	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82937	
		Vendor Doc #	N/A	
Date: 23-Jan-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF / #37
Blast date & time	23 January 2018, 16:00
Number of blast holes	225
Maximum depth (m)	3.2
Explosive charge (kg)	1500
Weather conditions	High cloud. Cold and bright.
Monitored by	G. Yeghian / A. Pepanyan

Monitoring summary

Compliance limit exceeded at Gndevaz monitoring station.

Monitoring data

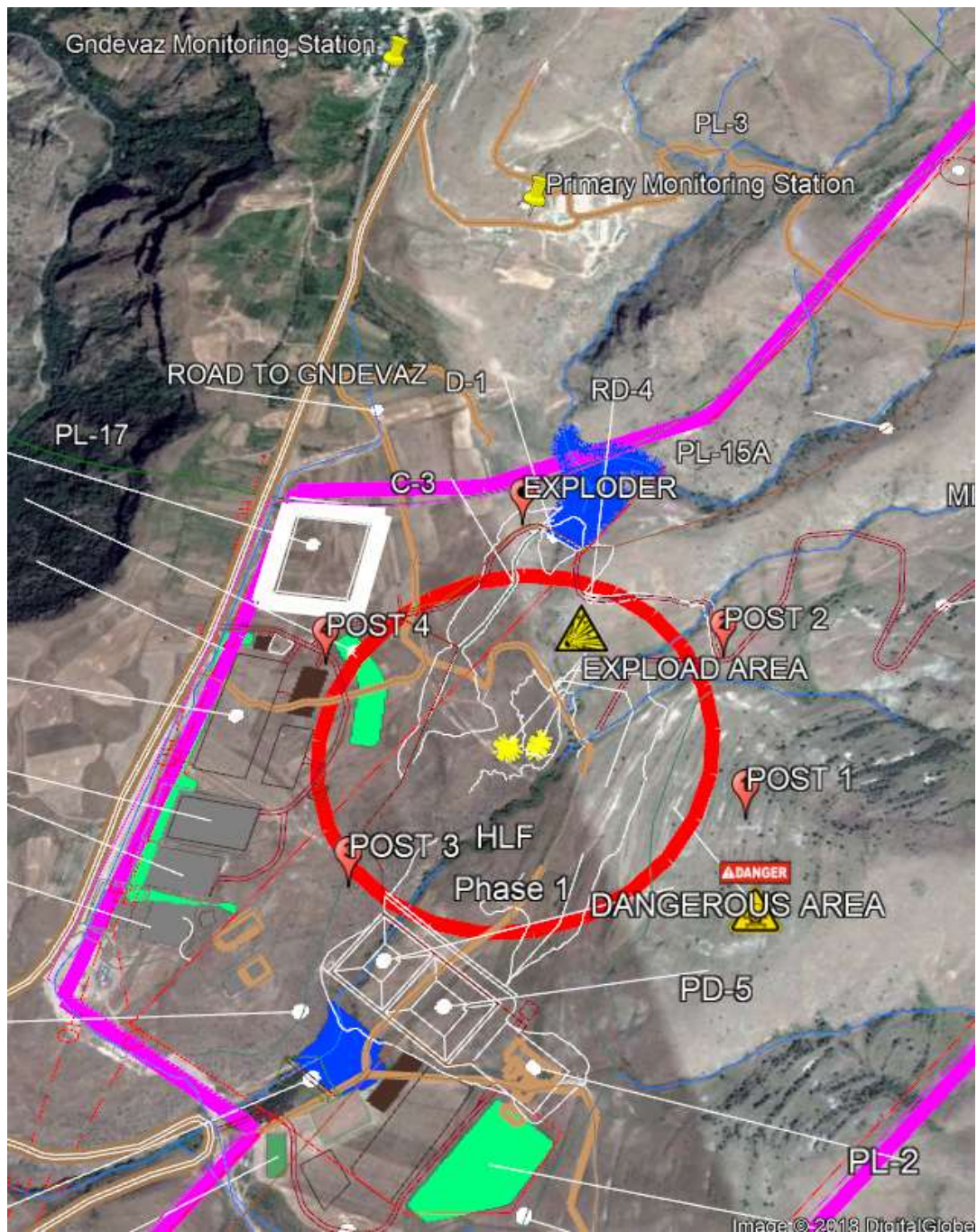
Monitoring Station ID:	Gndevaz Monitoring point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.355
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	115.4
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Monitoring Station ID:	Primary Monitoring Station
Distance from blast (km):	1.25
	Result
Ground vibration (peak particle velocity, mm/s)	0.347
Air overpressure (peak sound pressure level, dBL)	117.9
^a Data presented for information only	

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82937	
		Vendor Doc #	N/A	
Date: 23-Jan-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82938	
		Vendor Doc #	N/A	
Date: 25-Jan-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	PL4 / #38
Blast date & time	25 January 2018, 16:30
Number of blast holes	265
Maximum depth (m)	7.0
Explosive charge (kg)	5724
Weather conditions	Cold and clear. Light wind (E-W)
Monitored by	G. Yeghian / A. Pepanyan

Monitoring summary

There was no exceedance of the trigger or compliance limits.

Monitoring data

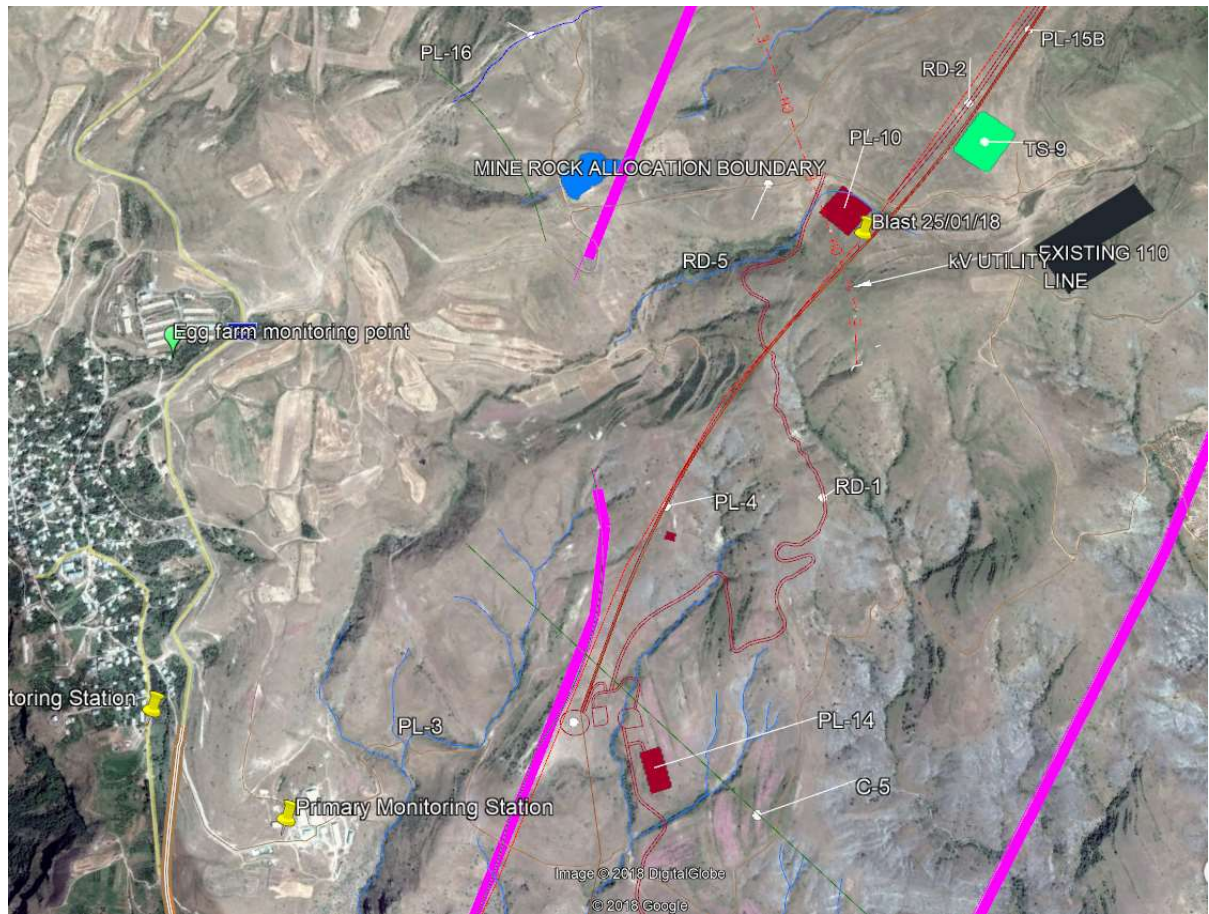
Monitoring Station ID:	Gndevaz Monitoring point (egg farm)		
Distance from blast (km):	2.2		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.276
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	90.7
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Monitoring Station ID:	Primary Monitoring Station
Distance from blast (km):	2.5
	Result
Ground vibration (peak particle velocity, mm/s)	0.339
Air overpressure (peak sound pressure level, dBL)	115.6
^a Data presented for information only	

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82938	
		Vendor Doc #	N/A	
Date: 25-Jan-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82939	
		Vendor Doc #	N/A	
Date: 29-Jan-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF / #39
Blast date & time	29 January 2018, 16:00
Number of blast holes	246
Maximum depth (m)	3.8
Explosive charge (kg)	2150
Weather conditions	Clear and cold. No noticeable wind.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan / Hayk

Monitoring summary

There was no exceedance of the trigger or compliance limits.

Monitoring data

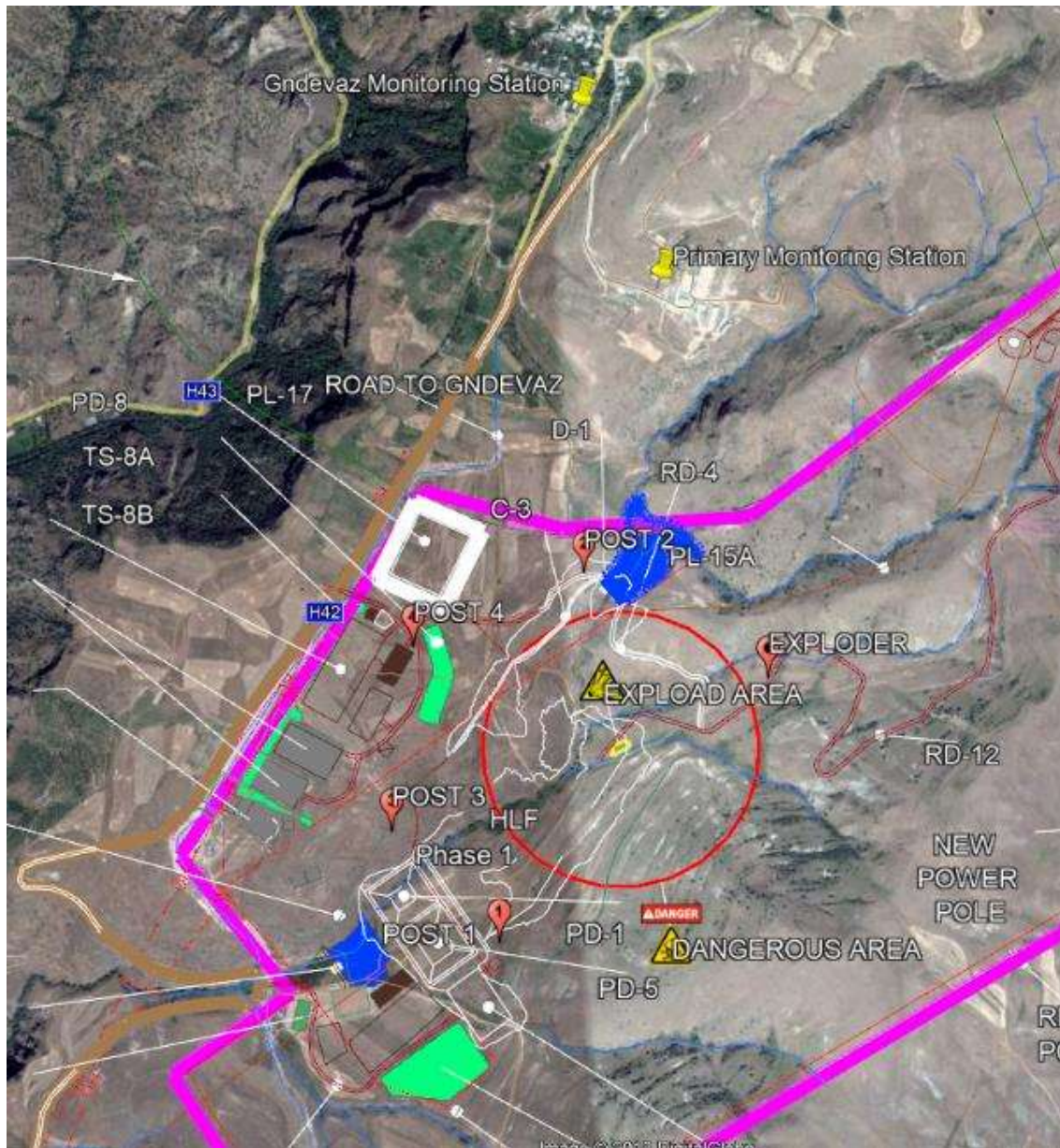
Monitoring Station ID:	Gndevaz Monitoring point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.268
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	95.4
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Monitoring Station ID:	Primary Monitoring Station
Distance from blast (km):	1.15
	Result ^a
Ground vibration (peak particle velocity, mm/s)	0.229
Air overpressure (peak sound pressure level, dBL)	98.2
^a Data presented for information only	

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82939	
		Vendor Doc #	N/A	
Date: 29-Jan-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82940	
		Vendor Doc #	N/A	
Date: 06-Feb-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	PL4 / #40
Blast date & time	06 February 2018, 16:30
Number of blast holes	185
Maximum depth (m)	5.0
Explosive charge (kg)	1589.2
Weather conditions	Clear and cold. No noticeable wind.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan / Hayk

Monitoring summary

There was no exceedance of the trigger or compliance limits.

Monitoring data

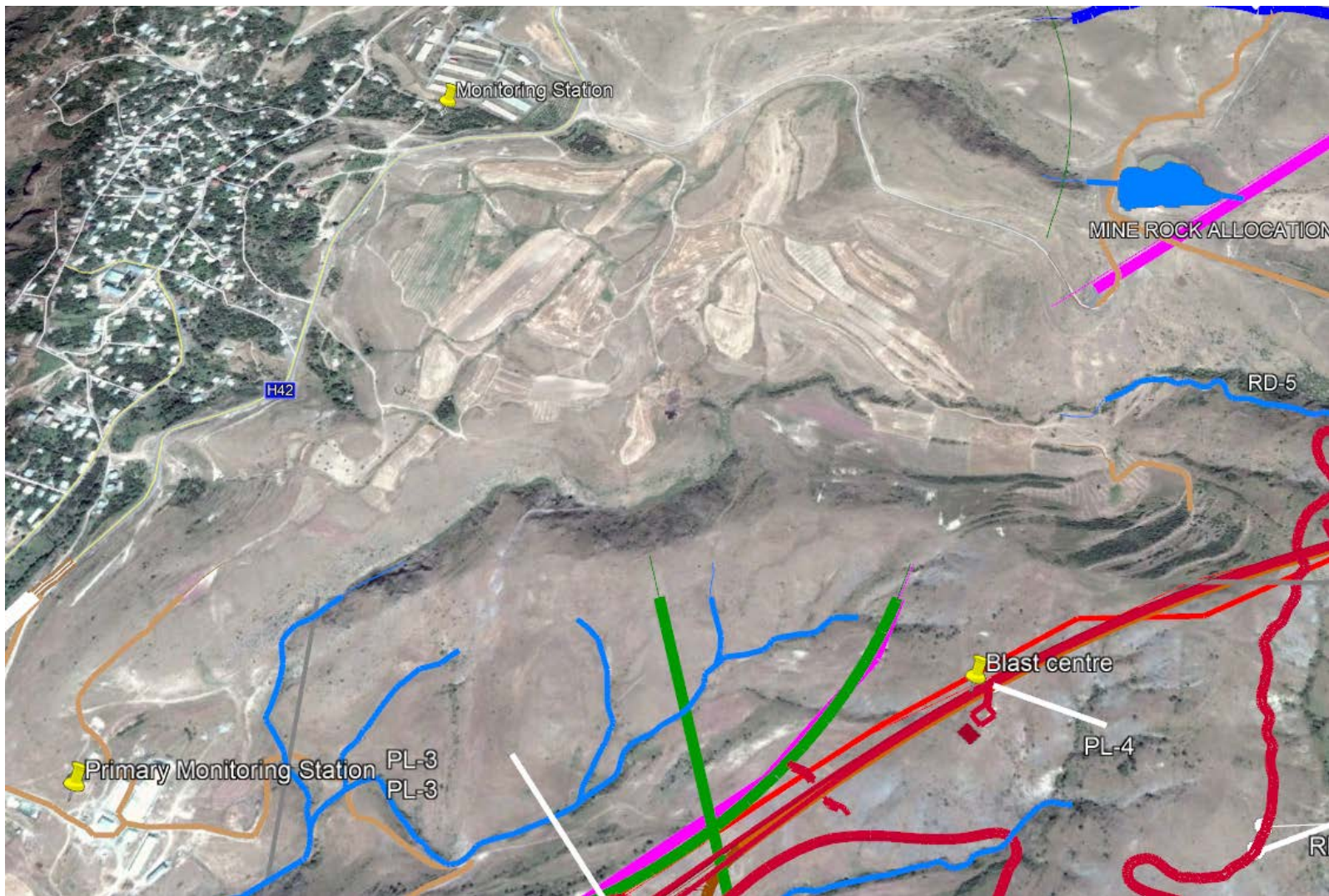
Monitoring Station ID:	Gndevaz Monitoring point (egg farm)		
Distance from blast (km):	1.6		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.229
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	95.7
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Monitoring Station ID:	Primary Monitoring Station
Distance from blast (km):	1.5
	Result
Ground vibration (peak particle velocity, mm/s)	0.221
Air overpressure (peak sound pressure level, dBL)	103.7
^a Data presented for information only	

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

 LYDIAN ARMENIA	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82940	
		Vendor Doc #	N/A	
Date: 06-Feb-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82941	
		Vendor Doc #	N/A	
Date: 07-Feb-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF / #41
Blast date & time	07 February 2018, 15:30
Number of blast holes	204
Maximum depth (m)	3.2
Explosive charge (kg)	1183
Weather conditions	Clear, sunny. No noticeable wind.
Monitored by	G. Yeghian / G. Karapetyan / H. Sargsyan / M. Arshakyan

Monitoring summary

Equipment deployed at the Gndevaz Monitoring Point returned results suggesting non-compliance (see * below). However, testing of the device on 9 February 2018 determined that it is malfunctioning. The results are not trusted and the blast is believed to have been compliant, given the PMS result.


Monitoring data

Monitoring Station ID:	Gndevaz Monitoring Point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.221*
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	137*
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Monitoring Station ID:	Primary Monitoring Station (PMS)
Distance from blast (km):	1.2
	Result ^a
Ground vibration (peak particle velocity, mm/s)	0.213
Air overpressure (peak sound pressure level, dBL)	104
^a Data presented for information only	

Instrumentation:

- InstanTel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82941	
		Vendor Doc #	N/A	
Date: 07-Feb-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82942	
		Vendor Doc #	N/A	
Date: 08-Feb-18	Blast Monitoring Report	Rev#	1	Page 1 of 2

Blast location / number	HLF / #42
Blast date & time	08 February 2018, 15:30
Number of blast holes	150
Maximum depth (m)	5.0
Explosive charge (kg)	1252
Weather conditions	Clear, sunny, light to moderate wind from east
Monitored by	G. Karapetyan / G. Sargsyan

Monitoring summary

There was no exceedance of the trigger or compliance limits at the Gndevaz monitoring point.

Monitoring data


Monitoring Station ID:	Gndevaz Monitoring Point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.394
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	98.1
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Monitoring Station ID:	Primary Monitoring Station (PMS)
Distance from blast (km):	1.2
	Result^a
Ground vibration (peak particle velocity, mm/s)	Malfunction*
Air overpressure (peak sound pressure level, dBL)	Malfunction*
^a Data presented for information only	

*** Suspect results returned: unit was tested on 9 February 2018 and found to be malfunctioning. Results have therefore been withdrawn.**

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82942	
		Vendor Doc #	N/A	
Date: 08-Feb-18	Blast Monitoring Report	Rev#	1	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82943	
		Vendor Doc #	N/A	
Date: 09-Feb-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	PL4 / #43
Blast date & time	09 February 2018, 16:30
Number of blast holes	170
Maximum depth (m)	Not available
Explosive charge (kg)	2245.6
Weather conditions	Clear, sunny, cold. Cloud coming in from east, light wind.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan

Monitoring summary

There was no exceedance of the trigger or compliance limits at the monitoring point.

Monitoring data

Monitoring Station ID:	Gndevaz Monitoring point (chicken farm)		
Distance from blast (km):	2.25		
	Compliance limit	Trigger limit^c	Result*
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.158
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	95.6
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


*** For this blast, two monitoring devices were deployed side-by-side at one monitoring location, in order to investigate a potential problem with one of the devices. The device under question returned results of 0.236 mm/s and 137.1 dB. The latter is exactly the same as for the previous two blasts; this unit is confirmed to be malfunctioning.**

Instrumentation:

- InstanTel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

 LYDIAN ARMENIA	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82943	
		Vendor Doc #	N/A	
Date: 09-Feb-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82944	
		Vendor Doc #	N/A	
Date: 14-Feb-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF / #44
Blast date & time	14 February 2018, 16:00
Number of blast holes	169
Maximum depth (m)	3.6
Explosive charge (kg)	1500
Weather conditions	Overcast, snow on ground
Monitored by	G.Yeghiyan / G.Karapetyan

Monitoring summary

There was no exceedance of the trigger or compliance limits at the Gndevaz monitoring point.


