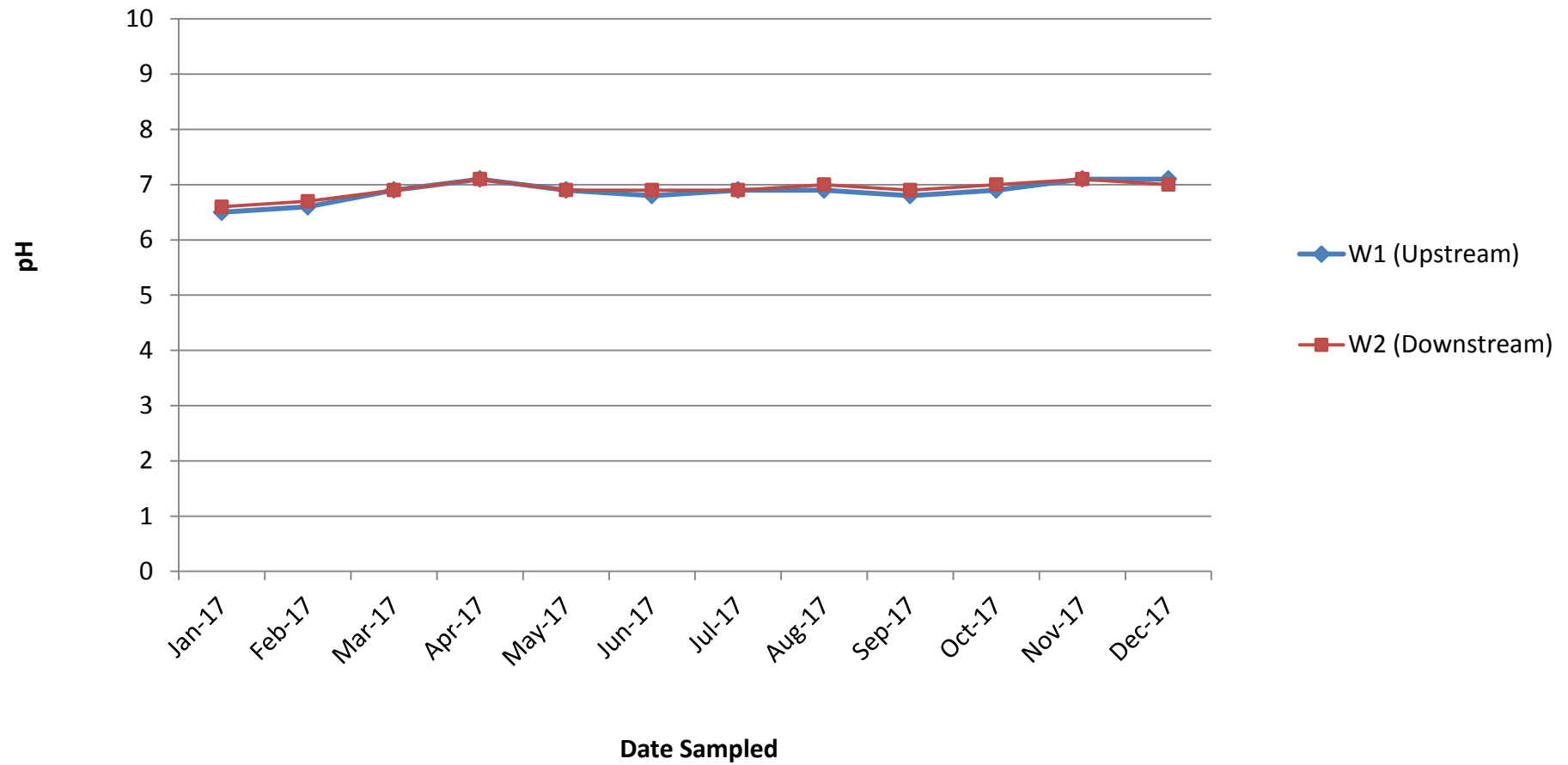
Oil and Grease - Surface Water



Note: No EPL Limit specified

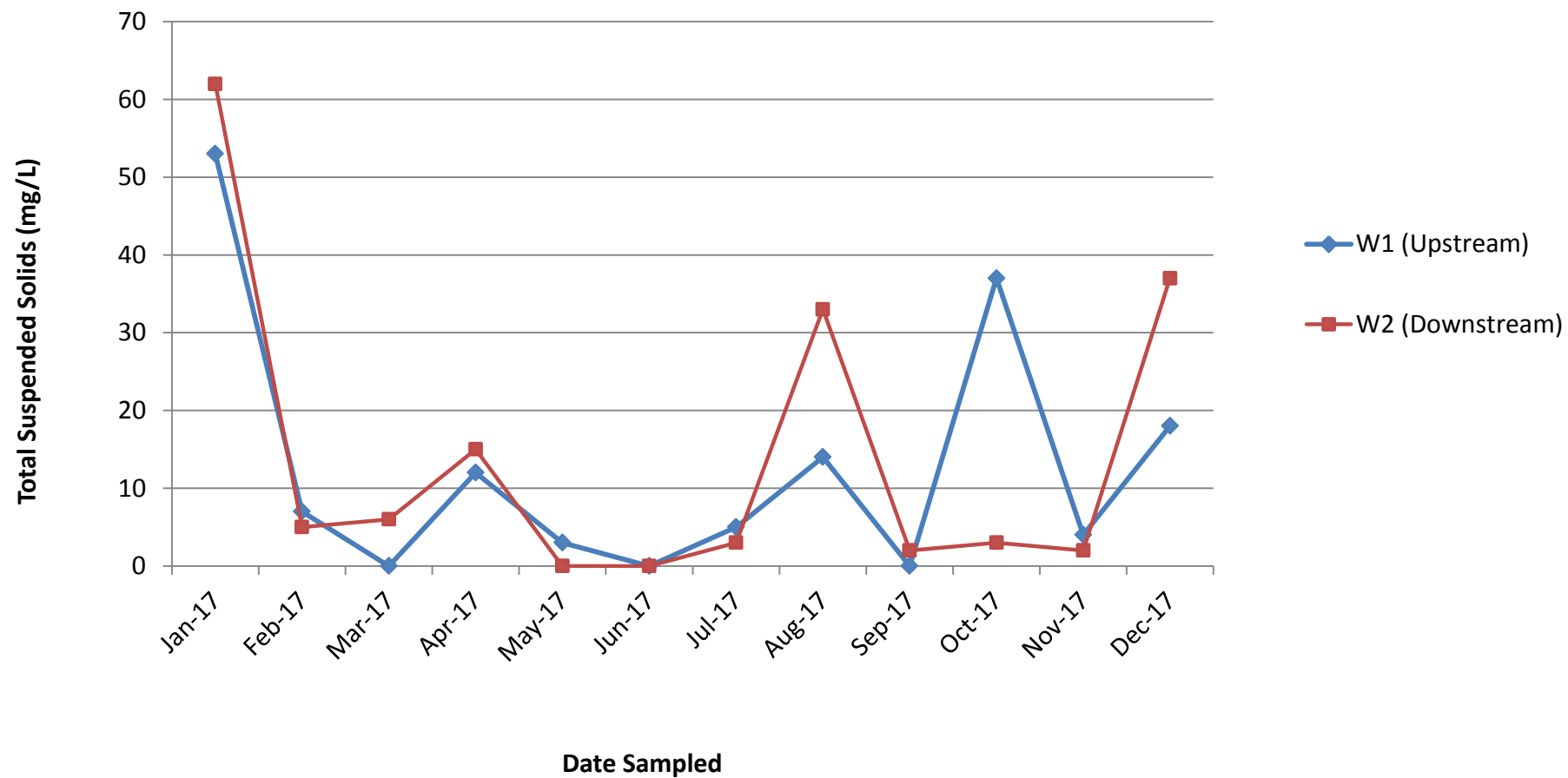
Note: No EPL Limit Specified

pH - Surface Water



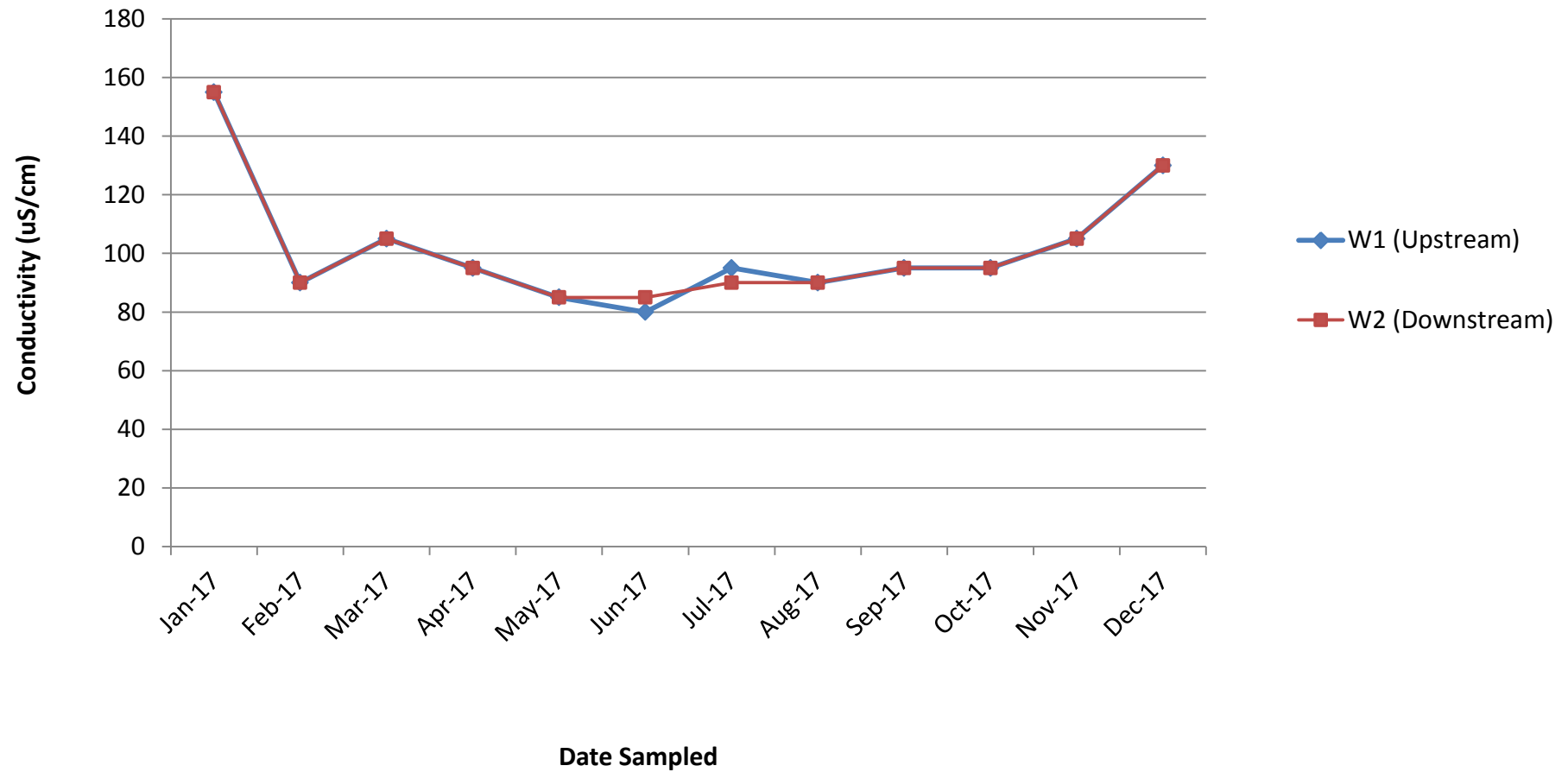
Note: No EPL Limit specified

Total Suspended Solids - Surface Water