Monitoring data

Monitoring Station ID:	Gndevaz Monitoring Point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.449
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	93.8
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Due to equipment malfunction, it was not possible to monitor at a second location.

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82944	
		Vendor Doc #	N/A	
Date: 14-Feb-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82945	
		Vendor Doc #	N/A	
Date: 15-Feb-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF / #45
Blast date & time	15 February 2018, 15:30 (changed from planned 16:00)
Number of blast holes	181
Maximum depth (m)	5
Explosive charge (kg)	1300
Weather conditions	Sunny, dry
Monitored by	G.Yeghiyan / G.Karapetyan

Monitoring summary

There was no exceedance of the trigger or compliance limits at the Gndevaz monitoring point.


Monitoring data

Monitoring Station ID:	Gndevaz Monitoring Point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.686
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	95.2
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Due to equipment malfunction, it was not possible to monitor at a second location.

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82945	
		Vendor Doc #	N/A	
Date: 15-Feb-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82946	
		Vendor Doc #	N/A	
Date: 21-Feb-18	Blast Monitoring Report	Rev#	1	Page 1 of 2

Blast location / number	HLF / #46
Blast date & time	21 February 2018, 15:00
Number of blast holes	140
Maximum depth (m)	5.0
Explosive charge (kg)	1630
Weather conditions	Sunny, dry
Monitored by	G.Yeghiyan / G.Karapetyan

Monitoring summary

The trigger limit for ground vibration was exceeded (marginally) at the Gndevaz monitoring point. The compliance limits were not exceeded.


Monitoring data

Monitoring Station ID:	Gndevaz Monitoring Point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	1.06
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	107.5
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Due to equipment malfunction, it was not possible to monitor at a second location.

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82946	
		Vendor Doc #	N/A	
Date: 21-Feb-18	Blast Monitoring Report	Rev#	1	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82947	
		Vendor Doc #	N/A	
Date: 23-Feb-18	Blast Monitoring Report	Rev#	1	Page 1 of 2

Blast location / number	HLF / #47
Blast date & time	23 February 2018, 15:00
Number of blast holes	140
Maximum depth (m)	5.0
Explosive charge (kg)	1311
Weather conditions	Overcast, dry
Monitored by	G.Karapetyan / M.Arshakyan

Monitoring summary

Neither the trigger nor compliance limits were exceeded at the Gndevaz monitoring point.


Monitoring data

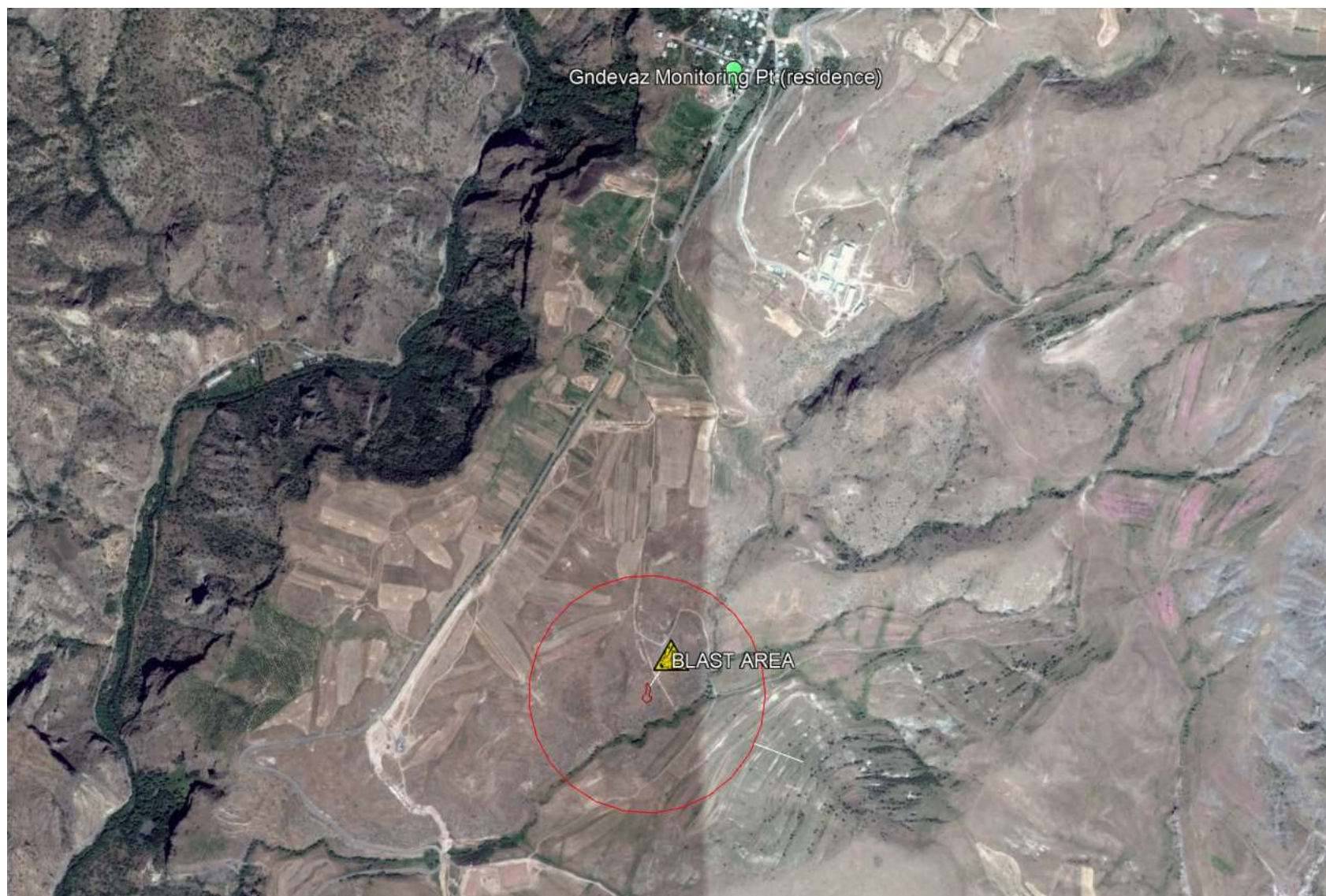
Monitoring Station ID:	Gndevaz Monitoring Point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.615
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	95.4
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Due to equipment malfunction, it was not possible to monitor at a second location.

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82947	
		Vendor Doc #	N/A	
Date: 23-Feb-18	Blast Monitoring Report	Rev#	1	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82948	
		Vendor Doc #	N/A	
Date: 23-Feb-18	Blast Monitoring Report	Rev#	1	Page 1 of 2

Blast location / number	PL-4 / #48
Blast date & time	23 February 2018, 17:16 (planned at 17:00)
Number of blast holes	366
Maximum depth (m)	7.0
Explosive charge (kg)	8357
Weather conditions	Overcast, dry
Monitored by	G.Karapetyan

Monitoring summary

Neither the trigger nor the compliance limits for ground vibration or air overpressure were exceeded at the Gndevaz monitoring point.


Monitoring data

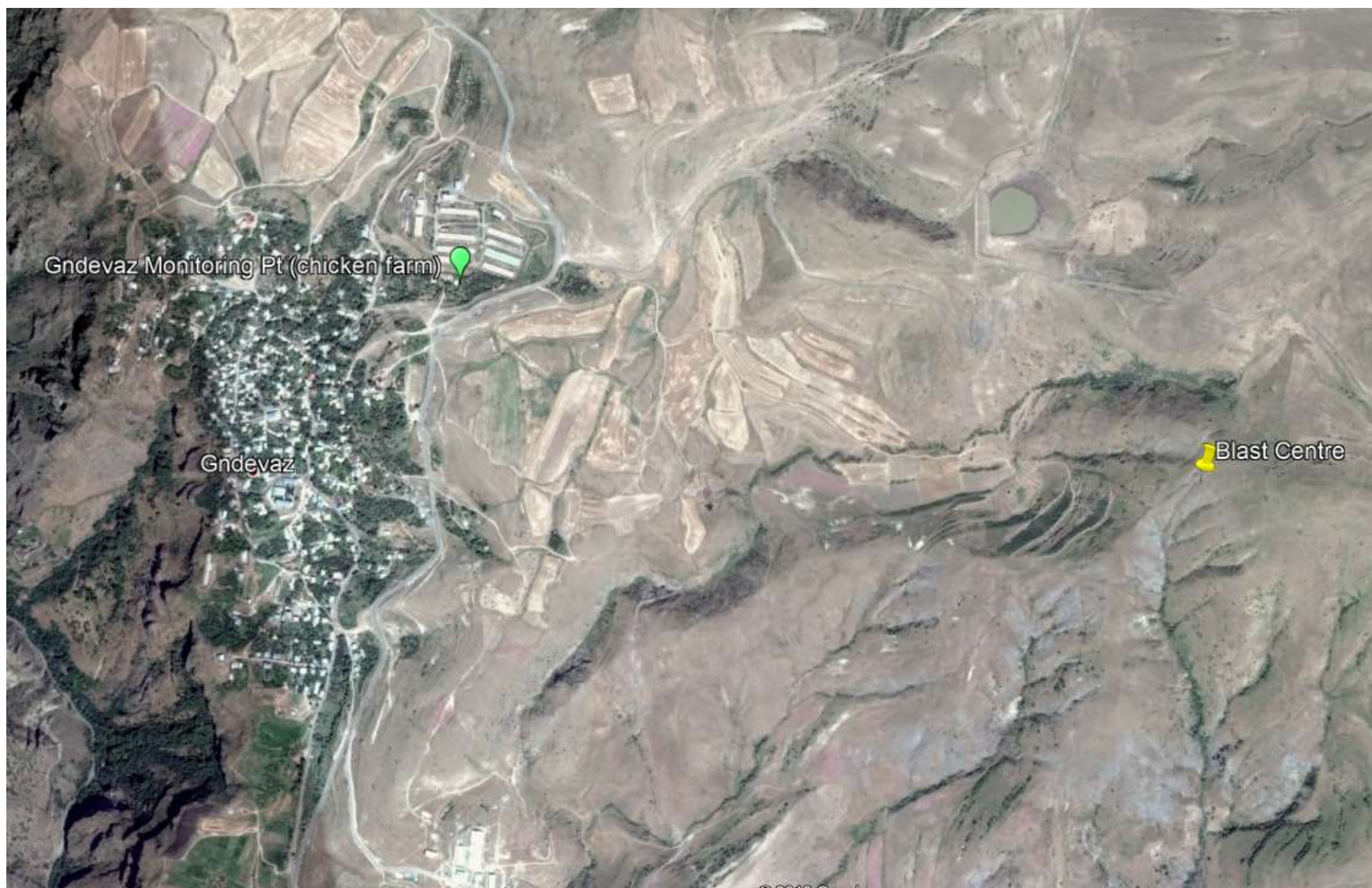
Monitoring Station ID:	Gndevaz Monitoring Point (chicken farm)		
Distance from blast (km):	2.0		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.363
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	99.2
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			


Due to equipment malfunction, it was not possible to monitor at a second location.

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82948	
		Vendor Doc #	N/A	
Date: 23-Feb-18	Blast Monitoring Report	Rev#	1	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82949	
		Vendor Doc #	N/A	
Date: 01-Mar-18	Blast Monitoring Report	Rev#	1	Page 1 of 2

Blast location / number	HLF / #49
Blast date & time	1 March 2018, 16:00
Number of blast holes	260
Maximum depth (m)	3.5
Explosive charge (kg)	1534
Weather conditions	Dry
Monitored by	Artur Pepanyan

Monitoring summary

Neither the trigger nor compliance limits were exceeded at the Gndevaz monitoring point.


Monitoring data

Monitoring Station ID:	Gndevaz Monitoring Point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.213
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	106
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Due to equipment malfunction, it was not possible to monitor at a second location.

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

 LYDIAN ARMENIA	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: VAYOTS DZOR PROVINCE, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82949	
		Vendor Doc #	N/A	
Date: 01-Mar-18	Blast Monitoring Report	Rev#	1	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82950	
		Vendor Doc #	N/A	
Date: 02-Mar-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	PL4 / #50
Blast date & time	02 March 2018, 16:00
Number of blast holes	75
Maximum depth (m)	4.3
Explosive charge (kg)	927.6
Weather conditions	Clear and cold. No noticeable wind.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan

Monitoring summary

There was no exceedance of the trigger or compliance limits.


The Minimate output for this blast shows a higher, but still compliant, Sound Level result (at 16:00:21) which was from a car driving past the monitoring point.

Monitoring data

Monitoring Station ID:	Gndevaz Monitoring point (egg farm)		
Distance from blast (km):	2.2		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.205
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	81.2
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

 LYDIAN ARMENIA	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82950	
		Vendor Doc #	N/A	
Date: 02-Mar-18	Blast Monitoring Report	Rev#	0	Page 2 of 2



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82951	
		Vendor Doc #	N/A	
Date: 07-Mar-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF/ #51
Blast date & time	07 March 2018, 16:00
Number of blast holes	226
Maximum depth (m)	6.5
Explosive charge (kg)	1600
Weather conditions	Rain before blast. Overcast with clear patches. No noticeable wind.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan

Monitoring summary

There was no exceedance of the trigger or compliance limits.

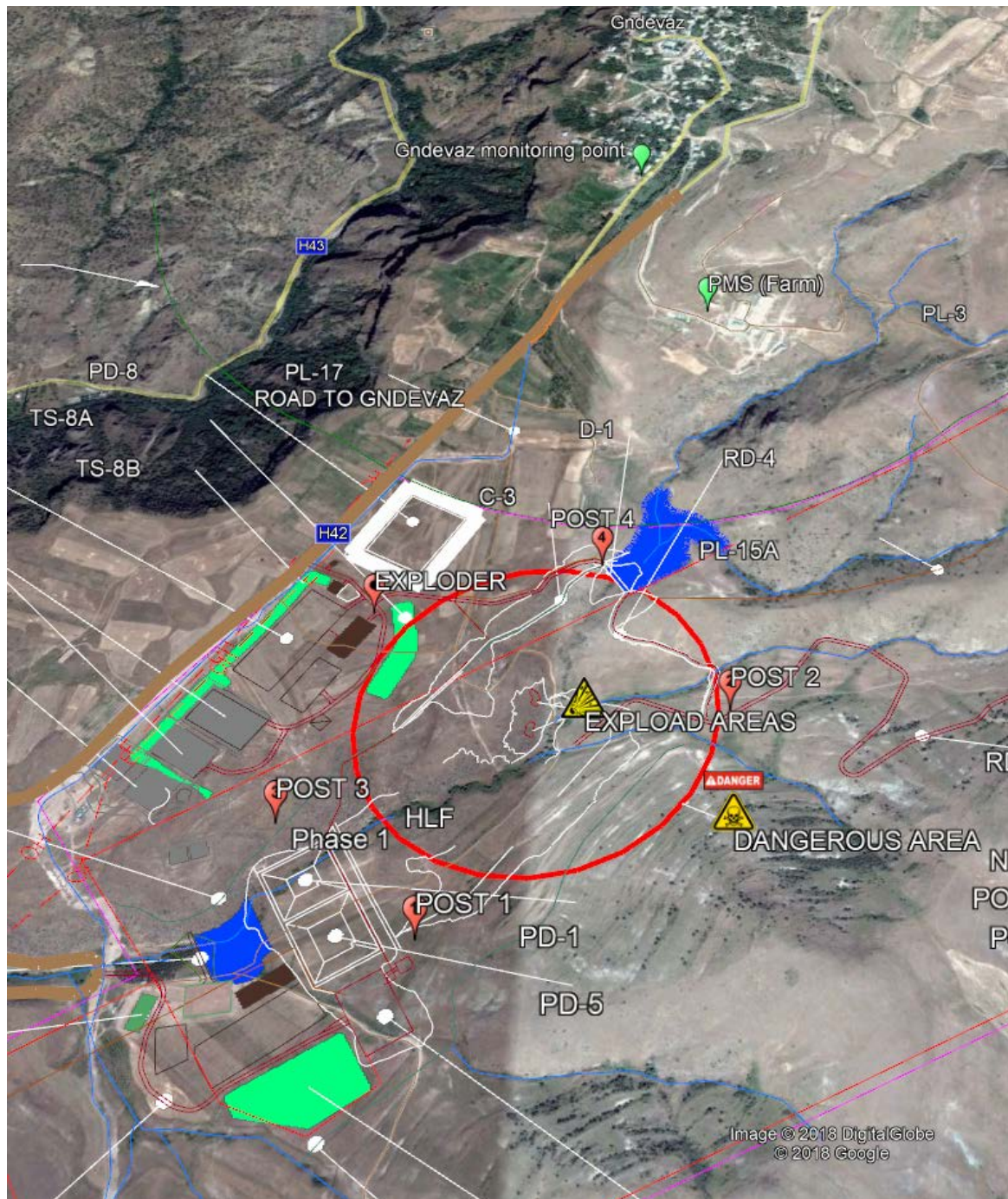
Monitoring data

Monitoring Station ID:	Gndevaz Village monitoring point		
Distance from blast (km):	1.59		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.244
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	103.9
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82951	
		Vendor Doc #	N/A	
Date: 07-Mar-18	Blast Monitoring Report	Rev#	0	Page 2 of 2





Event Report

Start	March 7, 2018 15:57:24	Serial Number	MP13854
Finish	March 7, 2018 16:01:02	Model Number	Minimate Pro 6 10.73
Number of Intervals/Interval	43.60/5 sec	Battery Level	3.8 volts
Sample Rate	1024 sps	Unit Calibration	March 31, 2017 by Instantel
Operator/Setup File Name	Operator 2/custom.nsb	Geophone Calibration	SE13571, March 31, 2017 by Instantel
Job Number	1	Microphone Calibration	SL12972, March 31, 2017 by Instantel
Notes		Event File Name	MP13854_20180307155724.IDFH
Location:			
Client:			
User Name:			
General:			

Post Event Notes No text to be displayed.

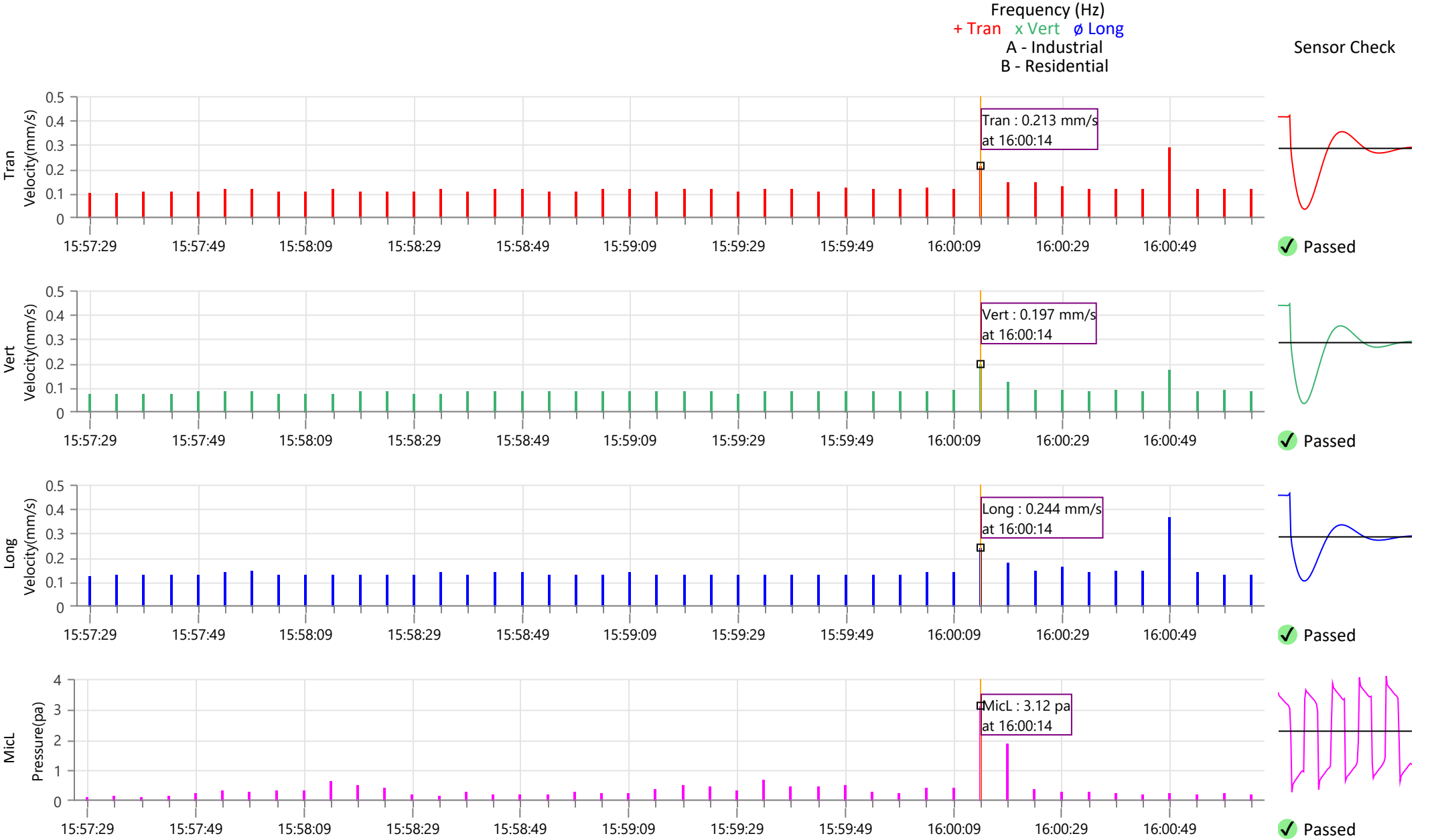
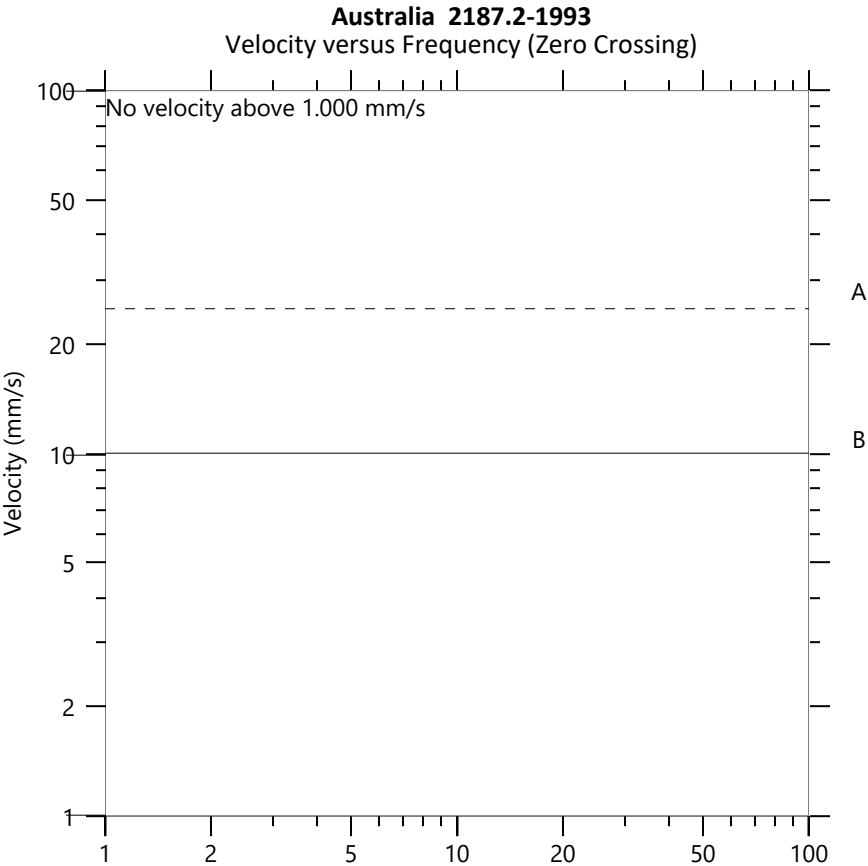
ISEE Triaxial Geophone

Peak Particle Velocity	0.292 mm/s	Tran	0.197 mm/s	Vert	0.370 mm/s	Long
Zero Crossing Frequency	42.7 Hz		4.2 Hz		36.6 Hz	
Date	Mar 7, 2018		Mar 7, 2018		Mar 7, 2018	
Time	16:00:47		16:00:12		16:00:49	
Sensor Check	Passed		Passed		Passed	
Frequency	7.4 Hz		7.6 Hz		7.5 Hz	
Overswing Ratio	3.6		3.6		3.6	

Peak Vector Sum 0.396 mm/s at March 7, 2018 16:00:49

ISEE Linear Microphone

Peak Sound Pressure Level	3.12 pa
Peak Sound Pressure Level	103.9 dB(L)
Date	Mar 7, 2018
Time	16:00:13
Zero Crossing Frequency	15.1 Hz
Sensor Check	Passed
Frequency	20.4 Hz
Test Amplitude	1892 mv



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82952	
		Vendor Doc #	N/A	
Date: 14-Mar-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF/ #52
Blast date & time	14 March 2018, 16:00
Number of blast holes	185
Maximum depth (m)	8.0
Explosive charge (kg)	2200
Weather conditions	Overcast with clear patches. No noticeable wind.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan

Monitoring summary

There was no exceedance of the trigger or compliance limits.

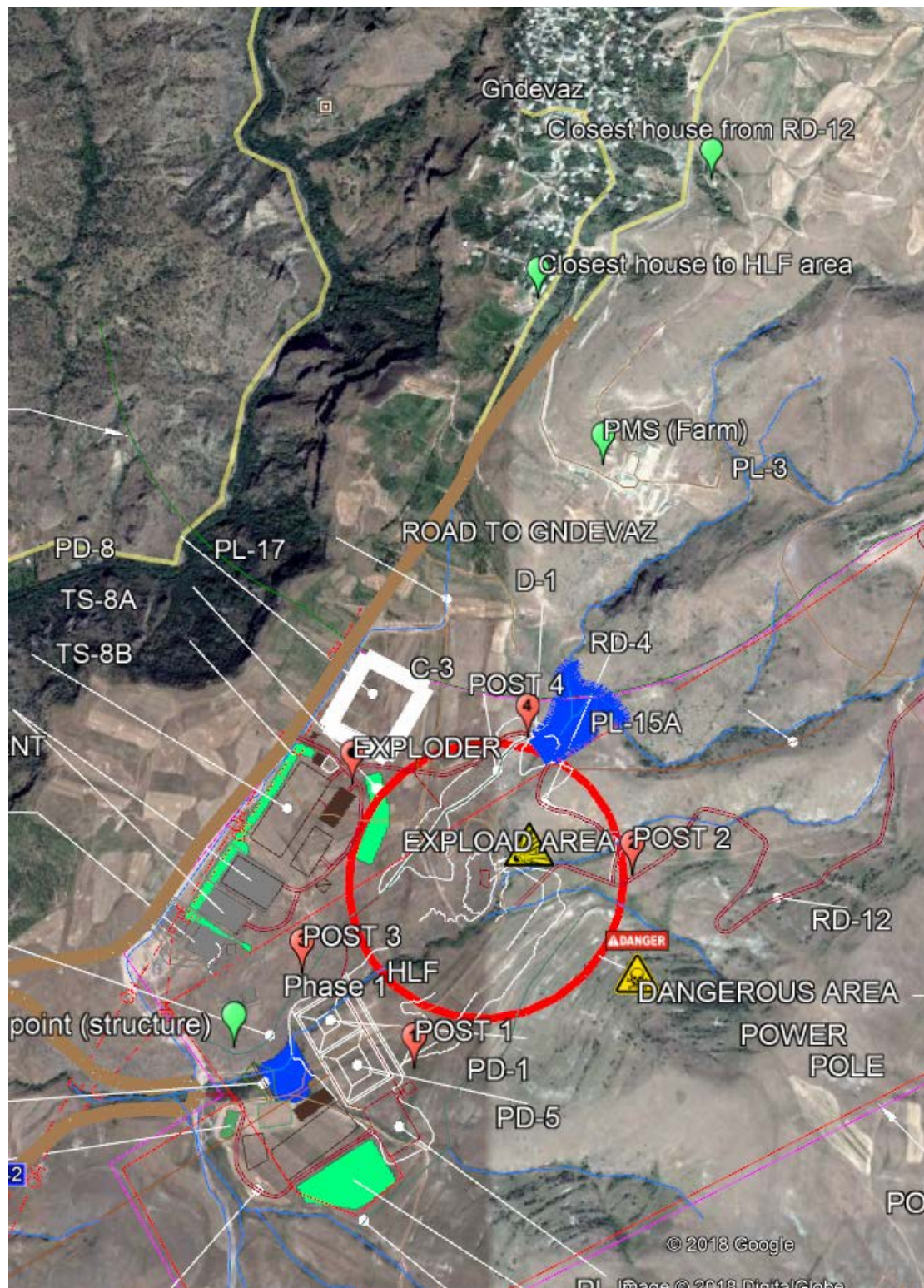
Monitoring data

Monitoring Station ID:	Gndevaz Village monitoring point		
Distance from blast (km):	1.62		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.197
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	98.6
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82952	
		Vendor Doc #	N/A	
Date: 14-Mar-18	Blast Monitoring Report	Rev#	0	Page 2 of 2





Event Report

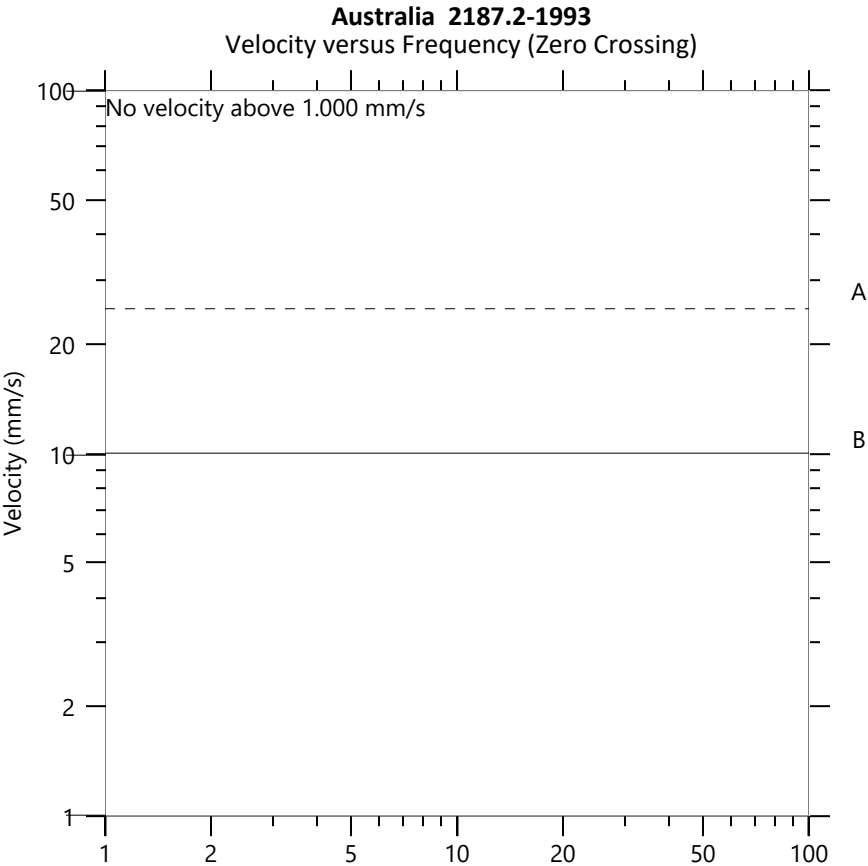
Start	March 14, 2018 15:55:16	Serial Number	MP13854
Finish	March 14, 2018 16:01:32	Model Number	Minimate Pro 6 10.73
Number of Intervals/Interval	75.20/5 sec	Battery Level	3.8 volts
Sample Rate	1024 sps	Unit Calibration	March 31, 2017 by Instantel
Operator/Setup File Name	Operator 2/custom.nsb	Geophone Calibration	SE13571, March 31, 2017 by Instantel
Job Number	1	Microphone Calibration	SL12972, March 31, 2017 by Instantel
		Event File Name	MP13854_20180314155516.IDFH

Notes
Location:
Client:
User Name:
General:

Post Event Notes No text to be displayed.

ISEE Triaxial Geophone	Tran	Vert	Long
Peak Particle Velocity	0.686 mm/s	0.205 mm/s	0.481 mm/s
Zero Crossing Frequency	51.2 Hz	64.0 Hz	N/A
Date	Mar 14, 2018	Mar 14, 2018	Mar 14, 2018
Time	16:01:26	16:01:24	16:01:26
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.5 Hz	7.7 Hz	7.6 Hz
Overswing Ratio	3.2	3.4	3.2
Peak Vector Sum	0.696 mm/s at March 14, 2018 16:01:26		

ISEE Linear Microphone	
Peak Sound Pressure Level	1.71 pa
Peak Sound Pressure Level	98.6 dB(L)
Date	Mar 14, 2018
Time	16:00:33
Zero Crossing Frequency	10.7 Hz
Sensor Check	✓ Passed
Frequency	20.4 Hz
Test Amplitude	1767 mv



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82953	
		Vendor Doc #	N/A	
Date: 15-Mar-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF/ #53
Blast date & time	15 March 2018, 14:00
Number of blast holes	81
Maximum depth (m)	4.0
Explosive charge (kg)	550
Weather conditions	Overcast with clear patches. Strong wind during blast.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan

Monitoring summary

There was no exceedance of the trigger or compliance limits.

Monitoring data

Monitoring Station ID:	Gndevaz Village monitoring point		
Distance from blast (km):	1.70		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.820
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	107.9
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.



Event Report

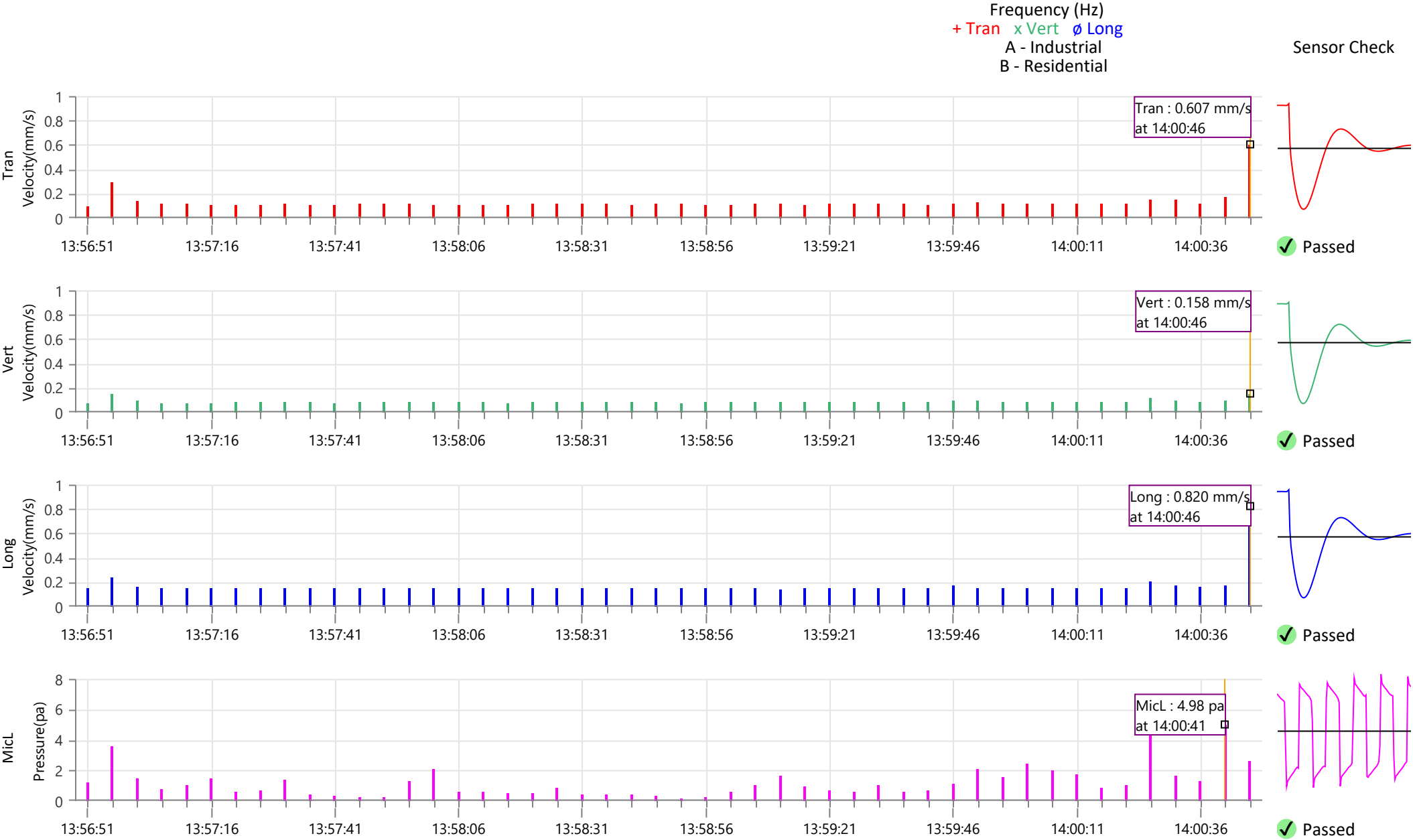
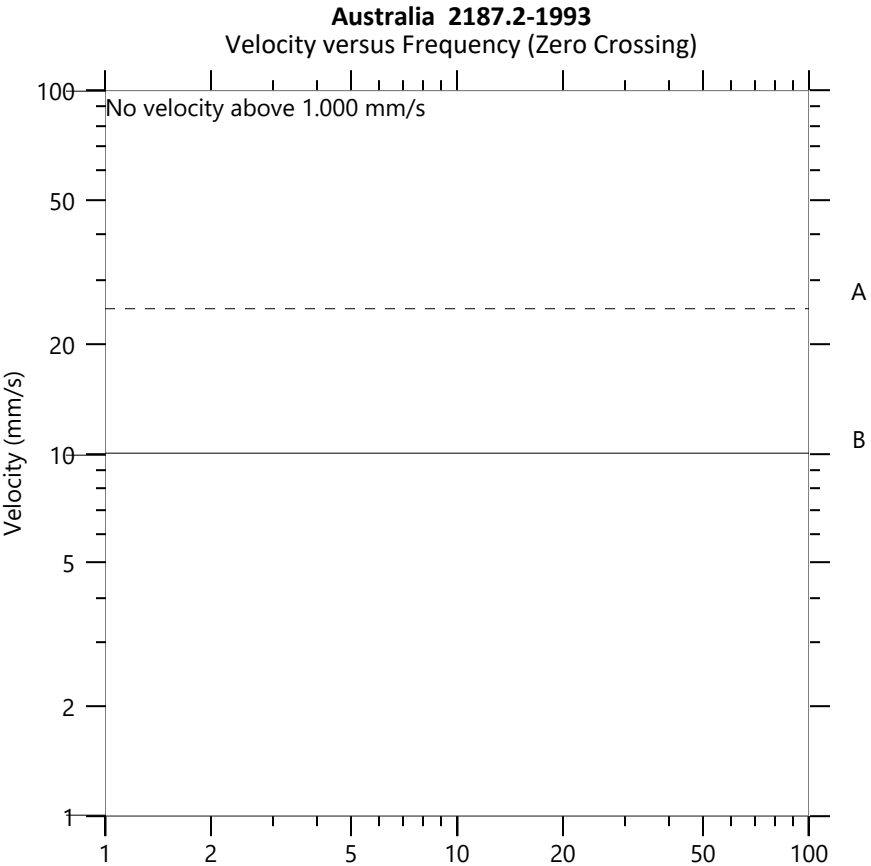
Start	March 15, 2018 13:56:46	Serial Number	MP13854
Finish	March 15, 2018 14:00:47	Model Number	Minimate Pro 6 10.73
Number of Intervals/Interval	48.00/5 sec	Battery Level	3.8 volts
Sample Rate	1024 sps	Unit Calibration	March 31, 2017 by Instantel
Operator/Setup File Name	Operator 2/custom.nsb	Geophone Calibration	SE13571, March 31, 2017 by Instantel
Job Number	1	Microphone Calibration	SL12972, March 31, 2017 by Instantel
		Event File Name	MP13854_20180315135646.IDFH

Notes
Location:
Client:
User Name:
General:

Post Event Notes No text to be displayed.

ISEE Triaxial Geophone	Tran	Vert	Long
Peak Particle Velocity	0.607 mm/s	0.158 mm/s	0.820 mm/s
Zero Crossing Frequency	46.5 Hz	<1 Hz	51.2 Hz
Date	Mar 15, 2018	Mar 15, 2018	Mar 15, 2018
Time	14:00:42	13:56:53	14:00:42
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.6 Hz	7.7 Hz	7.5 Hz
Overswing Ratio	3.1	3.3	3.1
Peak Vector Sum	0.863 mm/s at March 15, 2018 14:00:42		

ISEE Linear Microphone	
Peak Sound Pressure Level	5.73 pa
Peak Sound Pressure Level	109.1 dB(L)
Date	Mar 15, 2018
Time	14:00:26
Zero Crossing Frequency	17.7 Hz
Sensor Check	✓ Passed
Frequency	20.4 Hz
Test Amplitude	1719 mv



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82954	
		Vendor Doc #	N/A	
Date: 21-Mar-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF/ #54
Blast date & time	21 March 2018, 14:00
Number of blast holes	90
Maximum depth (m)	4.0
Explosive charge (kg)	700
Weather conditions	Overcast with clear patches some rain morning before blast. No wind.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan

Monitoring summary

There was no exceedance of the trigger or compliance limits.