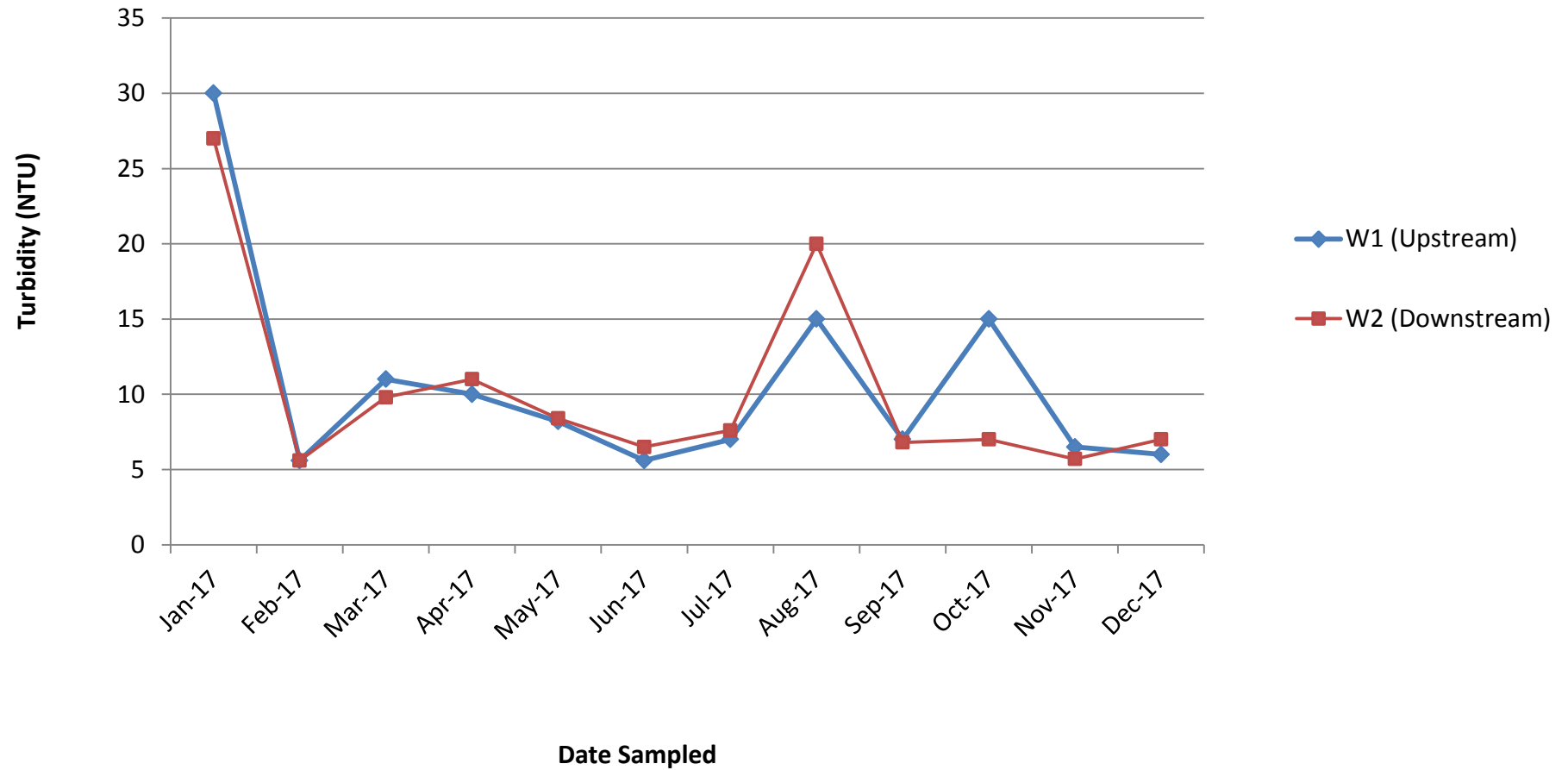
Note: No EPL Limit specified

Conductivity - Surface Water



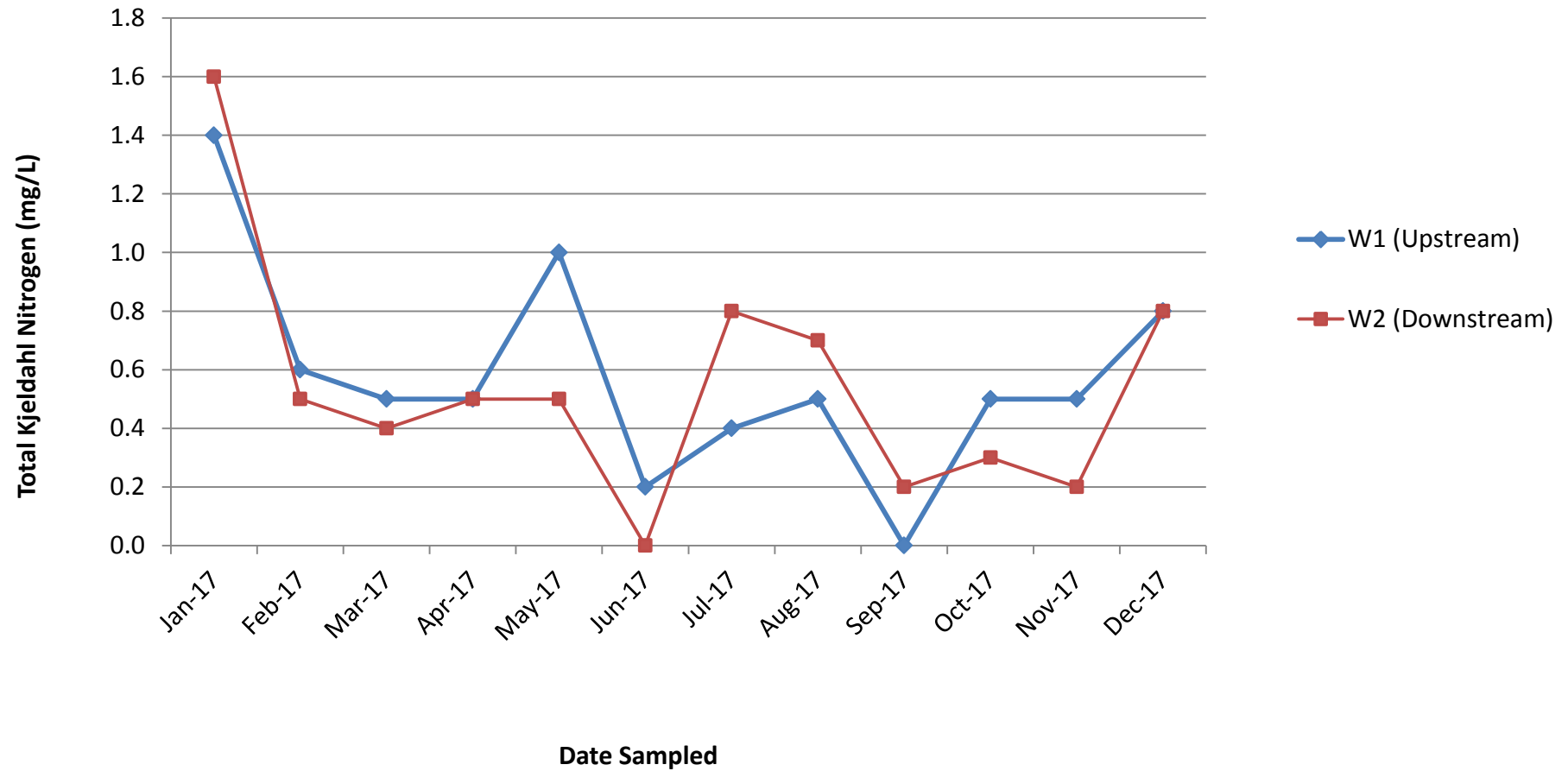
Note: No EPL Limit specified

Turbidity - Surface Water



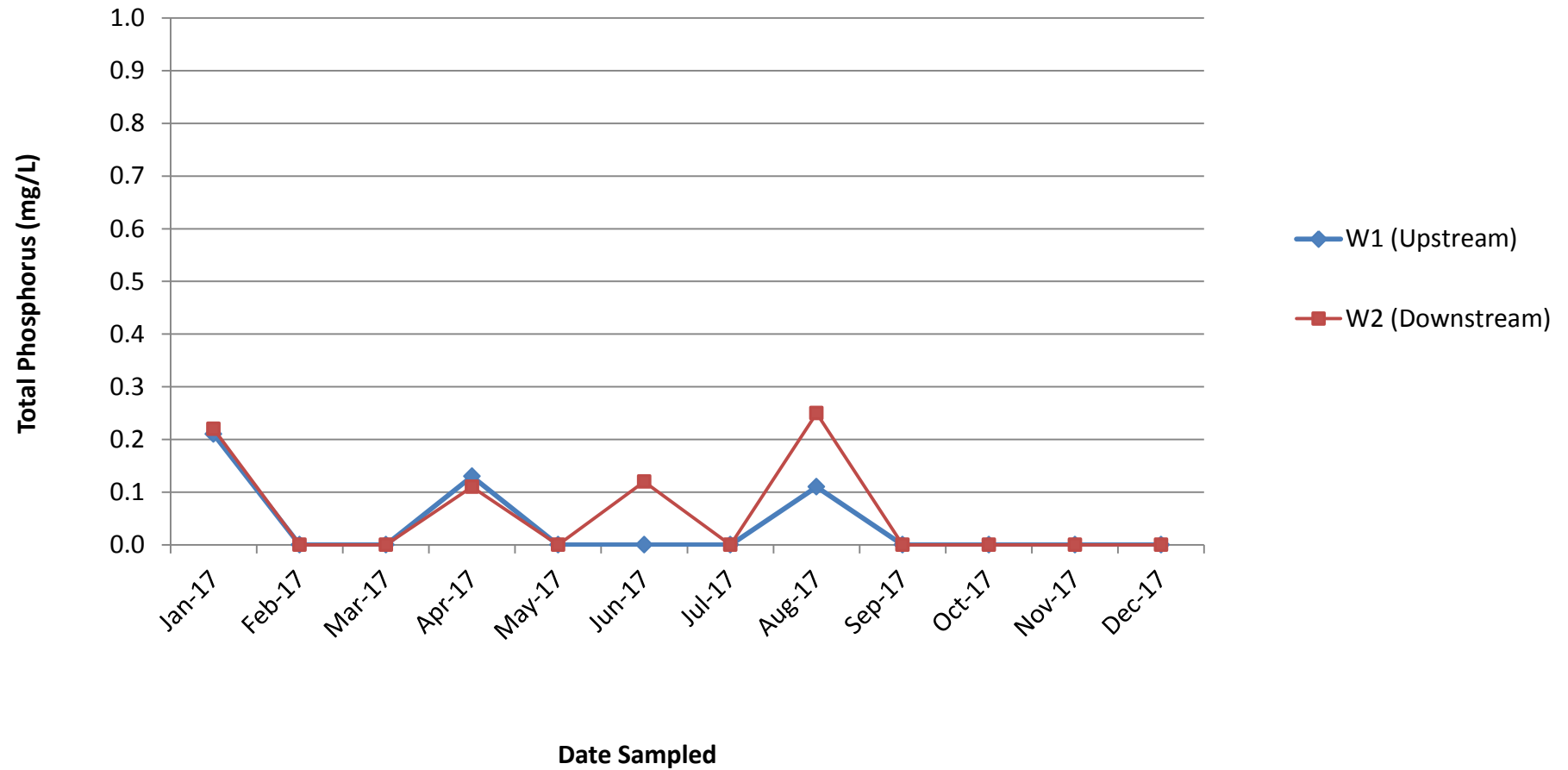
Note: No EPL Limit specified

Total Kjeldahl Nitrogen - Surface Water