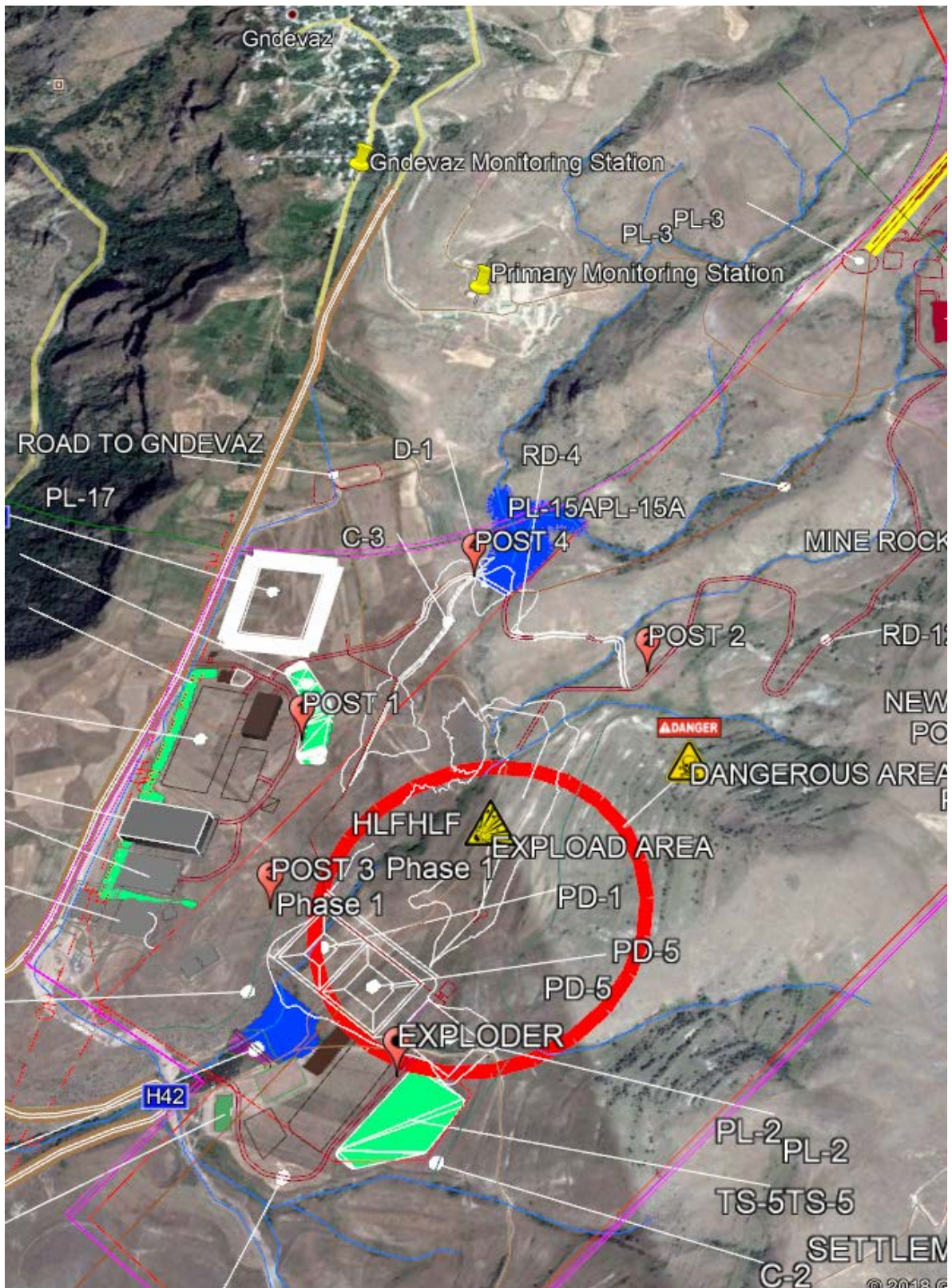
Monitoring data

Monitoring Station ID:	Gndevaz Village monitoring point		
Distance from blast (km):	2.06		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.173
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	105.1
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

 LYDIAN ARMENIA	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82954	
		Vendor Doc #	N/A	
Date: 21-Mar-18	Blast Monitoring Report	Rev#	0	Page 2 of 2





Event Report

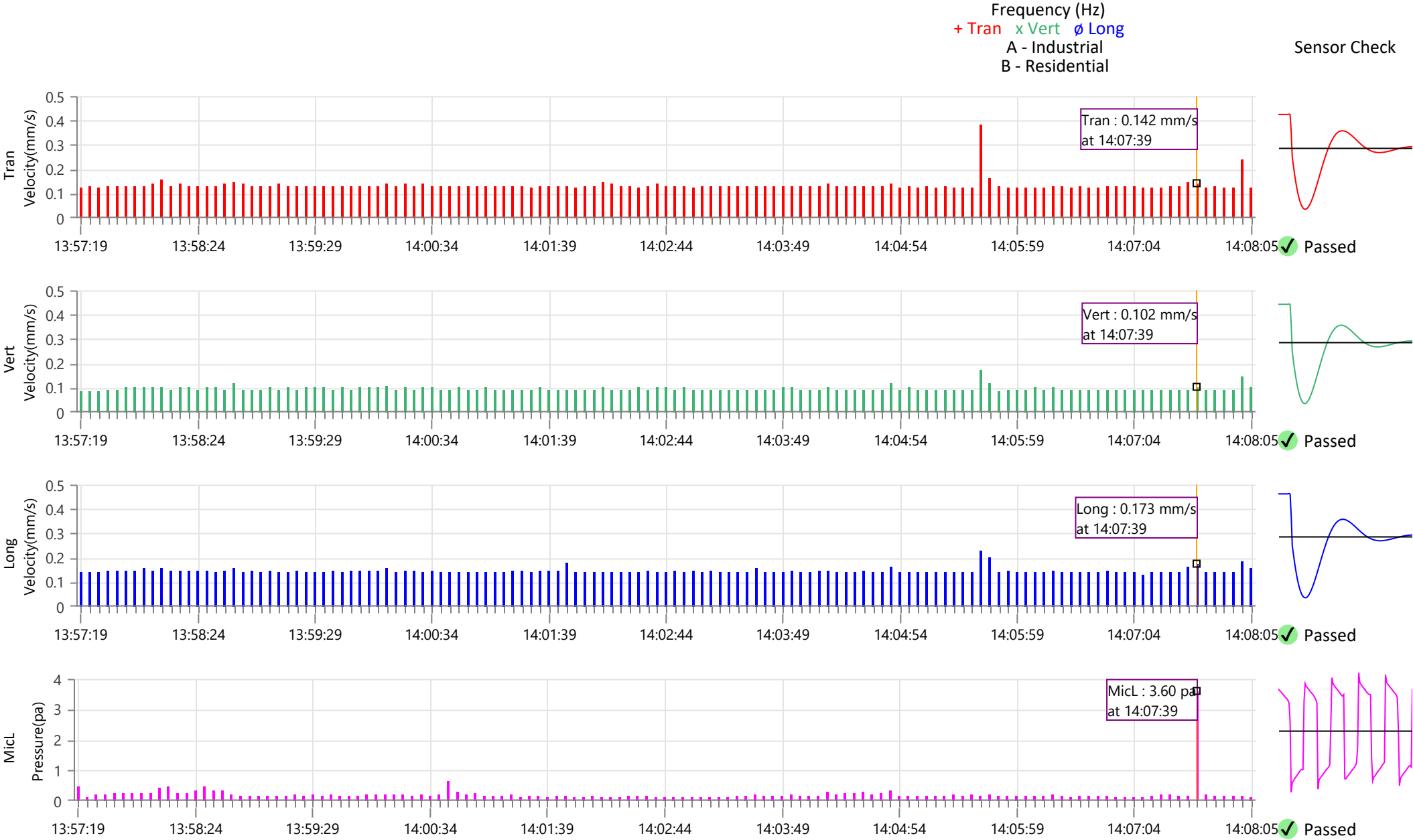
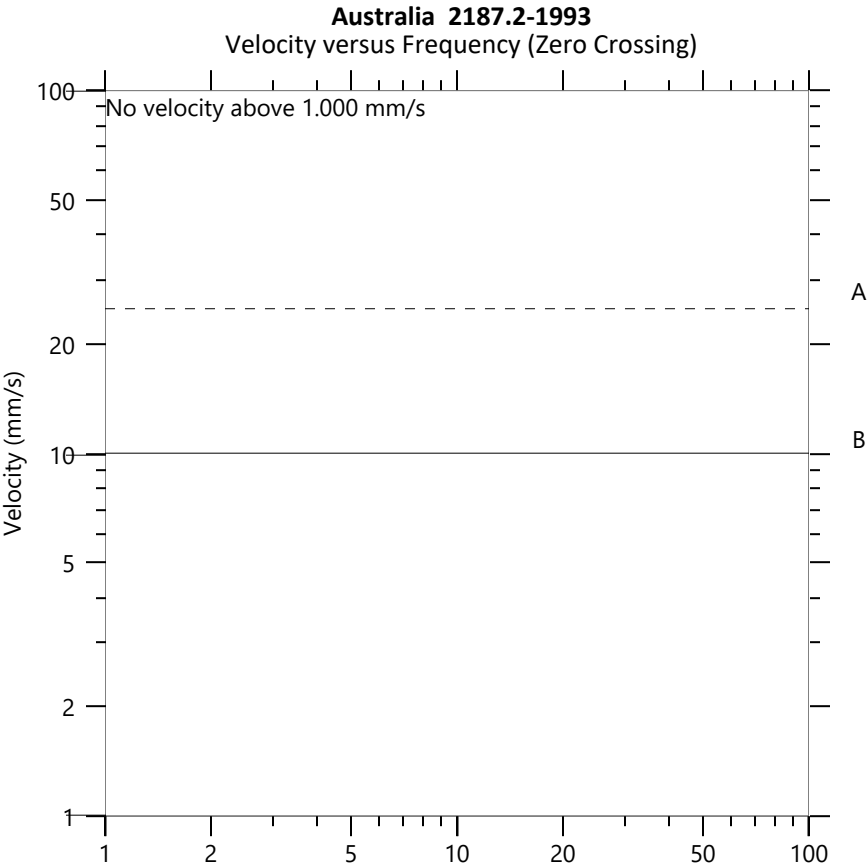
Start	March 21, 2018 13:57:14	Serial Number	MP13854
Finish	March 21, 2018 14:08:05	Model Number	Minimate Pro 6 10.73
Number of Intervals/Interval	130.20/5 sec	Battery Level	3.8 volts
Sample Rate	1024 sps	Unit Calibration	March 31, 2017 by Instantel
Operator/Setup File Name	Operator 2/custom.nsb	Geophone Calibration	SE13571, March 31, 2017 by Instantel
Job Number	1	Microphone Calibration	SL12972, March 31, 2017 by Instantel
		Event File Name	MP13854_20180321135714.IDFH

Notes
Location:
Client:
User Name:
General:

Post Event Notes No text to be displayed.

ISEE Triaxial Geophone	Tran	Vert	Long
Peak Particle Velocity	0.386 mm/s	0.173 mm/s	0.229 mm/s
Zero Crossing Frequency	56.9 Hz	<1 Hz	51.2 Hz
Date	Mar 21, 2018	Mar 21, 2018	Mar 21, 2018
Time	14:05:37	14:05:37	14:05:38
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.4 Hz	7.6 Hz	7.4 Hz
Overswing Ratio	3.4	3.4	3.4
Peak Vector Sum	0.400 mm/s at March 21, 2018 14:05:37		

ISEE Linear Microphone	
Peak Sound Pressure Level	3.60 pa
Peak Sound Pressure Level	105.1 dB(L)
Date	Mar 21, 2018
Time	14:07:37
Zero Crossing Frequency	16.0 Hz
Sensor Check	✓ Passed
Frequency	20.4 Hz
Test Amplitude	1757 mv



 LYDIAN ARMENIA	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82955	
		Vendor Doc #	N/A	
Date: 22-Mar-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	RD3/ #55
Blast date & time	22 March 2018, 16:00
Number of blast holes	125
Maximum depth (m)	4.5
Explosive charge (kg)	3100
Weather conditions	Overcast with clear patches. No wind.
Monitored by	G. Karapetyan / A. Milton

Monitoring summary

There was no exceedance of the trigger or compliance limits. Noise

The blast was just audible from the monitoring point but was quieter than local noise sources (traffic and animals).

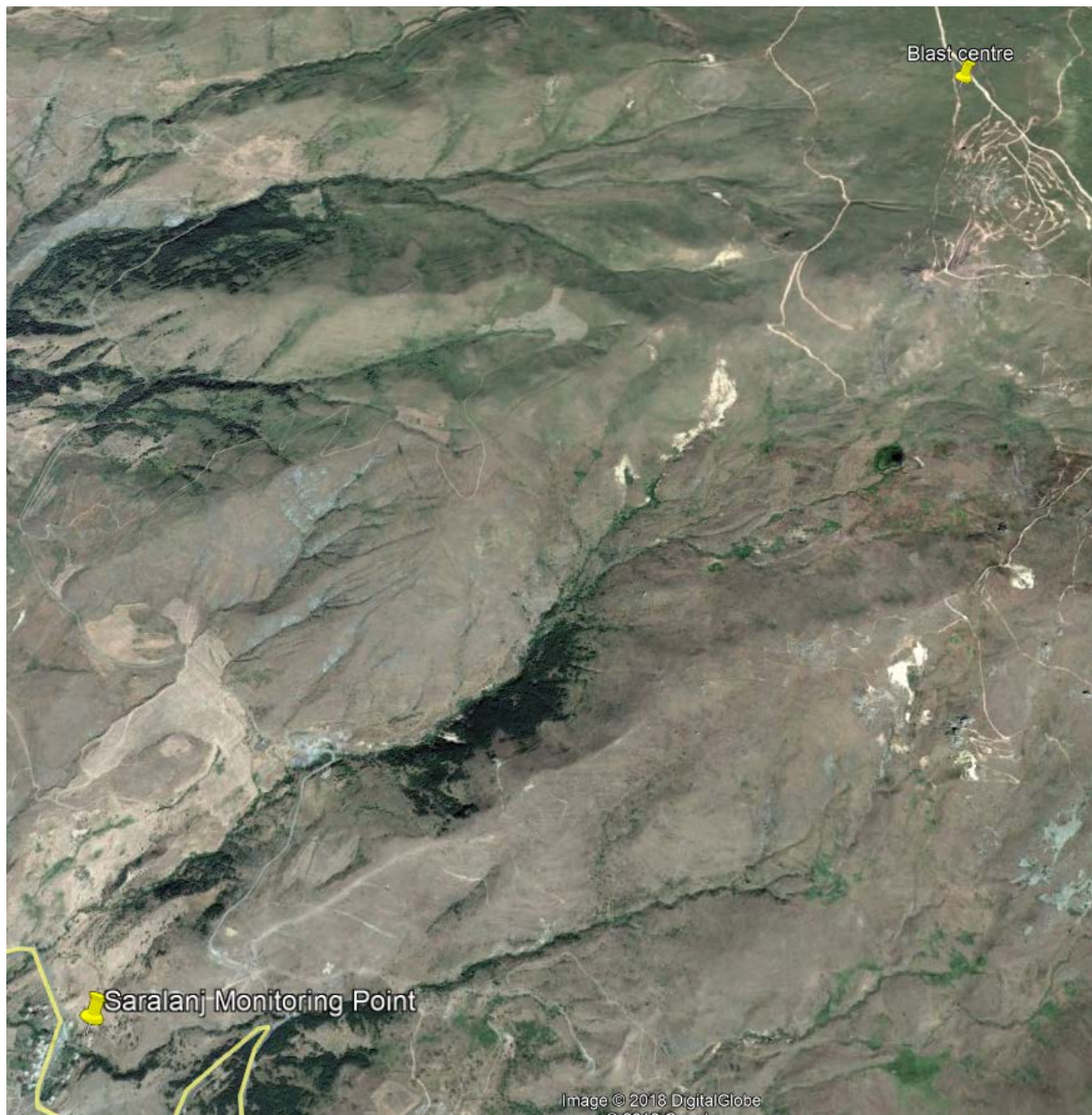
Monitoring data

Monitoring Station ID:	Saralanj		
Distance from blast (km):	5.2		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.386
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	83.81
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

 LYDIAN ARMENIA	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82955	
		Vendor Doc #	N/A	
Date: 22-Mar-18	Blast Monitoring Report	Rev#	0	Page 2 of 2





Event Report

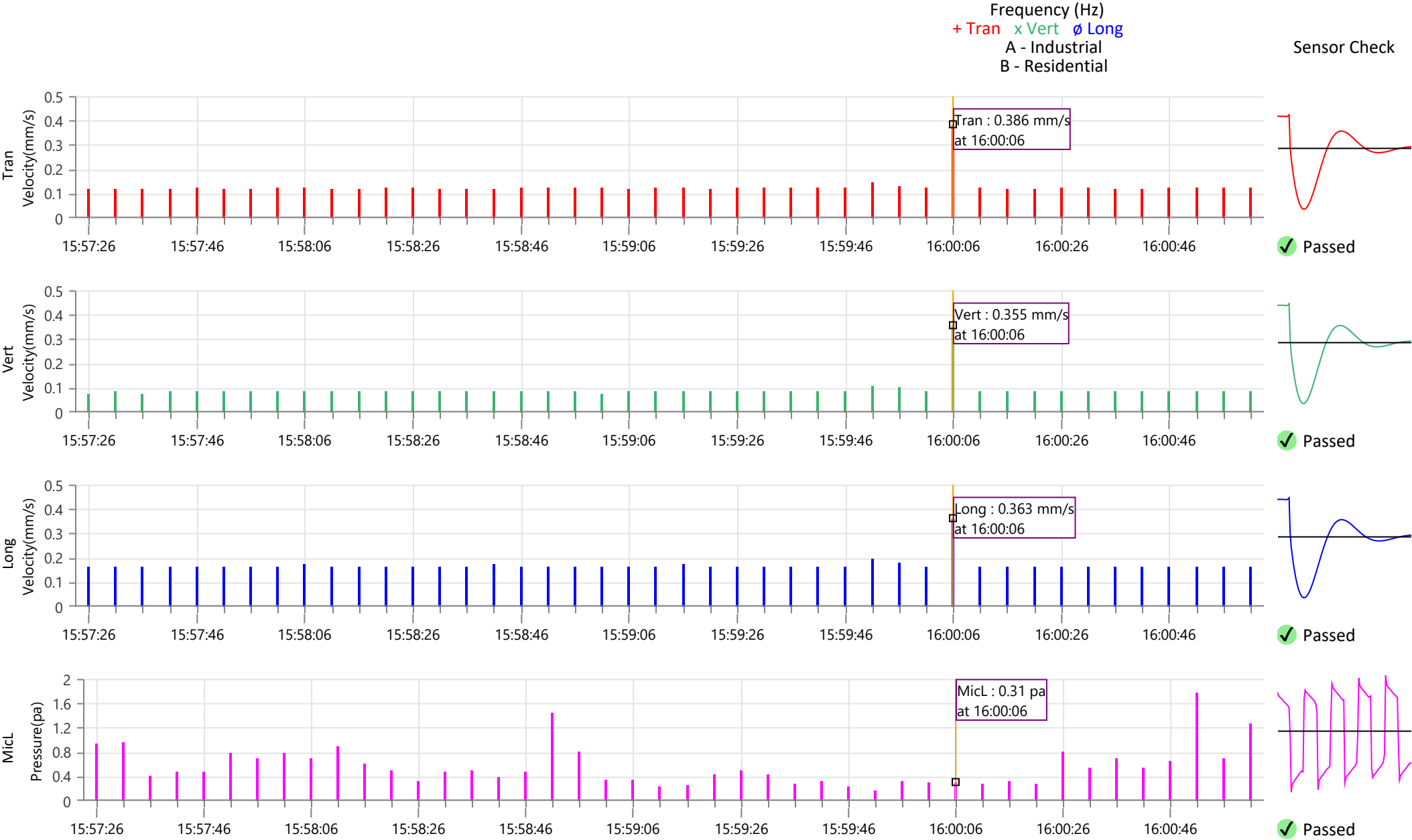
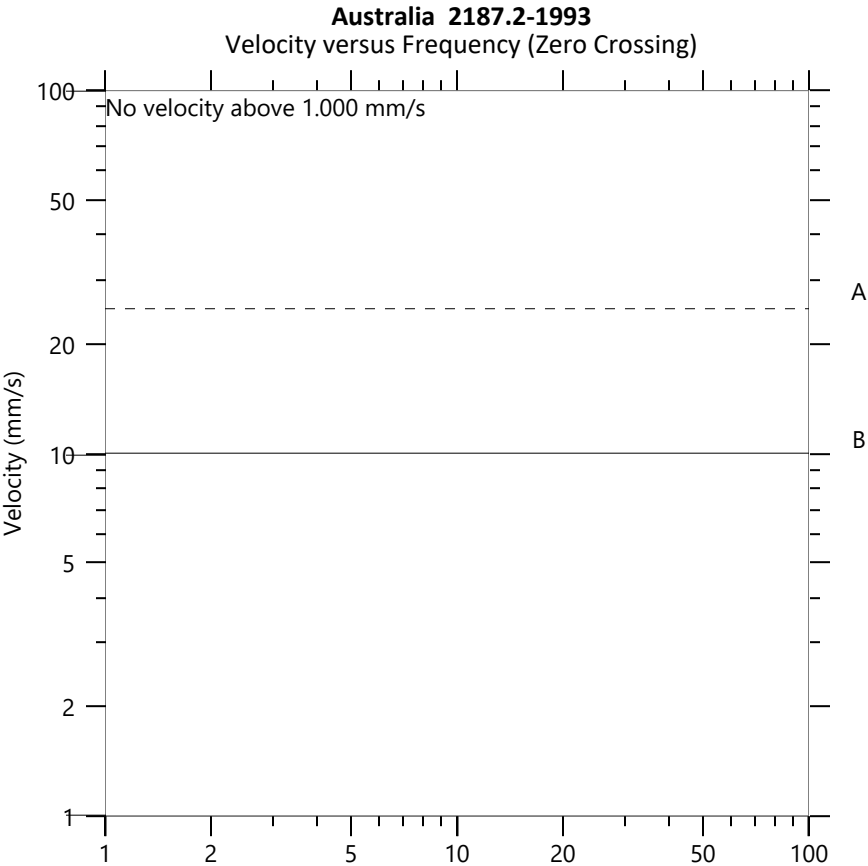
Start	March 22, 2018 15:57:21	Serial Number	MP13854
Finish	March 22, 2018 16:01:01	Model Number	Minimate Pro 6 10.73
Number of Intervals/Interval	44.00/5 sec	Battery Level	3.8 volts
Sample Rate	1024 sps	Unit Calibration	March 31, 2017 by Instantel
Operator/Setup File Name	Operator 2/custom.nsb	Geophone Calibration	SE13571, March 31, 2017 by Instantel
Job Number	1	Microphone Calibration	SL12972, March 31, 2017 by Instantel
		Event File Name	MP13854_20180322155721.IDFH

Notes
Location:
Client:
User Name:
General:

Post Event Notes No text to be displayed.

ISEE Triaxial Geophone	Tran	Vert	Long
Peak Particle Velocity	0.386 mm/s	0.355 mm/s	0.363 mm/s
Zero Crossing Frequency	73.1 Hz	85.3 Hz	56.9 Hz
Date	Mar 22, 2018	Mar 22, 2018	Mar 22, 2018
Time	16:00:05	16:00:05	16:00:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.4 Hz	7.6 Hz	7.4 Hz
Overswing Ratio	3.5	3.5	3.5
Peak Vector Sum	0.497 mm/s at March 22, 2018 16:00:05		

ISEE Linear Microphone	
Peak Sound Pressure Level	1.78 pa
Peak Sound Pressure Level	99.0 dB(L)
Date	Mar 22, 2018
Time	16:00:47
Zero Crossing Frequency	3.7 Hz
Sensor Check	✓ Passed
Frequency	20.4 Hz
Test Amplitude	1936 mv



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82956	
		Vendor Doc #	N/A	
Date: 27-Mar-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	RD3/ #56
Blast date & time	27 March 2018, 16:00
Number of blast holes	176
Maximum depth (m)	4.5
Explosive charge (kg)	3100
Weather conditions	Clear and bright. Wind from North East.
Monitored by	G. Karapetyan / G.

Monitoring summary

There was an exceedance of the projects trigger limit. The compliance limit was not exceeded

The blast was clearly audible (loud) from the monitoring point and it was noted by the home owner that he had not noticed the first RD3 blast but that this blast was clearly audible. The sound pressure was comparable with a helicopter flying over a couple of minutes before the blast (see Appendix).

The wind direction was generally from the blast to the monitoring station.

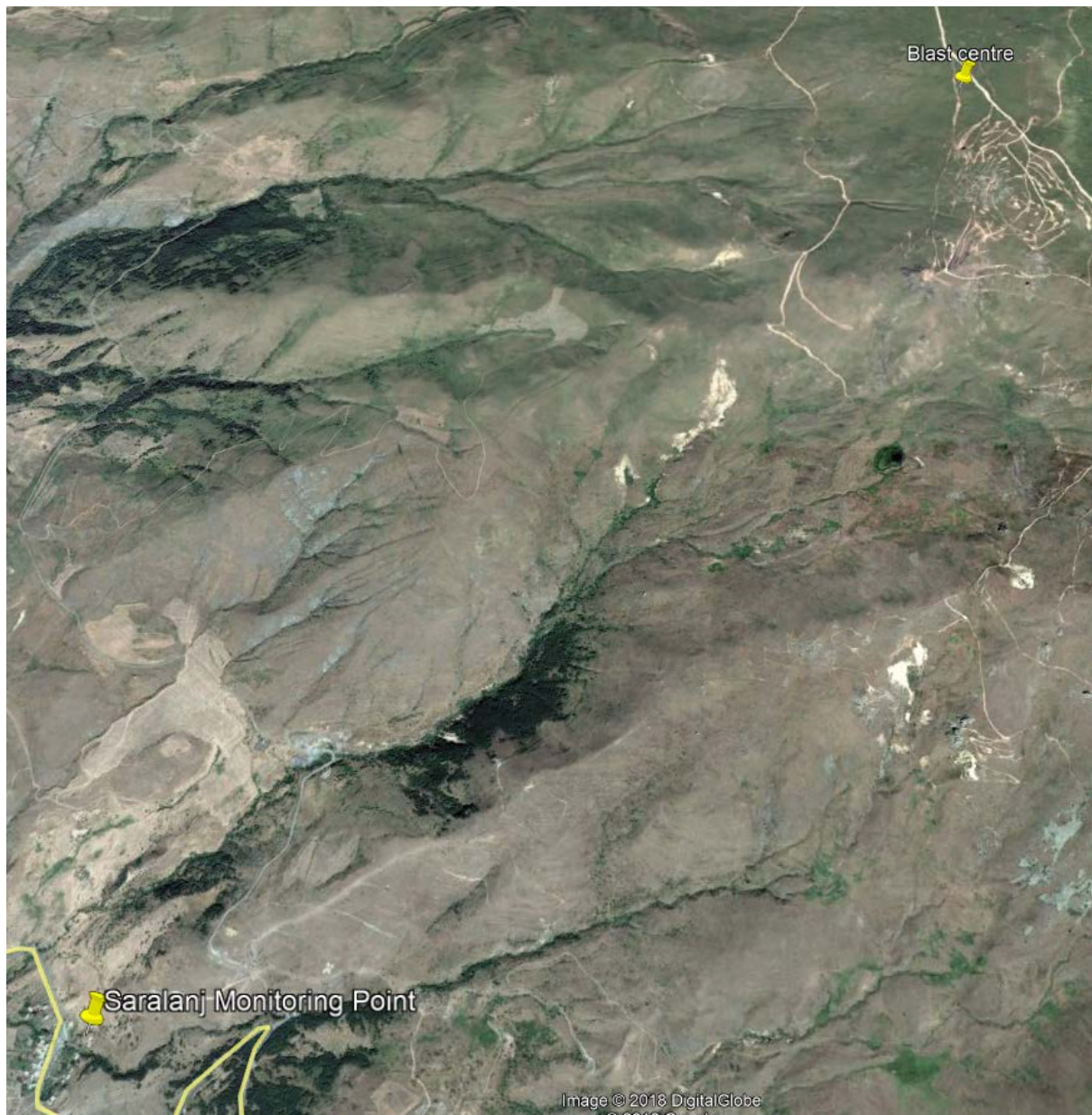
Monitoring data

Monitoring Station ID:	Saralanj		
Distance from blast (km):	5.2		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.197
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	113.6
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL ad frequency response 2 – 250 Hz.

	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82956	
		Vendor Doc #	N/A	
Date: 27-Mar-18	Blast Monitoring Report	Rev#	0	Page 2 of 2





Event Report

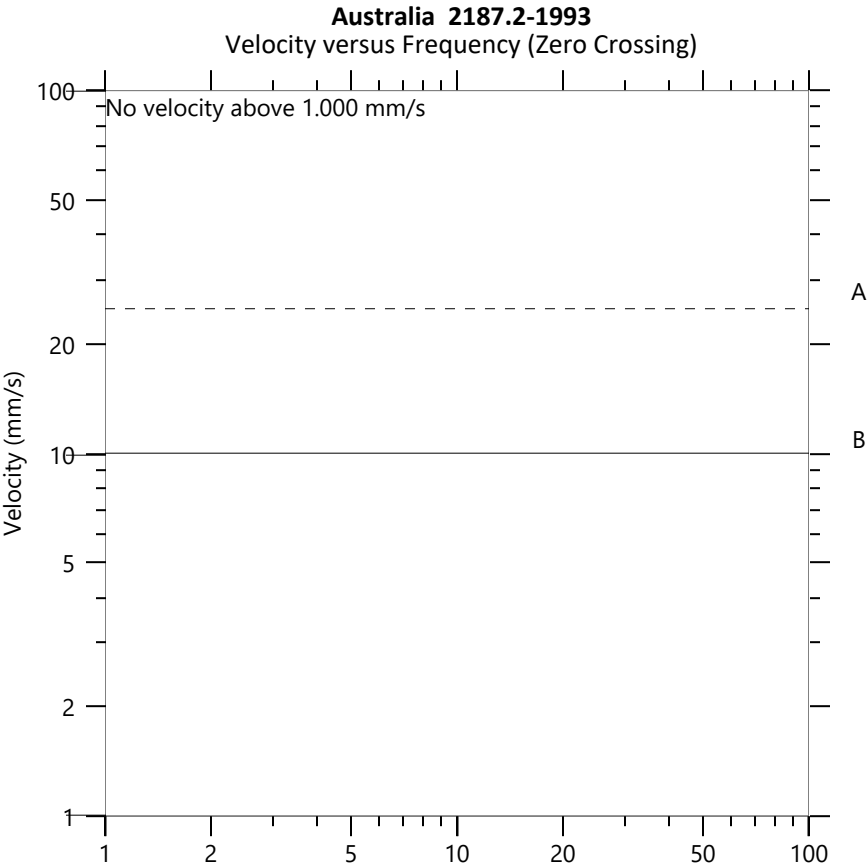
Start	March 27, 2018 15:57:16	Serial Number	MP13854
Finish	March 27, 2018 16:03:30	Model Number	Minimate Pro 6 10.73
Number of Intervals/Interval	74.80/5 sec	Battery Level	3.8 volts
Sample Rate	1024 sps	Unit Calibration	March 31, 2017 by Instantel
Operator/Setup File Name	Operator 2/custom.nsb	Geophone Calibration	SE13571, March 31, 2017 by Instantel
Job Number	1	Microphone Calibration	SL12972, March 31, 2017 by Instantel
		Event File Name	MP13854_20180327155716.IDFH

Notes
Location:
Client:
User Name:
General:

Post Event Notes No text to be displayed.

ISEE Triaxial Geophone	Tran	Vert	Long
Peak Particle Velocity	0.339 mm/s	0.213 mm/s	0.504 mm/s
Zero Crossing Frequency	85.3 Hz	85.3 Hz	73.1 Hz
Date	Mar 27, 2018	Mar 27, 2018	Mar 27, 2018
Time	15:57:19	15:57:19	15:57:19
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.6 Hz	7.7 Hz	7.5 Hz
Overswing Ratio	3.1	3.3	3.2
Peak Vector Sum	0.506 mm/s at March 27, 2018 15:57:19		

ISEE Linear Microphone	
Peak Sound Pressure Level	9.62 pa
Peak Sound Pressure Level	113.6 dB(L)
Date	Mar 27, 2018
Time	16:02:39
Zero Crossing Frequency	3.0 Hz
Sensor Check	✓ Passed
Frequency	19.6 Hz
Test Amplitude	1764 mv



	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82957	
		Vendor Doc #	N/A	
Date: 28-Mar-18	Blast Monitoring Report	Rev#	0	Page 1 of 2

Blast location / number	HLF/ #57
Blast date & time	28 March 2018, 13:00
Number of blast holes	52
Maximum depth (m)	3.0
Explosive charge (kg)	300
Weather conditions	Overcast with clear patches. No wind.
Monitored by	G. Yeghian / G. Karapetyan / G. Sargsyan

Monitoring summary

There was no exceedance of the trigger or compliance limits.

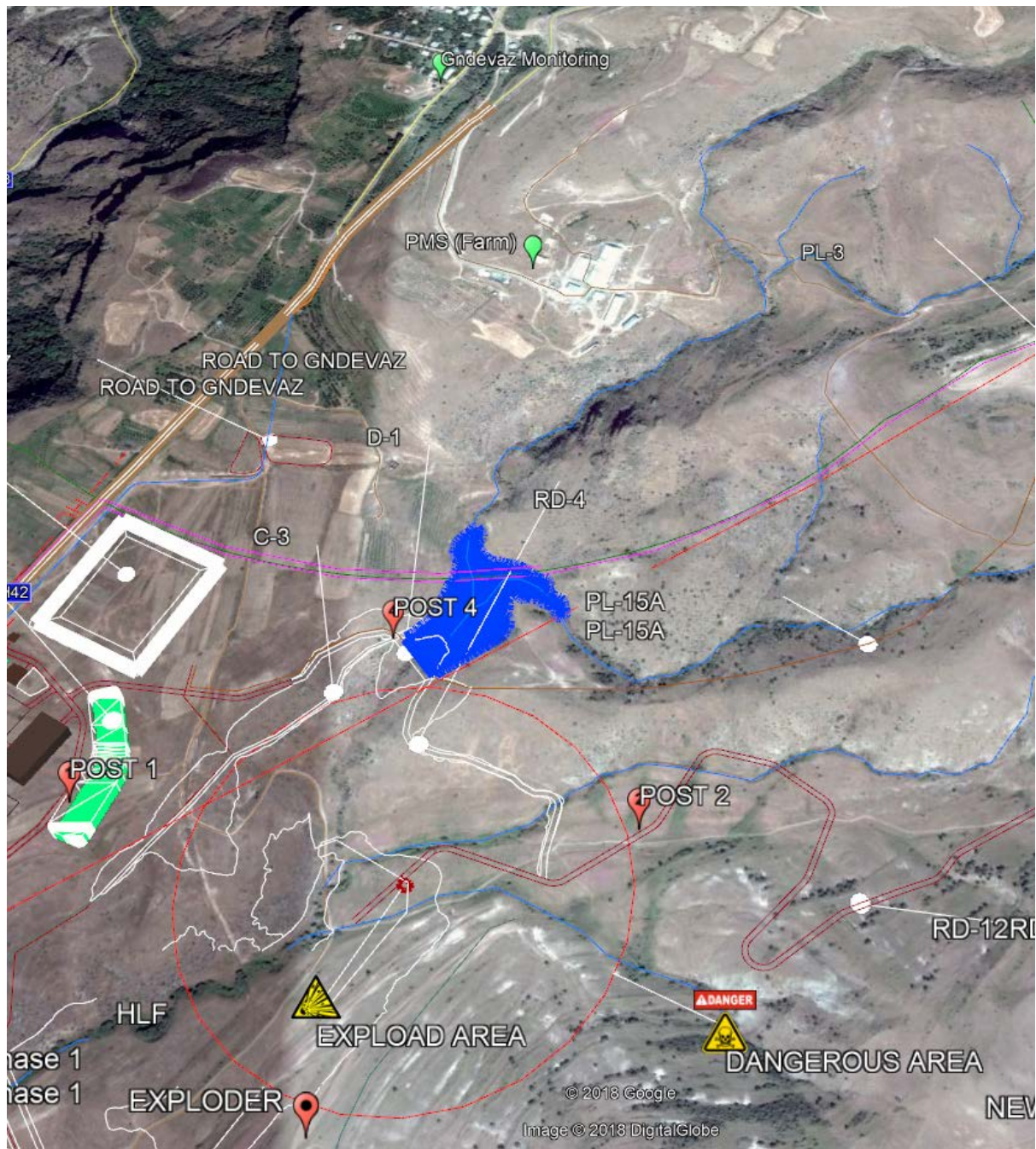
Monitoring data

Monitoring Station ID:	Gndevaz Village monitoring point		
Distance from blast (km):	1.7		
	Compliance limit	Trigger limit^c	Result
Ground vibration (peak particle velocity, mm/s)	5 ^a	1	0.173
Air overpressure (peak sound pressure level, dBL)	115 ^b	110	105.0
^a may be exceeded for 5% of blasts in a year, to a maximum of 10 mm/s ^b may be exceeded for 5% of blasts in a year, to a maximum of 120 dBL ^c above which investigation will be undertaken, potentially resulting in change in methodology or application of additional management / mitigation measures			

Instrumentation:

- Instantel MiniMate PRO self-triggering, digital seismograph/air-blast monitors.
- Triaxial geophones of PPV range up to 254 mm/s and operating frequency range of 2 – 250 Hz.
- Microphones with PSPL range up to 142 dBL and frequency response 2 – 250 Hz.

 LYDIAN ARMENIA	PROJECT: AMULSAR GOLD PROJECT PROJECT LOCATION: JERMUK, ARMENIA	Lydian Doc #	0-00-RPT-ENV-82957	
		Vendor Doc #	N/A	
Date: 28-Mar-18	Blast Monitoring Report	Rev#	0	Page 2 of 2





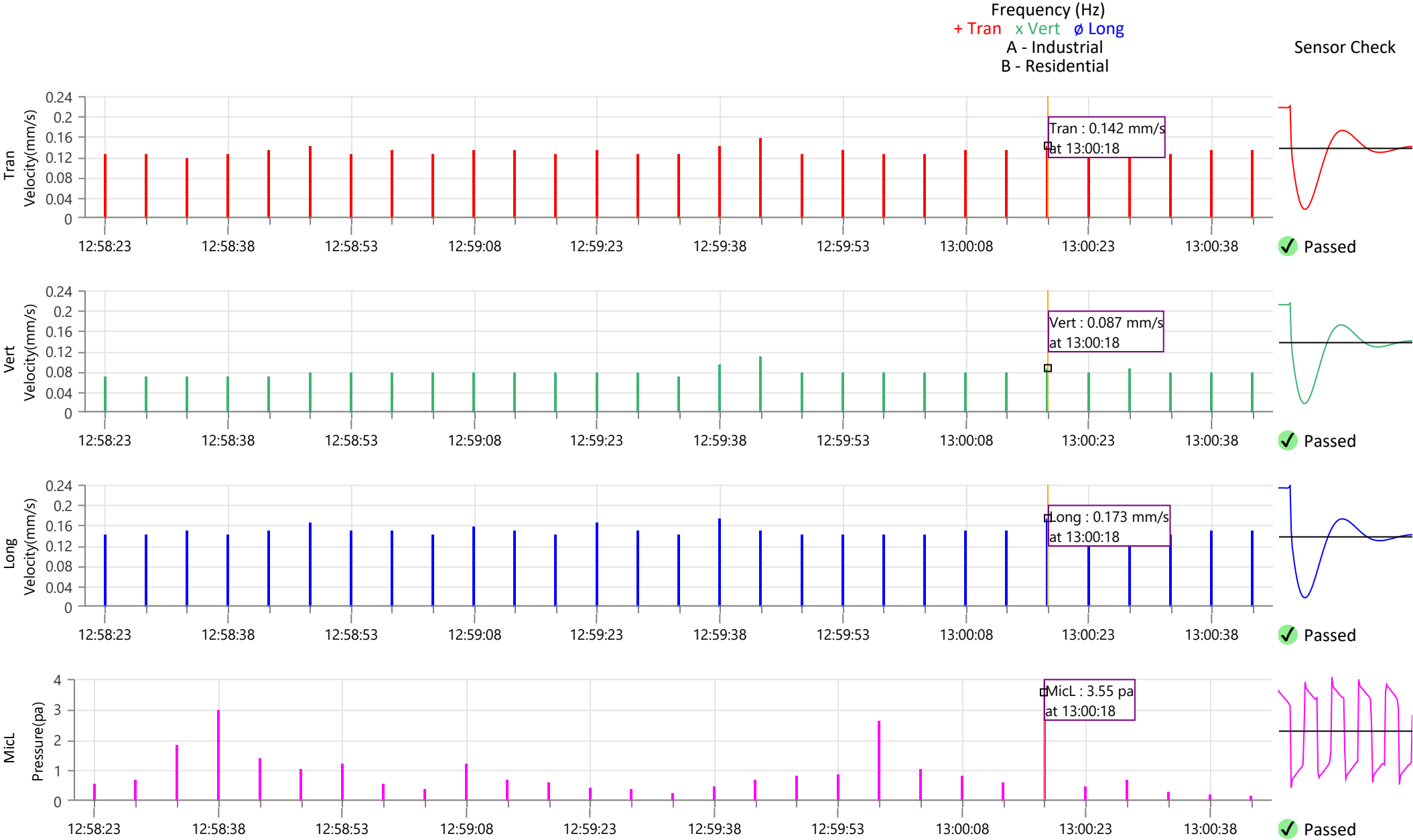
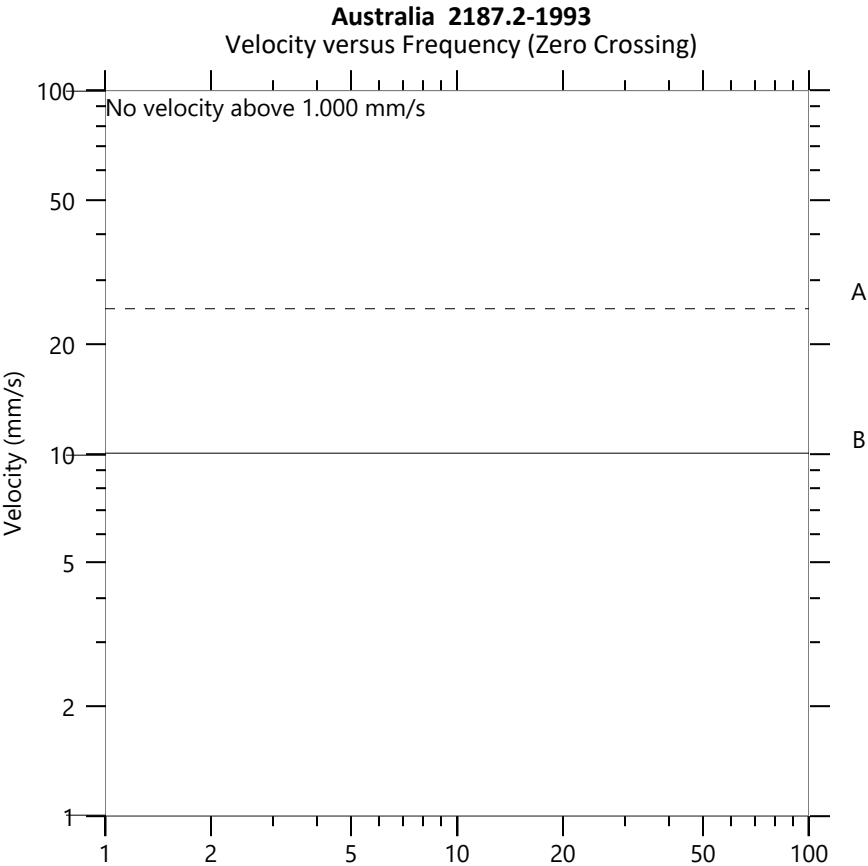
Event Report


Start	March 28, 2018 12:58:18	Serial Number	MP13854
Finish	March 28, 2018 13:00:43	Model Number	Minimate Pro 6 10.73
Number of Intervals/Interval	29.00/5 sec	Battery Level	3.8 volts
Sample Rate	1024 sps	Unit Calibration	March 31, 2017 by Instantel
Operator/Setup File Name	Operator 2/custom.nsb	Geophone Calibration	SE13571, March 31, 2017 by Instantel
Job Number	1	Microphone Calibration	SL12972, March 31, 2017 by Instantel
Notes		Event File Name	MP13854_20180328125818.IDFH
Location:			
Client:			
User Name:			
General:			

Post Event Notes No text to be displayed.