Note: No EPL Limit specified

Total Phosphorus - Surface Water



Note: No EPL Limit specified



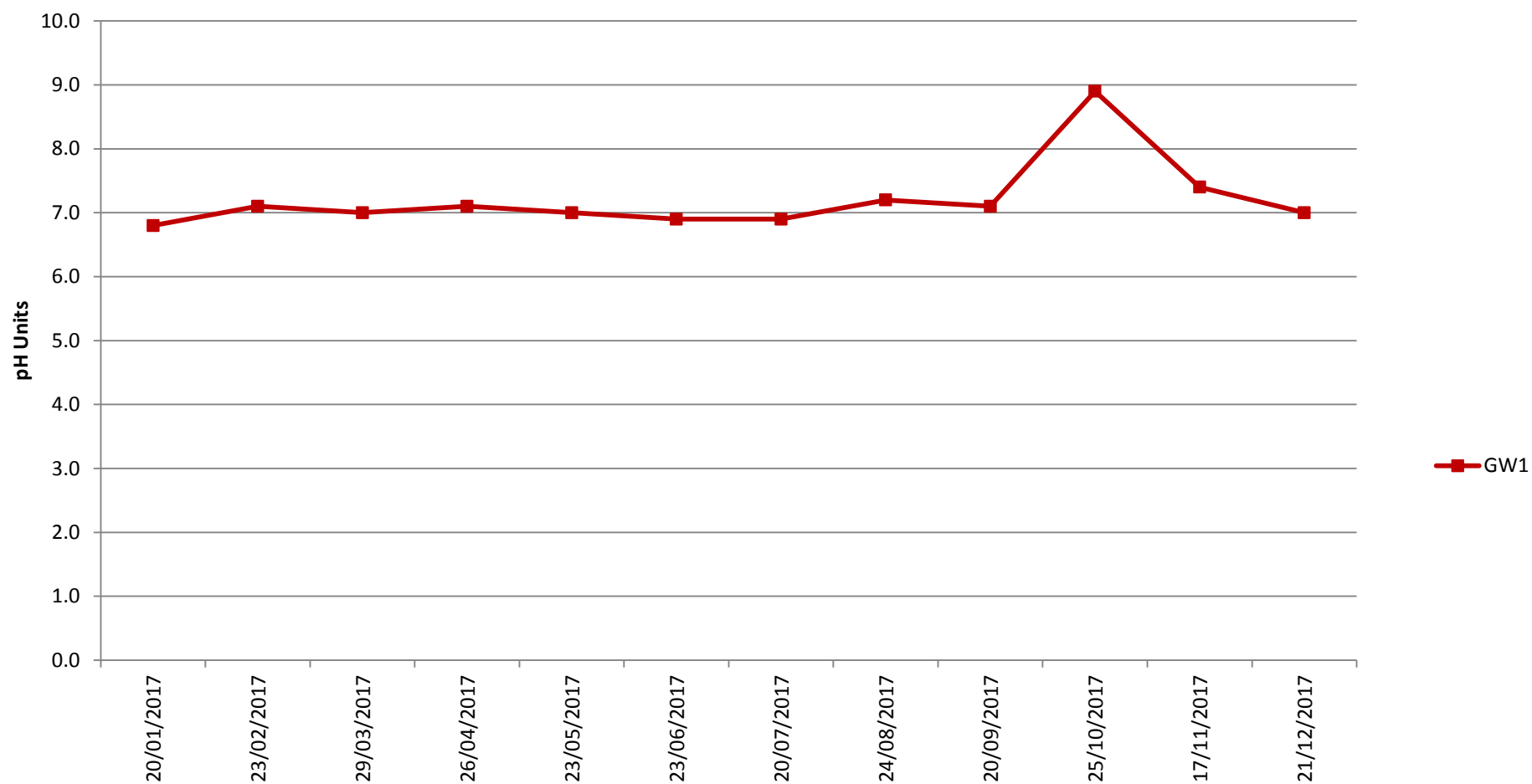
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Groundwater Quality Monitoring

Quarry Location Reference	Sample Reference	Date of Sample	pH	Conductivity (uS/cm)
GW1	SAL26207	20/01/2017	6.8	320
GW1	SAL26236	23/02/2017	7.1	350
GW1	SAL26286	29/03/2017	7.0	340
GW1	SAL26318	26/04/2017	7.1	320
GW1	SAL26355	23/05/2017	7.0	260
GW1	SAL26393	23/06/2017	6.9	240
GW1	SAL26422	20/07/2017	6.9	240
GW1	SAL26475	24/08/2017	7.2	250
GW1	SAL26507	20/09/2017	7.1	270
GW1	SAL26547	25/10/2017	8.9	250
GW1	SAL26576	17/11/2017	7.4	270
GW1	SAL26621	21/12/2017	7	220
		Min. value	6.8	220
		Mean value	7.2	278
		Max. value	8.9	350

Note: Groundwater quality monitoring required under the approved Water Management Plan (Umwelt, 2016). There are no limits specified for groundwater quality under EPL 4442.

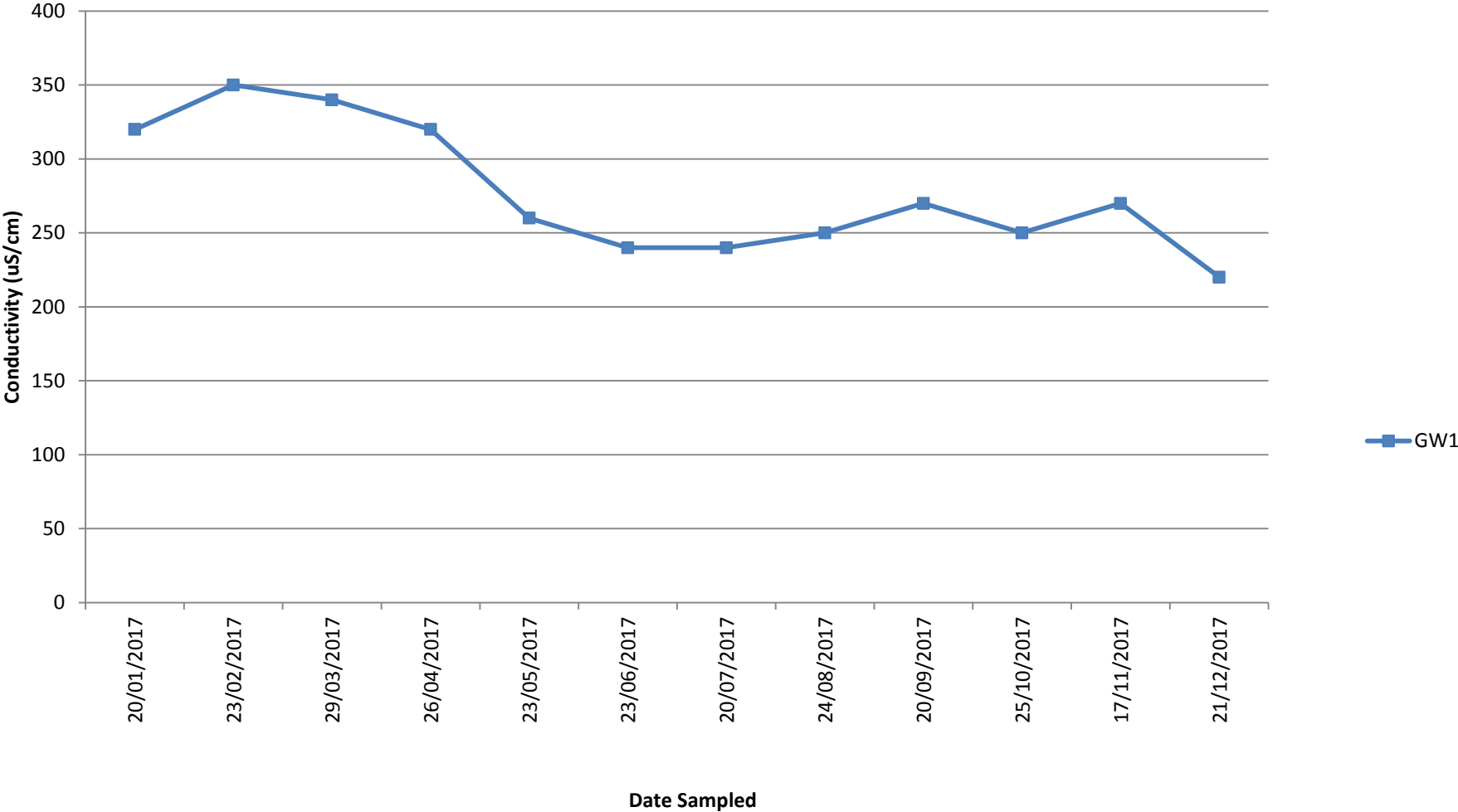
pH - Groundwater



Note:

- No EPL Limit specified
- Monitoring obligations required under Water Management Plan

Conductivity- Groundwater



Note:
- No EPL Limit specified
- Montoring obligations required under Water Management Plan

EPL Monitoring

Air Quality Monitoring



Quarry Location Reference	EPA Identification Number	Sample Reference	Date Collected	Date Results Recieved from Lab	Monitoring Frequency	Month	Deposited Matter (g/m ² /month)	Rolling Average (g/m ² /month)	Deposited Matter SSD_6333 Limit
D1	Point 1	SAL26207B	20/01/2017	10/02/2017	Monthly	Jan-17	3.9	1.8	Air quality criteria is based on an averaging period from January - December in accordance with <i>Table 4: Air Quality Criteria</i> in SSD_6333.
D1	Point 1	SAL26236B	23/02/2017	31/03/2017	Monthly	Feb-17	2.3	1.9	
D1	Point 1	SAL26286B	29/03/2017	28/04/2017	Monthly	Mar-17	12.6*	2.0	
D1	Point 1	SAL26318B	26/04/2017	30/05/2017	Monthly	Apr-17	8.5*	2.0	
D1	Point 1	SAL26355B	23/05/2017	19/06/2017	Monthly	May-17	3.7	2.1	
D1	Point 1	SAL26393B	23/06/2017	10/07/2017	Monthly	Jun-17	3.8	2.3	
D1	Point 1	SAL26422B	28/07/2017	4/08/2017	Monthly	Jul-17	1.8	2.3	
D1	Point 1	SAL26475B	24/08/2017	31/08/2017	Monthly	Aug-17	0.7	2.3	
D1	Point 1	SAL26507B	20/09/2017	03/10/2017	Monthly	Sep-17	2.5	2.4	
D1	Point 1	SAL26547B	25/10/2017	2/11/2017	Monthly	Oct-17	12.8*	2.5	
D1	Point 1	SAL26576B	17/11/2017	27/11/2017	Monthly	Nov-17	2.7	2.6	
D1	Point 1	SAL26621B	21/12/2017	23/01/2018	Monthly	Dec-17	2.3	2.6	
* Sample contaminated with animal droppings. These samples have been excluded from the annual average calculations.							Min.	0.7	
							Mean.	2.6	
							Max.	3.9	

Quarry Location Reference	EPA Identification Number	Sample Reference	Date Collected	Date Results Recieved from Lab	Monitoring Frequency	Month	Deposited Matter (g/m ² /month)	Rolling Average (g/m ² /month)	Deposited Matter SSD_6333 Limit
D2	Point 2	SAL26207B	20/01/2017	31/01/2017	Monthly	Jan-17	3.4	1.2	Air quality criteria is based on an averaging period from January - December in accordance with <i>Table 4: Air Quality Criteria</i> in SSD_6333.
D2	Point 2	SAL26236B	23/02/2017	31/03/2017	Monthly	Feb-17	2.3	1.3	
D2	Point 2	SAL26286B	29/03/2017	28/04/2017	Monthly	Mar-17	3.0	1.5	
D2	Point 2	SAL26318B	26/04/2017	30/05/2017	Monthly	Apr-17	1.3	1.4	
D2	Point 2	SAL26355B	23/05/2017	19/06/2017	Monthly	May-17	0.3	1.4	
D2	Point 2	SAL26393B	23/06/2017	10/07/2017	Monthly	Jun-17	0.4	1.3	
D2	Point 2	SAL26422B	28/07/2017	4/08/2017	Monthly	Jul-17	0.6	1.3	
D2	Point 2	SAL26475B	24/08/2017	31/08/2017	Monthly	Aug-17	0.8	1.3	
D2	Point 2	SAL26507B	20/09/2017	03/10/2017	Monthly	Sep-17	0.6	1.3	
D2	Point 2	SAL26547B	25/10/2017	2/11/2017	Monthly	Oct-17	1.7	1.4	
D2	Point 2	SAL26576B	17/11/2017	27/11/2017	Monthly	Nov-17	1.2	1.3	
D2	Point 2	SAL26621B	21/12/2017	23/01/2018	Monthly	Dec-17	1.3	1.4	
							Min.	0.3	
							Mean.	1.4	
							Max.	3.4	

Note: The values reported are total solids. Total solids are comprised of soluble and insoluble solids.