ISEE Triaxial Geophone	Tran	Vert	Long
Peak Particle Velocity	0.158 mm/s	<0.127 mm/s	0.173 mm/s
Zero Crossing Frequency	N/A	N/A	N/A
Date	Mar 28, 2018	Mar 28, 2018	Mar 28, 2018
Time	12:59:38	12:59:38	12:59:35
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.5 Hz	7.7 Hz	7.5 Hz
Overswing Ratio	3.3	3.4	3.3
Peak Vector Sum	0.213 mm/s at March 28, 2018 12:59:18		

ISEE Linear Microphone	
Peak Sound Pressure Level	3.55 pa
Peak Sound Pressure Level	105.0 dB(L)
Date	Mar 28, 2018
Time	13:00:17
Zero Crossing Frequency	15.5 Hz
Sensor Check	✓ Passed
Frequency	19.6 Hz
Test Amplitude	1681 mv




	Ծրագրի անվանում՝ ԱՄՈՒԼՍԱՐԻ ՈՍԿՈՒ ՀԱՆՔԻ ԾՐԱԳԻՐ	Լիդիանի փաստաթուղթ #	0-00-RPT-ENV-82329	
	Ծրագրի տեղադիրքը՝ ՀՀ, Վայոց ձորի մարզ	Մատակարար ի փաստաթուղթ #	Առկա չեն	
Ամսաթիվ՝ ապրիլ, 2018թ.	Բնապահպանական մոնիթորինգի հաշվետվություն, 2018թ. 1-ին եռամսյակ	Տարբերակ #	0	

Հավելված 3.

Մակերևութային ջրերի հոսքի
չափումների արդյունքներ

Measurement point	Date	Flow (l/s)
C-2	11.01.2018	0
C-3	11.01.2018	0
site28 G-3	11.01.2018	0
C-2	18.01.2018	0
C-3	18.01.2018	0
site28 G-3	18.01.2018	0
C-2	26.01.2018	0
C-3	26.01.2018	0
site28 G-3	26.01.2018	0
C-2	01.02.2018	0
C-3	01.02.2018	0
site28 G-3	01.02.2018	0
C-2	08.02.2018	0
C-3	08.02.2018	0
site28 G-3	08.02.2018	0
C-2	14.02.2018	0
C-3	14.02.2018	0
site28 G-3	14.02.2018	0
C-2	22.02.2018	0
C-3	22.02.2018	0
site28 G-3	22.02.2018	0
C-2	05.03.2018	2
C-3	05.03.2018	0
site28 G-3	05.03.2018	0
C-2	08.03.2018	1
C-3	08.03.2018	0
site28 G-3	08.03.2018	0
site28 G-3	08.03.2018	1
X553815 Y4399997	08.03.2018	5
site28 G-1	08.03.2018	1.5
AWJ-6	21.03.2018	74
FM-10	21.03.2018	21
AW-041	21.03.2018	27
Arpa-2	22.03.2018	5000 (estimated)
Arpa-4	22.03.2018	6000 (estimated)
C-2	29.03.2018	3
C-3	29.03.2018	0
site28 G-3	29.03.2018	0

	Ծրագրի անվանում՝ ԱՄՈՒԼՍԱՐԻ ՈՍԿՈՒ ՀԱՆՔԻ ԾՐԱԳԻՐ Ծրագրի տեղադիրքը՝ ՀՀ, Վայոց ձորի մարզ	Լիդիանի փաստաթուղթ #	0-00-RPT-ENV-82329	
		Մատակարար ի փաստաթուղթ #	Առկա չեն	
Ամսաթիվ՝ ապրիլ, 2018թ.	Բնապահպանական մոնիթորինգի հաշվետվություն, 2018թ. 1-ին եռամսյակ	Տարբերակ #	0	

Հավելված 4.

Մակերևութային ջրերի
նմուշառման և անալիզի տվյալներ

Q1 2018 Surface Water Sampling: Field-Measured Parameters

Location	Date			Temperature °C	Conductivity mS/cm	Dissolved Oxygen %	Dissolved Oxygen mg/l	pH	pHmV	ORP
	dd	mm	yy							
AW-003	2	3	18	3.88	0.066	84.5	11.08	8.72	-106.9	105.2
				3.89	0.066	83.1	10.89	8.71	-106.8	105.9
				3.89	0.066	81.5	10.69	8.71	-106.7	106.9
AW-041	27	2	18	3.60	0.302	4.1	0.54	7.46	-39.8	167.1
				3.67	0.302	4	0.53	7.46	-39.5	167.3
				3.74	0.302	4	0.53	7.45	-39.1	167.5
FM-10	27	2	18	5.40	0.121	3.5	0.44	7.89	-62.8	158.8
				5.42	0.12	3.5	0.44	7.89	-62.4	158.7
				5.45	0.121	3.5	0.44	7.88	-62.2	158.5
AWJ-6	27	2	18	10.16	0.598	2.8	0.31	7.91	-65.3	183.6
				10.18	0.598	2.7	0.3	7.92	-66.9	181.1
				10.21	0.598	2.7	0.31	7.92	-66.9	176.4
AWJ-5	27	2	18	3.77	0.135	4	0.52	8.15	-76.3	149
				3.85	0.135	3.9	0.51	8.14	-75.7	150
				3.92	0.134	3.9	0.51	8.13	-74.9	152.4
AW-010	28	2	18	4.70	0.179	41.3	5.31	8	-68.2	115.3
				4.72	0.182	40.9	5.25	7.99	-68.2	115.4
				4.74	0.183	40.3	5.19	7.99	-67.9	115.5
AW-009	28	2	18	6.13	0.203	38.6	4.78	8.01	-69.6	88.4
				6.19	0.203	38.3	4.74	8.01	-69.4	89
				6.25	0.203	38	4.69	8	-69.6	89.6
DF-1	28	2	18	8.88	2.308	41.8	4.81	7.73	-55	-122.7
				8.89	2.31	41.4	4.75	7.73	-55	-123.6
				8.9	2.311	40.9	4.69	7.73	-55	-124.5
AW-056	27	2	18	6.9	0.165	3.3	0.39	7.68	-51.7	-131.3
				6.95	0.165	3.3	0.4	7.67	-51.2	-130.6
				6.99	0.165	3.2	0.39	7.66	-50.7	-130



Client Sample ID						AW003	AW041	FM10	AWJ6	AWJ5	AW010	AW009	AW056	DF1
Watershed						Vorotan	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa
Laboratory Sample ID						PR1822344013	PR1822344005	PR1822344003	PR1822344001	PR1822344002	PR1822344009	PR1822344011	PR1822344006	PR1822344012
Client Sampling Date						02/03/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	28/02/2018	28/02/2018	27/02/2018	28/02/2018
RESULTS OF ANALYSIS														
				Arpa	Vorotan									
Parameter	Method	Unit	LOR	MAC	MAC									
Aggregate Parameters														
Calcium (Ca)	W-HARD-DG	mmol/L	0.0020											4.42
Calcium Hardness	W-HARD-FX	mmol/L	0.00020			0.137	0.887	0.344	2.19	0.242	0.407	0.463	0.300	
Hardness	W-HARD-FX	mmol/L	0.00020			0.223	1.22	0.505	2.70	0.399	0.621	0.704	0.482	
Hardness as CaCO3	W-HARD-FX	mg CaCO3/L	0.020	10	10	22.3	122	50.5	270	39.9	62.1	70.4	48.2	
Magnesium (Mg)	W-HARD-DG	mmol/L	0.00040											2.54
Magnesium Hardness	W-HARD-FX	mg CaCO3/L	0.020			8.63	32.9	16.2	51.0	15.8	21.4	24.1	18.2	
Phenol Index	W-PHI-PHO	mg/L	0.005	0.000005	0.000005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of Calcium and Magnesium as CaCO3	W-HARD-DG	mg CaCO3/L	0.20											696
Sum of calcium and magnesium	W-HARD-DG	mmol/L	0.0020											6.96
Dissolved Metals / Major Cations														
Aluminium	W-METAXFL1	mg/L	0.010	0.144	0.144	0.026	0.034	<0.010	0.020	<0.010	<0.010	<0.010	<0.010	0.038
Antimony	W-METAXFL1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic	W-METAXFL1	mg/L	0.0050			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Barium	W-METAXFL1	mg/L	0.00050	0.028	0.012	0.00535	0.0104	0.00795	0.0205	0.0132	0.0140	0.0147	0.00991	0.337
Beryllium	W-METAXFL1	mg/L	0.00020	0.000038	0.000054	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron	W-METAXFL1	mg/L	0.010	0.45	0.45	<0.010	<0.010	<0.010	0.078	0.051	0.093	0.101	0.078	0.172
Cadmium	W-METAXFL1	mg/L	0.00040			<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Calcium	W-METAXFL1	mg/L	0.0050	100	100	5.43	39.2	13.8	88.7	10.4	17.0	18.9	12.3	129
Chromium	W-METAXFL1	mg/L	0.0010			<0.0010	<0.0010	<0.0010	0.0020	0.0011	<0.0010	<0.0010	<0.0010	0.0055
Cobalt	W-METAXFL1	mg/L	0.0020			<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0058
Copper	W-METAXFL1	mg/L	0.0010			<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0024
Hexavalent Chromium - Soluble	W-CR6-IC	µg/L	0.40			<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	16.1
Iron	W-METAXFL1	mg/L	0.0020			0.0130	0.0230	0.0036	0.0141	<0.0020	<0.0020	<0.0020	0.0152	0.656
Lead	W-METAXFL1	mg/L	0.0050			<0.0050	<0.0050	<0.0050	<0.0050					



Client Sample ID						AW003	AW041	FM10	AWJ6	AWJ5	AW010	AW009	AW056	DF1
Watershed						Vorotan	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa
Laboratory Sample ID						PR1822344013	PR1822344005	PR1822344003	PR1822344001	PR1822344002	PR1822344009	PR1822344011	PR1822344006	PR1822344012
Client Sampling Date						02/03/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	28/02/2018	28/02/2018	27/02/2018	28/02/2018
RESULTS OF ANALYSIS														
				Arpa	Vorotan									
Parameter	Method	Unit	LOR	MAC	MAC									
Aggressive CO2	W-CO2F-CC2	mg/L	0			0	1.93	1.72	0	1.74	0.41	1.12	2.10	0
Ammonia and ammonium ions as N	W-NH4-SPC	mg/L	0.040	0.4	0.4	<0.040	<0.040	<0.040	<0.040	0.259	<0.040	<0.040	<0.040	78.4
Ammonia and ammonium ions as NH4	W-NH4-SPC	mg/L	0.050			<0.050	<0.050	<0.050	<0.050	0.334	<0.050	<0.050	<0.050	101
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	mmol/L	0.150			<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	mmol/L	0.150			<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	1.99
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	mg/L	1.0	5	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	787
Carbonates (CO3 2-)	W-CO2F-CC2	mg/L	0.00			0	0	0	8.65	0	0	0	0	0
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	mg/L	5.0	25	25	8.0	<5.0	7.0	<5.0	<5.0	<5.0	5.0	<5.0	3010
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	mg/L	0.50	10	10	1.23	0.92	2.50	0.73	0.88	1.17	1.17	1.23	
Chloride	W-CL-IC	mg/L	1.00	6.88	8	<1.00	1.05	<1.00	3.43	2.26	5.97	6.28	5.01	95.9
Dissolved Oxygen	W-O2D-ELE	mg/L	0.20			8.12	8.35	8.26	8.29	8.10	8.43	8.77	7.96	0.30
Dissolved silicate as H2SiO3	W-SIO3-SPC	mg/L	0.100			44.6	26.6	42.1	50.7	42.5	37.7	37.8	35.6	80.4
Dissolved silicate as SiO2	W-SIO3-SPC	mg/L	0.080	25	23.64	34.3	20.5	32.4	39.0	32.7	29.0	29.0	27.4	61.8
Dissolved silicate as SiO3	W-SIO3-SPC	mg/L	0.100			43.4	25.9	41.0	49.4	41.4	36.7	36.8	34.7	78.3
Easily released cyanides	W-CNF-PHO	mg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025
Free Carbon Dioxide as CO2	W-CO2F-CC2	mg/L	0			0	1.94	1.98	0	2.02	1.85	2.02	2.60	87.8
Free Cyanide	W-CNF-PHO	mg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	mg/L	0.00			31.5	25.5	59.2	120	60.3	105	88.9	70.9	1290
Inorganic Nitrogen as N	W-NING-CC	mg/L	0.500	4	4	<0.500	<0.500	<0.500	<0.500	0.877	0.973	0.998	0.813	78.4
Nitrate as N	W-NO3-SPC	mg/L	0.060	2.5	2.5	0.214	<0.060	0.441	0.197	0.612	0.969	0.994	0.813	<0.750
Nitrates	W-NO3-SPC	mg/L	0.27			0.95	<0.27	1.95	0.87	2.71	4.29	4.40	3.60	<3.30
Nitrite + Nitrate as N	W-NNO-SPC	mg/L	0.060			0.218	<0.060	0.444	0.197	0.618	0.973	0.998	0.813	<0.750
Nitrite as N	W-NO2-SPC	mg/L	0.0020	0.06	0.06	0.0044	<0.0020	0.0034	<0.0020	0.0057	0.0034	0.0038	<0.0020	<0.0500
Nitrites	W-NO2-SPC	mg/L	0.0050			0.0144	<0.0050	0.0113	<0.0050					



AMULSAR GOLD PROJECT, VAYOTS DZOR PROVINCE, ARMENIA

Q1 2018 Surface Water Sample Chemical Analytical Results

(Orange highlight = MAC exceeded; yellow highlight - MAC is lower than limit of reporting)

Client Sample ID				AW003	AW041	FM10	AWJ6	AWJ5	AW010	AW009	AW056	DF1
Watershed				Vorotan	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa
Laboratory Sample ID				PR1822344013	PR1822344005	PR1822344003	PR1822344001	PR1822344002	PR1822344009	PR1822344011	PR1822344006	PR1822344012
Client Sampling Date				02/03/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	28/02/2018	28/02/2018	27/02/2018	28/02/2018
RESULTS OF ANALYSIS												
Parameter	Method	Unit	LOR	Arpa MAC	Vorotan MAC							
Physical Parameters												
Colour (True)	W-COL-SPC	mgPt/l	2.0			5.0	2.0	11.1	3.6	4.3	4.5	1880
Electrical Conductivity @ 25°C	W-CON-PCT	mS/m	0.10	21.562	16.2	6.81	32.4	12.9	62.2	13.6	19.7	251
pH Value	W-PH-PCT		1.00	6.5 - 9.0	6.5 - 9.0	7.96	7.53	7.84	8.82	7.82	8.00	7.41
Radiological Parameters												
Gross alpha activity	W-GAA-SCI	Bq/L	0.04									
Gross beta activity	W-GBA-PRO	Bq/L	0.10									
Total Metals / Major Cations												
Aluminium	W-METAXDG1	mg/L	0.010									2.82
Aluminium	W-METAXFX1	mg/L	0.010			0.138	0.272	0.137	0.058	0.036	0.038	
Aluminium	W-METMSDG2	µg/L	5.0									2440
Aluminium	W-METMSFX2	µg/L	5.0			113	246	129	31.6	35.1	27.4	
Antimony	W-METAXDG1	mg/L	0.020									<0.020
Antimony	W-METAXFX1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Antimony	W-METMSDG1	µg/L	1.0	0.28	0.28							<2.0
Antimony	W-METMSFX1	µg/L	1.0	0.28	0.28	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Arsenic	W-METAXDG1	mg/L	0.010									<0.010
Arsenic	W-METAXFX1	mg/L	0.0050			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
Arsenic	W-METMSDG1	µg/L	1.0	20	20							6.4
Arsenic	W-METMSFX1	µg/L	1.0	20	20	<1.0	<1.0	<1.0	8.1	4.6	5.4	
Barium	W-METAXDG1	mg/L	0.00050									0.733
Barium	W-METAXFX1	mg/L	0.00050			0.00643	0.0123	0.00973	0.0216	0.0130	0.0150	
Barium	W-METMSDG2	µg/L	1.0									725
Barium	W-METMSFX2	µg/L	1.0			5.2	8.9	7.6	16.6	9.8	11.0	
Beryllium	W-METAXDG1	mg/L	0.00020									0.00030
Beryllium	W-METAXFX1	mg/L	0.00020			<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Beryllium	W-METMSDG1	µg/L	0.20									<0.40
Beryllium	W-METMSFX1	µg/L	0.20			<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Bismuth	W-METMSDG2	µg/L	1.0									<2.0
Bismuth	W-METMSFX2	µg/L	1.0			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Boron	W-METAXDG1	mg/L	0.010									0.198
Boron	W-METAXFX1	mg/L	0.010			<0.010	<0.010	<0.010	0.080	0.049	0.090	
Cadmium	W-METAXDG1	mg/L	0.0020									<0.0020
Cadmium	W-METAXFX1	mg/L	0.00040			<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Cadmium	W-METMSDG1	µg/L	0.20	1.014	1.01							0.93
Cadmium	W-METMSFX1	µg/L	0.50	1.014	1.01	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Calcium	W-METAXDG1	mg/L	0.050									177
Calcium	W-METAXFX1	mg/L	0.0050			5.50	35.5	13.8	87.6	9.68	16.3	
Chromium	W-METAXDG1	mg/L	0.0020									0.0144
Chromium	W-METAXFX1	mg/L	0.0010			0.0021	0.0015	0.0018	0.0025	0.0026	0.0019	
Chromium	W-METMSDG1	µg/L	5.0	11	10.5							<10.0



	Client Sample ID						AW003	AW041	FM10	AWJ6	AWJ5	AW010	AW009	AW056	DF1
	Watershed						Vorotan	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa
	Laboratory Sample ID						PR1822344013	PR1822344005	PR1822344003	PR1822344001	PR1822344002	PR1822344009	PR1822344011	PR1822344006	PR1822344012
	Client Sampling Date						02/03/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	28/02/2018	28/02/2018	27/02/2018	28/02/2018
RESULTS OF ANALYSIS															
Parameter	Method	Unit	LOR	Arpa MAC	Vorotan MAC										
Chromium	W-METMSFX1	µg/L	5.0	11	10.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Cobalt	W-METAXDG1	mg/L	0.0020												0.0136
Cobalt	W-METAXFX1	mg/L	0.0020			<0.0020	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Cobalt	W-METMSDG2	µg/L	0.50	0.36	0.28										14.0
Cobalt	W-METMSFX2	µg/L	0.50	0.36	0.28	<0.50	2.19	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Copper	W-METAXDG1	mg/L	0.0020												0.150
Copper	W-METAXFX1	mg/L	0.0010			0.0018	0.0032	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Copper	W-METMSDG2	µg/L	1.0	21	22										137
Copper	W-METMSFX2	µg/L	1.0	21	22	1.6	3.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Iron	W-METAXDG1	mg/L	0.0050	0.072	0.16										5.14
Iron	W-METAXFX1	mg/L	0.0020	0.072	0.16	0.126	0.547	0.264	0.450	0.0844	0.101	0.0886	0.274		
Lead	W-METAXDG1	mg/L	0.010												<0.010
Lead	W-METAXFX1	mg/L	0.0050			<0.0050	<0.0050	0.0072	0.0058	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
Lead	W-METMSDG1	µg/L	1.0	10.14	10.14										4.5
Lead	W-METMSFX1	µg/L	1.0	10.14	10.14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Lithium	W-METAXDG1	mg/L	0.0020												0.0148
Lithium	W-METAXFX1	mg/L	0.0010			0.0017	<0.0010	<0.0010	0.0044	0.0084	0.0176	0.0187	0.0194		
Lithium	W-METMSDG2	µg/L	1.0												13.1
Lithium	W-METMSFX2	µg/L	1.0			1.2	1.2	1.0	4.9	7.2	16.4	15.4	16.9		
Magnesium	W-METAXDG1	mg/L	0.020												61.6
Magnesium	W-METAXFX1	mg/L	0.0030			2.10	8.00	3.93	12.4	3.83	5.20	5.86	4.43		
Magnesium	W-METMSDG2	µg/L	10												53600
Magnesium	W-METMSFX2	µg/L	10			1760	7180	3170	9850	3060	4220	4680	3940		
Manganese	W-METAXDG1	mg/L	0.00050												3.29
Manganese	W-METAXFX1	mg/L	0.00050			0.0103	0.222	0.0276	0.00751	0.0155	0.0166	0.0157	0.0731		
Manganese	W-METMSDG2	µg/L	0.50	12	8										3190
Manganese	W-METMSFX2	µg/L	0.50	12	8	8.33	204	21.4	5.86	11.9	13.1	12.1	65.1		
Mercury	W-HG-AFSDG	µg/L	0.020	0.3	0.3										0.149
Mercury	W-HG-AFSFX	µg/L	0.010	0.3	0.3	<									