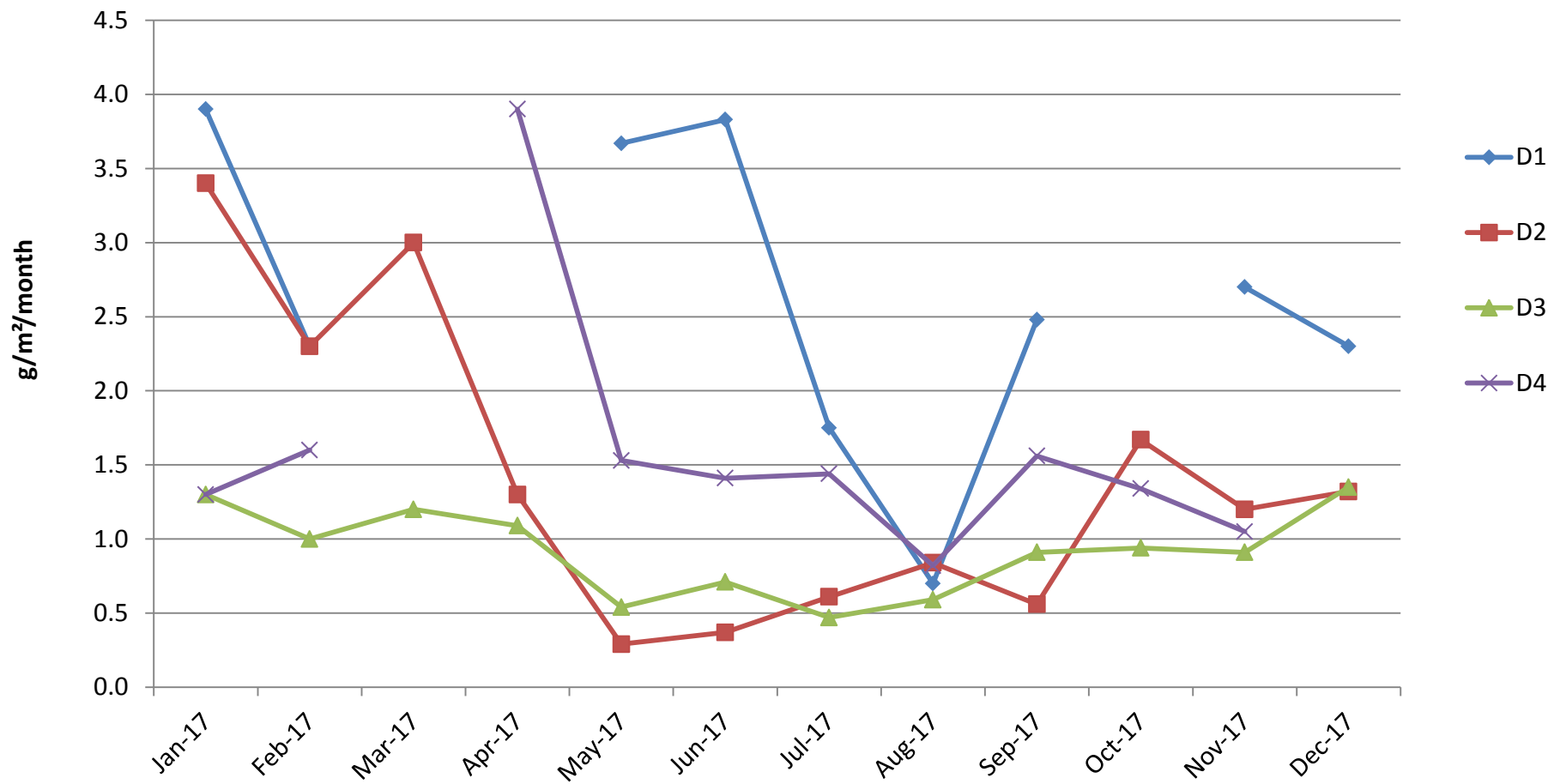
EPL Monitoring



Quarry Location Reference	EPA Identification Number	Sample Reference	Date Collected	Date Results Recieved from Lab	Monitoring Frequency	Month	Deposited Matter (g/m ² /month)	Rolling Average (g/m ² /month)	Deposited Matter SSD_6333 Limit
D3	Point 3	SAL26207B	20/01/2017	31/01/2017	Monthly	Jan-17	1.3	0.8	Air quality criteria is based on an averaging period from January - December in accordance with <i>Table 4: Air Quality Criteria</i> in SSD_6333.
D3	Point 3	SAL26236B	23/02/2017	31/03/2017	Monthly	Feb-17	1.0	0.8	
D3	Point 3	SAL26286B	29/03/2017	28/04/2017	Monthly	Mar-17	1.2	0.9	
D3	Point 3	SAL26318B	26/04/2017	30/05/2017	Monthly	Apr-17	1.1	0.9	
D3	Point 3	SAL26355B	23/05/2017	19/06/2017	Monthly	May-17	0.5	0.8	
D3	Point 3	SAL26393B	23/06/2017	10/07/2017	Monthly	Jun-17	0.7	0.8	
D3	Point 3	SAL26422B	28/07/2017	4/08/2017	Monthly	Jul-17	0.5	0.9	
D3	Point 3	SAL26475B	24/08/2017	31/08/2017	Monthly	Aug-17	0.6	0.9	
D3	Point 3	SAL26507B	20/09/2017	03/10/2017	Monthly	Sep-17	0.9	0.9	
D3	Point 3	SAL26547B	25/10/2017	2/11/2017	Monthly	Oct-17	0.9	0.9	
D3	Point 3	SAL26576B	17/11/2017	27/11/2017	Monthly	Nov-17	0.9	0.9	
D3	Point 3	SAL26621B	21/12/2017	23/01/2018	Monthly	Dec-17	1.4	0.9	
						Min.	0.5		
						Mean.	0.9		
						Max.	1.4		

Quarry Location Reference	EPA Identification Number	Sample Reference	Date Collected	Date Results Recieved from Lab	Monitoring Frequency	Month	Deposited Matter (g/m ² /month)	Rolling Average (g/m ² /month)	Deposited Matter SSD_6333 Limit
D4	Point 4	SAL26207B	20/01/2017	31/01/2017	Monthly	Jan-17	1.3	1.3	Air quality criteria is based on an averaging period from January - December in accordance with <i>Table 4: Air Quality Criteria</i> in SSD_6333.
D4	Point 4	SAL26236B	23/02/2017	31/03/2017	Monthly	Feb-17	1.6	1.3	
D4	Point 4	SAL26286B	29/03/2017	28/04/2017	Monthly	Mar-17	6.5*	1.2	
D4	Point 4	SAL26318B	26/04/2017	30/05/2017	Monthly	Apr-17	3.9	1.4	
D4	Point 4	SAL26355B	23/05/2017	19/06/2017	Monthly	May-17	1.5	1.4	
D4	Point 4	SAL26393B	23/06/2017	10/07/2017	Monthly	Jun-17	1.4	1.4	
D4	Point 4	SAL26422B	28/07/2017	4/08/2017	Monthly	Jul-17	1.4	1.3	
D4	Point 4	SAL26475B	24/08/2017	31/08/2017	Monthly	Aug-17	0.8	1.3	
D4	Point 4	SAL26507B	20/09/2017	03/10/2017	Monthly	Sep-17	1.6	1.4	
D4	Point 4	SAL26547B	25/10/2017	2/11/2017	Monthly	Oct-17	1.3	1.5	
D4	Point 4	SAL26576B	17/11/2017	27/11/2017	Monthly	Nov-17	1.1	1.5	
D4	Point 4	SAL26621B	21/12/2017	23/01/2018	Monthly	Dec-17	33.8**	1.6	
* Sample contaminated with bird droppings. This sample has been excluded from the annual average calculations. ** Sample contaminated with large amount of organic material (bark & leaves). This sample has been excluded from the annual average calculations.						Min.	0.8		
						Mean.	1.6		
						Max.	3.9		

Air Quality - Deposited Matter (Monthly Insoluble Solids)



Note:

- No EPL Limit specified
- Contaminated results have been excluded from this graph

EPL Monitoring



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Noise Monitoring

Please note: Noise limits are specified in EPL 4442 however, Oberon Quarries has established noise agreements with relevant landowners. The discontinuation of routine noise monitoring was approved by the Secretary on 25 January 2017.

Noise monitoring will be undertaken if a noise complaint relating to Quarry operations is unable to be resolved by Oberon Quarries or a landowner requests the DP&E to reinstate more frequent monitoring to assess compliance with relevant criteria.

Oberon Quarry Noise Management Plan can be accessed at:

http://oberonquarries.com.au/wp-content/uploads/2017/03/1296_R68_NMP_FINAL.pdf

Previous noise monitoring reports can be accessed at:

<http://oberonquarries.com.au/environmental-monitoring-results/>

EPL Monitoring

Production Blast and Rock Popping Monitoring



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Quarry Location Reference	Blasting Type	EPA Number	Date of Blast	Time of Blast	Peak Vector Sum Velocity (mm/s)	Peak Overpressure (dBL)	Monitoring Frequency
Nearest residence	Production	N/A	13/03/2017	13:22	0.8	108.0	No more than 2 blasts per week, unless an additional blast is required following a blast misfire.
Nearest residence	Production	N/A	18/04/2017	14:02	1.0	109.1	
Nearest residence	Production	N/A	22/05/2017	12:57	Below limit of detection		
	Rock Popping	N/A	14/06/2017	12:52			
	Rock Popping	N/A	15/06/2017	10:37			
Back Gate	Production	N/A	22/06/2017	13:28	Below limit of detection		
Nearest residence	Production	N/A	19/07/2017	12:51	4.9	128.7^	
Nearest residence	Production	N/A	27/10/2017	12:20	Below limit of detection		
Back Gate	Production	N/A	11/12/2017	13:09	Below limit of detection		

^ result above approved EPL and SSD_6333 airblast overpressure criteria limit. Relevant authorities, and affected residence notified of the non compliance within 7 days of the non-compliance occurring. Affected residents notified that airblast overpressure and ground vibration had returned to levels below nominated criteria on 24/11/2017.

Note:

* Review of the 2017 blast monitoring results has shown an inconsistency of the terminology used to describe the blast monitoring location (e.g. 22/06/2017 and 11/12/2017). Oberon has reiterated the importance of undertaking blast monitoring at the approved location with its blasting contractor Orica. As of February 2018, Oberon Quarry will be accompanying Orica during blasting events to confirm blast monitoring is undertaken at the approved location.

* Rock popping is the secondary fracturing of oversize rocks. This involves the drilling of typically one hole into each of the oversized rocks and the use of a small explosive charge. Given the scale of rock popping the vibration and overpressure levels are expected to be well below criteria. Oberon Quarry will monitor a future rock popping event to validate this expectation.

* Oberon Quarry currently has a noise agreement in place with surrounding residents for the generation of higher noise levels than that detailed in the consent. In March 2018 Oberon Quarry will be seeking to establish a blasting agreement with these residents.

* No complaints have been received or physical impacts to private property reported to Oberon Quarry as a result of the blasting activities.

Blast Compliance Criteria

Blast Compliance Criteria

L4.1

The airblast overpressure level from blasting must not exceed 115 (dB(Lin Peak)) at any noise sensitive locations for more than 5 % of the total number of blasts during over each reporting period;

L4.2:

The airblast overpressure level from blasting must not exceed 120 (dB(Lin Peak)) at any time at any noise sensitive locations;

L4.3:

Ground vibration peak particle velocity from the blasting must not exceed 5 mm/s at any noise sensitive locations for more than 5 % of the total number of blasts over each reporting period; and

L4.4:

Ground vibration peak particle velocity from the blasting must not exceed 10 mm/s at any time at any noise sensitive locations.

Blast SSD_6333 Limits

In accordance with Table 3: Blasting Criteria in SSD_6333.

The airblast overpressure level from blasting operations must not exceed:

* 115 (dB(Lin Peak)) for more than 5 % of the total number of blasts during over each reporting period; and

* 120 (dB(Lin Peak)) at any time.

The ground vibration peak particle velocity from blasting operations must not exceed:

* 5 mm/s for more than 5 % of the total number of blasts carried out on the premises during over each reporting period; and

* 10 mm/s at any time;

* at any point within one metre of any affected residential boundary or other noise sensitive area in the vicinity of the plant.