AMULSAR GOLD PROJECT, VAYOTS DZOR PROVINCE, ARMENIA

Q1 2018 Surface Water Sample Chemical Analytical Results

(Orange highlight = MAC exceeded; yellow highlight - MAC is lower than limit of reporting)

Client Sample ID						AW003	AW041	FM10	AWJ6	AWJ5	AW010	AW009	AW056	DF1
Watershed						Vorotan	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa
Laboratory Sample ID						PR1822344013	PR1822344005	PR1822344003	PR1822344001	PR1822344002	PR1822344009	PR1822344011	PR1822344006	PR1822344012
Client Sampling Date						02/03/2018	27/02/2018	27/02/2018	27/02/2018	27/02/2018	28/02/2018	28/02/2018	27/02/2018	28/02/2018
RESULTS OF ANALYSIS														
				Arpa	Vorotan									
Parameter	Method	Unit	LOR	MAC	MAC									
Selenium	W-METMSDG1	µg/L	5.0	20	20									<10.0
Selenium	W-METMSFX1	µg/L	1.0	20	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Silver	W-METAXDG1	mg/L	0.0050											<0.0050
Silver	W-METAXFX1	mg/L	0.0010			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Silver	W-METMSDG2	µg/L	1.0											<2.0
Silver	W-METMSFX2	µg/L	1.0			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Sodium	W-METAXDG1	mg/L	0.030											34.6
Sodium	W-METAXFX1	mg/L	0.030			3.41	7.15	5.22	27.4	11.0	13.8	14.8	12.4	
Strontium	W-METMSDG2	µg/L	1.0											1100
Strontium	W-METMSFX2	µg/L	1.0			38.3	200	78.3	728	79.0	113	123	109	
Tellurium	W-METMSDG2	µg/L	5.0											<10.0
Tellurium	W-METMSFX2	µg/L	5.0			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Thallium	W-METAXDG1	mg/L	0.010											<0.010
Thallium	W-METAXFX1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Thallium	W-METMSDG1	µg/L	0.50											<1.00
Thallium	W-METMSFX1	µg/L	0.50			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Tin	W-METMSDG2	µg/L	1.0	0.08	0.16									<2.0
Tin	W-METMSFX2	µg/L	1.0	0.08	0.16	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Titanium	W-METMSDG2	µg/L	5.0											93.7
Titanium	W-METMSFX2	µg/L	5.0			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Uranium	W-METMSDG3	µg/L	0.10											0.42
Uranium	W-METMSFX3	µg/L	0.10			<0.10	<0.10	0.12	0.50	<0.10	0.31	0.36	0.15	
Vanadium	W-METAXDG1	mg/L	0.0020											0.0241
Vanadium	W-METAXFX1	mg/L	0.0010			0.0059	<0.0010	0.0085	0.0061	0.0050	0.0043	0.0043	0.0020	
Vanadium	W-METMSDG2	µg/L	5.0	10	16									20.2
Vanadium	W-METMSFX2	µg/L	5.0	10	16	6.0	<5.0	8.6	5.9	5.2	<5.0	<5.0	<5.0	
Zinc	W-METAXDG1	mg/L	0.0030											0.484
Zinc	W-METAXFX1	mg/L	0.0020			0.0306	0.0552	0.0325	0.0307	0.0313	0.0339	0.0455	0.0294	
Zinc	W-METMSDG2	µg/L	2.0	100	100									442
Zinc	W-METMSFX2	µg/L	2.0	100	100	24.6	35.6	25.5	24.0	25.0	24.9	37.7	25.5	


	Ծրագրի անվանում՝ ԱՄՈՒԼՍԱՐԻ ՈՍԿՈՒ ՀԱՆՔԻ ԾՐԱԳԻՐ	Լիդիանի փաստաթուղթ #	0-00-RPT-ENV-82329	
	Ծրագրի տեղադիրքը՝ ՀՀ, Վայոց ձորի մարզ	Մատակարար ի փաստաթուղթ #	Առկա չեն	
Ամսաթիվ՝ ապրիլ, 2018թ.	Բնապահպանական մոնիթորինգի հաշվետվություն, 2018թ. 1-ին եռամսյակ	Տարբերակ #	0	

Հավելված 5.

Ստորգետնյա ջրերի խորության
վերաբերյալ տվյալներ

2018 Groundwater Depth Measurements

[illegible]

	Ծրագրի անվանում՝ ԱՄՈՒԼՍԱՐԻ ՈՍԿՈՒ ՀԱՆՔԻ ԾՐԱԳԻՐ Ծրագրի տեղադիրքը՝ ՀՀ, Վայոց ձորի մարզ	Լիդիանի փաստաթուղթ #	0-00-RPT-ENV-82329	
		Մատակարար ի փաստաթուղթ #	Առկա չեն	
Ամսաթիվ՝ ապրիլ, 2018թ.	Բնապահպանական մոնիթորինգի հաշվետվություն, 2018թ. 1-ին եռամսյակ	Տարբերակ #	0	

Հավելված 6.

Ստորագետնյա ջրերի նմուշառման և
անալիզի տվյալներ

Q1 2018 Spring Water Sample Chemical Analytical Results
(Orange highlight = WHO standard for drinking water exceeded)

Client Sample ID					SP83	AW052	AW022**	AW070
Watershed					Arpa	Arpa	Arpa	Vorotan
Laboratory Sample ID					PR1822344004	PR1822344007	PR1822344008	PR1822344014
Client Sampling Date					27/02/2018	27/02/2018	27/02/2018	02/03/2018
RESULTS OF ANALYSIS								
Parameter	Method	Unit	LOR	WHO DW*				
Aggregate Parameters								
Calcium (Ca)	W-HARD-DG	mmol/L	0.0020					
Calcium Hardness	W-HARD-FX	mmol/L	0.00020		0.353	0.139	0.134	0.190
Hardness	W-HARD-FX	mmol/L	0.00020		0.518	0.244	0.233	0.294
Hardness as CaCO ₃	W-HARD-FX	mg CaCO ₃ /L	0.020		51.8	24.4	23.3	29.4
Magnesium (Mg)	W-HARD-DG	mmol/L	0.00040					
Magnesium Hardness	W-HARD-FX	mg CaCO ₃ /L	0.020		16.5	10.5	9.96	10.4
Phenol Index	W-PHI-PHO	mg/L	0.005		<0.005	<0.005	<0.005	<0.005
Sum of Calcium and Magnesium as CaCO ₃	W-HARD-DG	mg CaCO ₃ /L	0.20					
Sum of calcium and magnesium	W-HARD-DG	mmol/L	0.0020					
Dissolved Metals / Major Cations								
Aluminium	W-METAXFL1	mg/L	0.010		0.038	<0.010	<0.010	<0.010
Antimony	W-METAXFL1	mg/L	0.010	0.02	<0.010	<0.010	<0.010	<0.010
Arsenic	W-METAXFL1	mg/L	0.0050	0.01	<0.0050	<0.0050	<0.0050	<0.0050
Barium	W-METAXFL1	mg/L	0.00050	1.3	0.00436	0.00190	0.00188	0.00916
Beryllium	W-METAXFL1	mg/L	0.00020		<0.00020	<0.00020	<0.00020	<0.00020
Boron	W-METAXFL1	mg/L	0.010	2.4	<0.010	<0.010	<0.010	<0.010
Cadmium	W-METAXFL1	mg/L	0.00040	0.003	<0.00040	<0.00040	<0.00040	<0.00040
Calcium	W-METAXFL1	mg/L	0.0050		14.5	5.33	5.49	7.95
Chromium	W-METAXFL1	mg/L	0.0010	0.05	0.0011	<0.0010	<0.0010	<0.0010
Cobalt	W-METAXFL1	mg/L	0.0020		<0.0020	<0.0020	<0.0020	<0.0020
Copper	W-METAXFL1	mg/L	0.0010	2	<0.0010	<0.0010	0.0010	<0.0010
Hexavalent Chromium - Soluble	W-CR6-IC	µg/L	0.40		<0.40	0.45	<0.40	<0.40
Iron	W-METAXFL1	mg/L	0.0020		<0.0020	<0.0020	<0.0020	<0.0020
Lead	W-METAXFL1	mg/L	0.0050	0.01	<0.0050	<0.0050	<0.0050	<0.0050
Lithium	W-METAXFL1	mg/L	0.0010		<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	W-METAXFL1	mg/L	0.0030		4.16	2.43	2.50	2.68
Manganese	W-METAXFL1	mg/L	0.00050		<0.00050	<0.00050	<0.00050	<0.00050
Molybdenum	W-METAXFL1	mg/L	0.0020		<0.0020	<0.0020	<0.0020	<0.0020
Nickel	W-METAXFL1	mg/L	0.0020		<0.0020	<0.0020	<0.0020	<0.0020
Phosphorus	W-METAXFL1	mg/L	0.050		0.126	0.087	0.078	<0.050
Potassium	W-METAXFL1	mg/L	0.015		2.33	2.04	2.09	2.13
Selenium	W-METAXFL1	mg/L	0.010		<0.010	<0.010	<0.010	<0.010
Silver	W-METAXFL1	mg/L	0.0010		<0.0010	<0.0010	<0.0010	<0.0010
Sodium	W-METAXFL1	mg/L	0.030		5.19	3.49	3.52	3.87
Thallium	W-METAXFL1	mg/L	0.010		<0.010	<0.010	<0.010	<0.010
Vanadium	W-METAXFL1	mg/L	0.0010		0.0104	0.0061	0.0064	0.0032
Zinc	W-METAXFL1	mg/L	0.0020		<0.0020	<0.0020	0.0044	<0.0020
Nonmetallic Inorganic Parameters								
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	mmol/L	0.150		1.06	0.589	0.598	0.731
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	mmol/L	0.150		<0.150	<0.150	<0.150	<0.150
Aggressive CO ₂	W-CO2F-CC2	mg/L	0		2.93	2.64	2.55	2.23
Ammonia and ammonium ions as N	W-NH4-SPC	mg/L	0.040		<0.040	<0.040	<0.040	<0.040
Ammonia and ammonium ions as NH ₄	W-NH4-SPC	mg/L	0.050		<0.050	<0.050	<0.050	<0.050
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	mmol/L	0.150		<0.150	<0.150	<0.150	<0.150
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	mmol/L	0.150		<0.150	<0.150	<0.150	<0.150
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	mg/L	1.0		<1.0	<1.0	<1.0	<1.0
Carbonates (CO ₃ 2-)	W-CO2F-CC2	mg/L	0.00		0	0	0	0
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	mg/L	5.0		<5.0	22.0	5.0	<5.0
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	mg/L	0.50		0.88	1.04	0.85	0.76
Chloride	W-CL-IC	mg/L	1.00		<1.00	<1.00	<1.00	<1.00
Dissolved Oxygen	W-O2D-ELE	mg/L	0.20		8.27	8.42	8.65	7.75
Dissolved silicate as H ₂ SiO ₃	W-SIO3-SPC	mg/L	0.100		47.6	51.1	50.6	57.8
Dissolved silicate as SiO ₂	W-SIO3-SPC	mg/L	0.080		36.6	39.3	39.0	44.5
Dissolved silicate as SiO ₃	W-SIO3-SPC	mg/L	0.100		46.4	49.8	49.3	56.3
Easily released cyanides	W-CNF-PHO	mg/L	0.005		<0.005	<0.005	<0.005	<0.005
Free Carbon Dioxide as CO ₂	W-CO2F-CC2	mg/L	0		3.34	2.68	2.60	2.33
Free Cyanide	W-CNF-PHO	mg/L	0.005		<0.005	<0.005	<0.005	<0.005
Hydrogen carbonates (HCO ₃ -)	W-CO2F-CC2	mg/L	0.00		64.8	35.9	36.5	44.6
Inorganic Nitrogen as N	W-NING-CC	mg/L	0.500		1.02	0.763	0.765	0.809

Q1 2018 Spring Water Sample Chemical Analytical Results
 (Orange highlight = WHO standard for drinking water exceeded)

Client Sample ID					SP83	AW052	AW022**	AW070
Watershed					Arpa	Arpa	Arpa	Vorotan
Laboratory Sample ID					PR1822344004	PR1822344007	PR1822344008	PR1822344014
Client Sampling Date					27/02/2018	27/02/2018	27/02/2018	02/03/2018
RESULTS OF ANALYSIS								
Parameter	Method	Unit	LOR	WHO DW*				
Nitrate as N	W-NO3-SPC	mg/L	0.060	50	1.02	0.763	0.765	0.809
Nitrates	W-NO3-SPC	mg/L	0.27		4.52	3.38	3.39	3.58
Nitrite + Nitrate as N	W-NNO-SPC	mg/L	0.060		1.02	0.763	0.765	0.809
Nitrite as N	W-NO2-SPC	mg/L	0.0020	3	<0.0020	<0.0020	<0.0020	<0.0020
Nitrites	W-NO2-SPC	mg/L	0.0050		<0.0050	<0.0050	<0.0050	<0.0050
Orthophosphate	W-PO4O-SPC	mg/L	0.040		0.416	0.292	0.265	0.160
Orthophosphate as P	W-PO4O-SPC	mg/L	0.010		0.136	0.095	0.086	0.052
Oxygen Saturation	W-O2D-ELE	%	1		101	104	106	96
Phosphorus (as P2O5)	W-PTOT-SPC	mg/L	0.120		0.252	0.149	0.151	<0.120
Sulfide as S2-	W-H2S-PHO	mg/L	0.050		<0.050	<0.050	<0.050	<0.050
Sulfides as H2S	W-H2S-PHO	mg/L	0.050		<0.050	<0.050	<0.050	<0.050
Sulphate as SO4 2-	W-SO4-IC	mg/L	5.00		8.32	<5.00	<5.00	<5.00
Suspended solids dried at 105 °C	W-TSS-GR	mg/L	5.0		<5.0	<5.0	<5.0	<5.0
Total Carbon Dioxide as CO2	W-CO2F-CC2	mg/L	0.00		50.1	28.6	28.9	34.5
Total Cyanide	W-CNT-PHO	mg/L	0.005		<0.005	<0.005	<0.005	<0.005
Total Phosphorus as P	W-PTOT-SPC	mg/L	0.050		0.110	0.065	0.066	<0.050
Total Phosphorus as PO4 3-	W-PTOT-SPC	mg/L	0.150		0.338	0.199	0.202	<0.150
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	mg/L	0.005		<0.005	<0.005	<0.005	<0.005
Petroleum Hydrocarbons								
C10 - C12 Fraction	W-TPHFID01	µg/L	5.0		<5.0	<5.0	<5.0	<5.0
C10 - C40 Fraction	W-TPHFID01	µg/L	50.0		<50.0	<50.0	<50.0	<50.0
C12 - C16 Fraction	W-TPHFID01	µg/L	5.0		<5.0	<5.0	<5.0	<5.0
C16 - C35 Fraction	W-TPHFID01	µg/L	30.0		<30.0	<30.0	<30.0	<30.0
C35 - C40 Fraction	W-TPHFID01	µg/L	10.0		<10.0	<10.0	<10.0	<10.0
Physical Parameters								
Colour (True)	W-COL-SPC	mgPt/l	2.0		2.4	<2.0	<2.0	<2.0
Electrical Conductivity @ 25°C	W-CON-PCT	mS/m	0.10		14.0	6.73	6.78	8.00
pH Value	W-PH-PCT		1.00		7.57	7.82	7.72	7.86
Radiological Parameters								
Gross alpha activity	W-GAA-SCI	Bq/L	0.04	0.5	<0.04	<0.04		0.04
Gross beta activity	W-GBA-PRO	Bq/L	0.10	1	<0.10	<0.10		<0.10
Total Metals / Major Cations								
Aluminium	W-METAXDG1	mg/L	0.010					
Aluminium	W-METAFX1	mg/L	0.010		0.052	0.022	0.021	0.012
Aluminium	W-METMSDG2	µg/L	5.0					
Aluminium	W-METMSFX2	µg/L	5.0		64.0	16.5	17.5	11.2
Antimony	W-METAXDG1	mg/L	0.020					
Antimony	W-METAFX1	mg/L	0.010	0.02	<0.010	<0.010	<0.010	<0.010
Antimony	W-METMSDG1	µg/L	1.0					
Antimony	W-METMSFX1	µg/L	1.0	20	<1.0	<1.0	<1.0	<1.0
Arsenic	W-METAXDG1	mg/L	0.010					
Arsenic	W-METAFX1	mg/L	0.0050	0.01	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	W-METMSDG1	µg/L	1.0					
Arsenic	W-METMSFX1	µg/L	1.0	10	<1.0	<1.0	<1.0	<1.0
Barium	W-METAXDG1	mg/L	0.00050					
Barium	W-METAFX1	mg/L	0.00050	1.3	0.00461	0.00212	0.00200	0.00887
Barium	W-METMSDG2	µg/L	1.0					
Barium	W-METMSFX2	µg/L	1.0	1300	4.1	1.6	1.6	6.9
Beryllium	W-METAXDG1	mg/L	0.00020					
Beryllium	W-METAFX1	mg/L	0.00020		<0.00020	<0.00020	<0.00020	<0.00020
Beryllium	W-METMSDG1	µg/L	0.20					
Beryllium	W-METMSFX1	µg/L	0.20		<0.20	<0.20	<0.20	<0.20
Bismuth	W-METMSDG2	µg/L	1.0					
Bismuth	W-METMSFX2	µg/L	1.0		<1.0	<1.0	<1.0	<1.0
Boron	W-METAXDG1	mg/L	0.010					
Boron	W-METAFX1	mg/L	0.010	2.4	<0.010	<0.010	<0.010	<0.010
Cadmium	W-METAXDG1	mg/L	0.0020					
Cadmium	W-METAFX1	mg/L	0.00040	0.003	<0.00040	<0.00040	<0.00040	<0.00040
Cadmium	W-METMSDG1	µg/L	0.20					

Q1 2018 Spring Water Sample Chemical Analytical Results
(Orange highlight = WHO standard for drinking water exceeded)

Client Sample ID					SP83	AW052	AW022**	AW070
Watershed					Arpa	Arpa	Arpa	Vorotan
Laboratory Sample ID					PR1822344004	PR1822344007	PR1822344008	PR1822344014
Client Sampling Date					27/02/2018	27/02/2018	27/02/2018	02/03/2018
RESULTS OF ANALYSIS								
Parameter	Method	Unit	LOR	WHO DW*				
Cadmium	W-METMSFX1	µg/L	0.50	3	<0.50	<0.50	<0.50	<0.50
Calcium	W-METAXDG1	mg/L	0.050					
Calcium	W-METAXFX1	mg/L	0.0050		14.1	5.58	5.36	7.61
Chromium	W-METAXDG1	mg/L	0.0020					
Chromium	W-METAXFX1	mg/L	0.0010		0.0015	<0.0010	0.0019	0.0020
Chromium	W-METMSDG1	µg/L	5.0					
Chromium	W-METMSFX1	µg/L	5.0		<5.0	<5.0	<5.0	<5.0
Cobalt	W-METAXDG1	mg/L	0.0020					
Cobalt	W-METAXFX1	mg/L	0.0020		<0.0020	<0.0020	<0.0020	<0.0020
Cobalt	W-METMSDG2	µg/L	0.50					
Cobalt	W-METMSFX2	µg/L	0.50		<0.50	<0.50	<0.50	<0.50
Copper	W-METAXDG1	mg/L	0.0020					
Copper	W-METAXFX1	mg/L	0.0010	2	<0.0010	<0.0010	0.0265	<0.0010
Copper	W-METMSDG2	µg/L	1.0					
Copper	W-METMSFX2	µg/L	1.0	2000	<1.0	<1.0	<1.0	<1.0
Iron	W-METAXDG1	mg/L	0.0050					
Iron	W-METAXFX1	mg/L	0.0020		0.0335	0.0227	0.0259	0.0147
Lead	W-METAXDG1	mg/L	0.010					
Lead	W-METAXFX1	mg/L	0.0050	0.01	<0.0050	<0.0050	<0.0050	<0.0050
Lead	W-METMSDG1	µg/L	1.0					
Lead	W-METMSFX1	µg/L	1.0	10	<1.0	<1.0	<1.0	<1.0
Lithium	W-METAXDG1	mg/L	0.0020					
Lithium	W-METAXFX1	mg/L	0.0010		<0.0010	<0.0010	<0.0010	<0.0010
Lithium	W-METMSDG2	µg/L	1.0					
Lithium	W-METMSFX2	µg/L	1.0		1.3	<1.0	1.1	<1.0
Magnesium	W-METAXDG1	mg/L	0.020					
Magnesium	W-METAXFX1	mg/L	0.0030		4.01	2.55	2.42	2.53
Magnesium	W-METMSDG2	µg/L	10					
Magnesium	W-METMSFX2	µg/L	10		3590	1980	2000	2070
Manganese	W-METAXDG1	mg/L	0.00050					
Manganese	W-METAXFX1	mg/L	0.00050		0.00186	0.00135	0.00254	0.00066
Manganese	W-METMSDG2	µg/L	0.50					
Manganese	W-METMSFX2	µg/L	0.50		1.46	1.08	2.18	0.74
Mercury	W-HG-AFSDG	µg/L	0.020					
Mercury	W-HG-AFSFX	µg/L	0.010	6	0.012	0.011	<0.010	0.015
Mercury	W-METAXDG1	mg/L	0.010					
Molybdenum	W-METAXDG1	mg/L	0.0030					
Molybdenum	W-METAXFX1	mg/L	0.0020		<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	W-METMSDG1	µg/L	1.0					
Molybdenum	W-METMSFX1	µg/L	1.0		<1.0	<1.0	<1.0	<1.0
Nickel	W-METAXDG1	mg/L	0.0050					
Nickel	W-METAXFX1	mg/L	0.0020	0.07	<0.0020	<0.0020	<0.0020	<0.0020
Nickel	W-METMSDG1	µg/L	3.0					
Nickel	W-METMSFX1	µg/L	3.0	70	<3.0	<3.0	<3.0	<3.0
Phosphorus	W-METAXDG1	mg/L	0.050					
Phosphorus	W-METAXFX1	mg/L	0.050		0.146	0.101	0.095	0.054
Potassium	W-METAXDG1	mg/L	0.015					
Potassium	W-METAXFX1	mg/L	0.015		2.25	2.02	1.95	1.93
Selenium	W-METAXDG1	mg/L	0.030					
Selenium	W-METAXFX1	mg/L	0.010	0.04	<0.010	<0.010	<0.010	<0.010
Selenium	W-METMSDG1	µg/L	5.0					
Selenium	W-METMSFX1	µg/L	1.0	40	<1.0	<1.0	<1.0	<1.0
Silver	W-METAXDG1	mg/L	0.0050					
Silver	W-METAXFX1	mg/L	0.0010		<0.0010	<0.0010	<0.0010	<0.0010
Silver	W-METMSDG2	µg/L	1.0					
Silver	W-METMSFX2	µg/L	1.0		<1.0	<1.0	<1.0	<1.0
Sodium	W-METAXDG1	mg/L	0.030					
Sodium	W-METAXFX1	mg/L	0.030		5.10	3.53	3.36	3.54
Strontium	W-METMSDG2	µg/L	1.0					
Strontium	W-METMSFX2	µg/L	1.0		93.5	44.5	44.8	44.0
Tellurium	W-METMSDG2	µg/L	5.0					
Tellurium	W-METMSFX2	µg/L	5.0		<5.0	<5.0	<5.0	<5.0
Thallium	W-METAXDG1	mg/L	0.010					

Q1 2018 Spring Water Sample Chemical Analytical Results
(Orange highlight = WHO standard for drinking water exceeded)

Client Sample ID					SP83	AW052	AW022**	AW070
Watershed					Arpa	Arpa	Arpa	Vorotan
Laboratory Sample ID					PR1822344004	PR1822344007	PR1822344008	PR1822344014
Client Sampling Date					27/02/2018	27/02/2018	27/02/2018	02/03/2018
RESULTS OF ANALYSIS								
Parameter	Method	Unit	LOR	WHO DW*				
Thallium	W-METAXFX1	mg/L	0.010		<0.010	<0.010	<0.010	<0.010
Thallium	W-METMSDG1	µg/L	0.50					
Thallium	W-METMSFX1	µg/L	0.50		<0.50	<0.50	<0.50	<0.50
Tin	W-METMSDG2	µg/L	1.0					
Tin	W-METMSFX2	µg/L	1.0		<1.0	<1.0	<1.0	<1.0
Titanium	W-METMSDG2	µg/L	5.0					
Titanium	W-METMSFX2	µg/L	5.0		<5.0	<5.0	<5.0	<5.0
Uranium	W-METMSDG3	µg/L	0.10					
Uranium	W-METMSFX3	µg/L	0.10	30	0.24	<0.10	<0.10	0.16
Vanadium	W-METAXDG1	mg/L	0.0020					
Vanadium	W-METAXFX1	mg/L	0.0010		0.0102	0.0060	0.0060	0.0031
Vanadium	W-METMSDG2	µg/L	5.0					
Vanadium	W-METMSFX2	µg/L	5.0		10.6	6.5	6.7	<5.0
Zinc	W-METAXDG1	mg/L	0.0030					
Zinc	W-METAXFX1	mg/L	0.0020		0.0306	0.0605	0.0306	0.0321
Zinc	W-METMSDG2	µg/L	2.0					
Zinc	W-METMSFX2	µg/L	2.0		26.1	45.4	25.1	26.3

* Guideline values from Section 9.2 and Table A3.3 of "Guidelines for Drinking-water Quality, Fourth Edition incorporating the First Addendum", WHO 2017.

** AW022 is a duplicate sample of AW052

Q1 2018 Groundwater and Spring Sampling: Field-Measured Parameters

Location	Date			Temperature °C	Conductivity mS/cm	Dissolved Oxygen %	Dissolved Oxygen mg/l	pH	pHmV	ORP
	dd	mm	yy							
DDGW-029	1	3	18	12.19	0.432	41	4.39	7.73	-55.5	110.5
				12.3	0.433	40.9	4.37	7.73	-55.5	110.3
				12.39	0.433	40.7	4.34	7.73	-55.5	110.1
DDGW-030	1	3	18	12.50	0.531	39.1	4.16	7.37	-35.7	113.5
				12.51	0.531	38.8	4.13	7.37	-35.7	113.8
				12.54	0.53	38.5	4.1	7.37	-35.6	114.3
GGDW-011	1	3	18	11.91	0.409	48.1	5.18	7.73	-55.3	103.9
				11.92	0.409	47.2	5.08	7.73	-55.2	104.4
				11.93	0.409	46.4	5.01	7.73	-55.2	104.7
GGDW-012	1	3	18	11.34	0.493	45.6	4.97	7.71	-54.1	110.1
				11.23	0.493	42.5	4.66	7.69	-53.1	110.8
				11	0.496	41.7	4.58	7.69	-52.9	111.2
DDGW-026	1	3	18	12.16	0.558	47.7	5.11	7.31	-32.4	86.9
				12.13	0.558	46.8	5.02	7.31	-32.4	86.3
				12.08	0.558	45.4	4.87	7.31	-32.3	85.6
DDGW-027	1	3	18	10.98	0.509	42.9	4.72	7.76	-56.7	99.5
				10.98	0.508	42.5	4.68	7.76	-56.7	99.3
				10.97	0.508	42.1	4.63	7.76	-56.7	99.1
DDGW-028	1	3	18	11.15	0.47	48.1	5.27	7.77	-56.9	127.5
				10.88	0.47	46.2	5.1	7.76	-56.6	127.7
				10.78	0.47	45.6	5.04	7.75	-56.4	128.1
AFF-1	28	2	18	10.11	0.285	31.2	3.53	8.08	-74	92.9
				10.1	0.284	31.2	3.51	8.08	-74.1	93.4
				10.1	0.284	31.1	3.49	8.08	-74.3	93.9
SP-83	27	2	18	7.72	0.132	3.1	0.37	7.56	-45.3	154.1
				7.72	0.131	3.1	0.37	7.55	-44.7	154.1
				7.72	0.132	3.1	0.37	7.54	-43.5	154.1
AW-052	27	2	18	5.61	0.064	4.2	0.53	7.38	-35.6	162
				5.62	0.064	4.2	0.54	7.37	-35	162.5
				5.62	0.064	4.2	0.53	7.37	-34.4	163.1
AW-070	2	3	18	6.08	0.076	68.9	8.55	8.26	-82.9	51.2
				6.08	0.076	68.1	8.44	8.25	-82.4	53.5
				6.08	0.076	67.4	8.36	8.24	-81.9	55.8



AMULSAR GOLD PROJECT, VAYOTS DZOR PROVINCE, ARMENIA

Q1 2018 Groundwater and Spring Water Sample Chemical Analytical Results
(Orange highlight = MAC exceeded; yellow highlight - MAC is lower than limit of reporting)

Client Sample ID				DDGW029	DDGW030	GGDW011	GGDW012	DDGW026	DDGW027	DDGW028	SP83	AW052	AW022**	AW070	AFF1	AW023
Watershed				Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Vorotan	Arpa	(Blank)
Laboratory Sample ID				PR1822344019	PR1822344020	PR1822344022	PR1822344021	PR1822344016	PR1822344017	PR1822344018	PR1822344004	PR1822344007	PR1822344008	PR1822344014	PR1822344010	PR1822344015
Client Sampling Date				01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	27/02/2018	27/02/2018	27/02/2018	02/03/2018	28/02/2018	27/02/2018
RESULTS OF ANALYSIS																
Parameter	Method	Unit	LOR	Arpa	Vorotan											
				MAC	MAC											
Aggregate Parameters																
Calcium (Ca)	W-HARD-DG	mmol/L	0.0020													
Calcium Hardness	W-HARD-FX	mmol/L	0.00020			1.58	2.10	1.25	1.50	2.02	1.28	1.46	0.353	0.139	0.134	0.190
Hardness	W-HARD-FX	mmol/L	0.00020			2.18	2.78	1.67	2.57	2.68	1.86	1.97	0.518	0.244	0.233	0.294
Hardness as CaCO3	W-HARD-FX	mg CaCO3/L	0.020	10	10	218	278	167	257	268	186	197	51.8	24.4	23.3	29.4
Magnesium (Mg)	W-HARD-DG	mmol/L	0.00040													
Magnesium Hardness	W-HARD-FX	mg CaCO3/L	0.020			60.1	68.2	41.8	107	66.1	57.8	51.0	16.5	10.5	9.96	10.4
Phenol Index	W-PHI-PHO	mg/L	0.005	0.000005	0.000005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of Calcium and Magnesium as CaCO3	W-HARD-DG	mg CaCO3/L	0.20													
Sum of calcium and magnesium	W-HARD-DG	mmol/L	0.0020													
Dissolved Metals / Major Cations																
Aluminium	W-METAXFL1	mg/L	0.010	0.144	0.144	0.015	0.018	0.016	0.016	0.018	0.015	0.017	0.038	<0.010	<0.010	<0.010
Antimony	W-METAXFL1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic	W-METAXFL1	mg/L	0.0050			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Barium	W-METAXFL1	mg/L	0.00050	0.028	0.012	0.0341	0.0854	0.00787	0.219	0.0660	0.0338	0.0285	0.00436	0.00190	0.00188	0.00916
Beryllium	W-METAXFL1	mg/L	0.00020	0.000038	0.000054	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron	W-METAXFL1	mg/L	0.010	0.45	0.45	0.044	0.044	0.060	0.069	0.119	0.105	0.115	<0.010	<0.010	<0.010	0.045
Cadmium	W-METAXFL1	mg/L	0.00040			<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Calcium	W-METAXFL1	mg/L	0.0050	100	100	63.2	90.6	53.7	62.2	84.7	52.4	63.9	14.5	5.33	5.49	7.95
Chromium	W-METAXFL1	mg/L	0.0010			<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0026	0.0012	0.0011	<0.0010	<0.0010	<0.0010
Cobalt	W-METAXFL1	mg/L	0.0020			<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Copper	W-METAXFL1	mg/L	0.0010			0.0012	0.0025	0.0032	0.0014	0.0011	0.0073	<0.0010	<0.0010	<0.0010	0.0010	<0.0010
Hexavalent Chromium - Soluble	W-CR6-IC	µg/L	0.40			<0.40	<0.40	<0.40	<0.40	<0.40	0.75	<0.40	<0.40	0.45	<0.40	<0.40
Iron	W-METAXFL1	mg/L	0.0020			<0.0020	<0.0020	<0.0020	<0.0020	0.0182	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Lead	W-METAXFL1	mg/L	0.0050			<0.0050	<0.0050	<0.0050	0.0417	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Lithium	W-METAXFL1	mg/L	0.0010	0.003	0.002	<0.0010	<0.0010	<0.0010	0.0022	<0.0010	0.0043	<0.0010	<0.0010	<0.0010	<0.0010	0.0027
Magnesium	W-METAXFL1	mg/L	0.0030	50	50	14.6	18.1	10.8	27.0	17.0	14.5	13.4	4.16	2.43	2.50	2.68
Manganese	W-METAXFL1	mg/L	0.00050			<0.00050	<0.00050	<0.00050	<0.00050	0.257	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0162
Molybdenum	W-METAXFL1	mg/L	0.0020			<0.0020	<0.0020	0.0024	<0.0020	<0.0020	0.0046	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nickel	W-METAXFL1	mg/L	0.0020			<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Phosphorus	W-METAXFL1	mg/L	0.050			<0.050	<0.050	<0.050	<0.050	<0.050	0.052	<0.050	0.126	0.087	0.078	<0.050
Potassium	W-METAXFL1	mg/L	0.015	3.12	4.46	0.626	0.314	0.136	0.484	5.56	1.76	0.746	2.33	2.04	2.09	2.13
Selenium	W-METAXFL1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Silver	W-METAXFL1	mg/L	0.0010			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium	W-METAXFL1	mg/L	0.030	10	8.46	12.5	12.5	37.1	12.1	26.9	53.7	30.4	5.19	3.49	3.52	3.87
Thallium	W-METAXFL1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	W-METAXFL1	mg/L	0.0010			0.0093	0.0120	<0.0010	0.0042	0.0038	0.0080	0.0052	0.0104	0.0061	0.0064	0.0032
Zinc	W-METAXFL1	mg/L	0.0020			<0.0020	<0.0020	<0.0020	0.0038	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0044	<0.0020
Nonmetallic Inorganic Parameters																
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	mmol/L	0.150			4.29	5.48	4.02	5.13	5.49	4.25	4.10	1.06	0.589	0.598	0.731
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	mmol/L	0.150			<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
Aggressive CO2	W-CO2F-CC2	mg/L	0			0	0	0	0	0	0	0	2.93	2.64	2.55	2.23
Ammonia and ammonium ions as N	W-NH4-SPC	mg/L	0.040	0.4	0.4	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Ammonia and ammonium ions as NH4	W-NH4-SPC	mg/L	0.050			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	mmol/L	0.150			<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	mmol/L	0.150			<0.150	0.303	<0.150	<0.150	0.259	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	mg/L	1.0	5	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbonates (CO3 2-)	W-CO2F-CC2	mg/L	0.00			0	0	0	0	0	0	0	0	0	0	0
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	mg/L	5.0	25	25	7.0	6.0	5.0	<5.0	14.0	26.0	11.0	<5.0	22.0	5.0	<5.0
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	mg/L	0.50	10	10	0.79	1.11	1.17	0.95	1.74	4.13	1.64	0.88	1.04	0.85	0.76



Q1 2018 Groundwater and Spring Water Sample Chemical Analytical Results
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				Client Sample ID	DDGW029	DDGW030	GGDW011	GGDW012	DDGW026	DDGW027	DDGW028	SP83	AW052	AW022**	AW070	AFF1	AW023
				Watershed	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Vorotan	Arpa	(Blank)
				Laboratory Sample ID	PR1822344019	PR1822344020	PR1822344022	PR1822344021	PR1822344016	PR1822344017	PR1822344018	PR1822344004	PR1822344007	PR1822344008	PR1822344014	PR1822344010	PR1822344015
				Client Sampling Date	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	27/02/2018	27/02/2018	27/02/2018	02/03/2018	28/02/2018	27/02/2018
RESULTS OF ANALYSIS																	
Parameter	Method	Unit	LOR	Arpa MAC	Vorotan MAC												
Chloride	W-CL-IC	mg/L	1.00	6.88	8	2.10	2.36	2.28	4.77	4.78	8.98	4.67	<1.00	<1.00	<1.00	2.94	<1.00
Dissolved Oxygen	W-O2D-ELE	mg/L	0.20			7.89	8.36	7.91	8.15	7.03	5.59	7.99	8.27	8.42	8.65	7.75	8.49
Dissolved silicate as H2SiO3	W-SIO3-SPC	mg/L	0.100			35.6	33.7	22.4	21.0	34.4	36.1	28.0	47.6	51.1	50.6	57.8	<0.100
Dissolved silicate as SiO2	W-SIO3-SPC	mg/L	0.080	25	23.64	27.4	25.9	17.2	16.2	26.5	27.8	21.5	36.6	39.3	39.0	44.5	37.0
Dissolved silicate as SiO3	W-SIO3-SPC	mg/L	0.100			34.6	32.8	21.8	20.5	33.6	35.2	27.2	46.4	49.8	49.3	56.3	<0.100
Easily released cyanides	W-CNF-PHO	mg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Free Carbon Dioxide as CO2	W-CO2F-CC2	mg/L	0			4.71	13.3	4.53	6.07	11.4	4.71	3.70	3.34	2.68	2.60	2.33	0
Free Cyanide	W-CNF-PHO	mg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	mg/L	0.00			262	335	245	313	335	259	250	64.8	35.9	36.5	44.6	155
Inorganic Nitrogen as N	W-NING-CC	mg/L	0.500	4	4	2.98	0.873	0.979	3.60	0.918	5.79	4.38	1.02	0.763	0.765	0.809	2.67
Nitrate as N	W-NO3-SPC	mg/L	0.060	2.5	2.5	2.98	0.873	0.979	3.60	0.868	5.79	4.38	1.02	0.763	0.765	0.809	2.67
Nitrates	W-NO3-SPC	mg/L	0.27			13.2	3.86	4.34	16.0	3.84	25.6	19.4	4.52	3.38	3.39	3.58	11.8
Nitrite + Nitrate as N	W-NNO-SPC	mg/L	0.060			2.98	0.873	0.979	3.60	0.918	5.79	4.38	1.02	0.763	0.765	0.809	2.67
Nitrite as N	W-NO2-SPC	mg/L	0.0020	0.06	0.06	<0.0020	<0.0020	<0.0020	<0.0020	0.0500	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrites	W-NO2-SPC	mg/L	0.0050			<0.0050	<0.0050	<0.0050	<0.0050	0.164	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Orthophosphate	W-PO4O-SPC	mg/L	0.040			<0.040	<0.040	<0.040	<0.040	0.124	0.166	0.068	0.416	0.292	0.265	0.160	0.191
Orthophosphate as P	W-PO4O-SPC	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	0.040	0.054	0.022	0.136	0.095	0.086	0.052	0.062
Oxygen Saturation	W-O2D-ELE	%	1			96	102	96	99	86	68	98	101	104	106	96	104
Phosphorus (as P2O5)	W-PTOT-SPC	mg/L	0.120			<0.120	<0.120	<0.120	<0.120	0.166	0.197	<0.120	0.252	0.149	0.151	<0.120	<0.120
Sulfide as S2-	W-H2S-PHO	mg/L	0.050			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfides as H2S	W-H2S-PHO	mg/L	0.050			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulphate as SO4 2-	W-SO4-IC	mg/L	5.00	16.04	17.02	10.6	8.09	10.7	9.14	24.7	33.7	17.4	8.32	<5.00	<5.00	<5.00	12.2
Suspended solids dried at 105 °C	W-TSS-GR	mg/L	5.0	6.8	5.5	<5.0	10.7	5.2	<5.0	6.4	12.0	23.8	<5.0	<5.0	<5.0	<5.0	<5.0
Total Carbon Dioxide as CO2	W-CO2F-CC2	mg/L	0.00			194	255	181	232	253	192	184	50.1	28.6	28.9	34.5	112
Total Cyanide	W-CNT-PHO	mg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Phosphorus as P	W-PTOT-SPC	mg/L	0.050	0.2	0.2	<0.050	<0.050	<0.050	<0.050	0.073	0.086	0.052	0.110	0.065	0.066	<0.050	<0.050
Total Phosphorus as PO4 3-	W-PTOT-SPC	mg/L	0.150			<0.150	<0.150	<0.150	<0.150	0.223	0.264	0.158	0.338	0.199	0.202	<0.150	<0.150
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	mg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Petroleum Hydrocarbons																	
C10 - C12 Fraction	W-TPHFID01	µg/L	5.0	1.0 ('oil products')		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
C10 - C40 Fraction	W-TPHFID01	µg/L	50.0			<50.0	70.0	<50.0	<50.0	183	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
C12 - C16 Fraction	W-TPHFID01	µg/L	5.0			<5.0	<5.0	<5.0	<5.0	12.1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
C16 - C35 Fraction	W-TPHFID01	µg/L	30.0			<30.0	57.0	<30.0	<30.0	149	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
C35 - C40 Fraction	W-TPHFID01	µg/L	10.0			<10.0	<10.0	<10.0	<10.0	18.3	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Physical Parameters																	
Colour (True)	W-COL-SPC	mgPt/l	2.0			<2.0	<2.0	2.6	<2.0	3.8	16.5	<2.0	2.4	<2.0	<2.0	<2.0	<2.0
Electrical Conductivity @ 25°C	W-CON-PCT	mS/m	0.10	21.562	16.2	45.3	55.3	43.2	52.3	59.0	54.0	49.5	14.0	6.73	6.78	8.00	30.5
pH Value	W-PH-PCT		1.00	6.5 - 9.0	6.5 - 9.0	7.96	7.60	7.92	7.88	7.68	7.96	8.04	7.57	7.82	7.72	7.86	8.14
Radiological Parameters																	
Gross alpha activity	W-GAA-SCI	Bq/L	0.04										<0.04	<0.04		0.04	
Gross beta activity	W-GBA-PRO	Bq/L	0.10										<0.10	<0.10		<0.10	
Total Metals / Major Cations																	
Aluminium	W-METAXDG1	mg/L	0.010														
Aluminium	W-METAXFX1	mg/L	0.010			0.020	0.022	0.020	0.021	0.021	0.022	0.023	0.052	0.022	0.021	0.012	0.014
Aluminium	W-METMSDG2	µg/L	5.0														
Aluminium	W-METMSFX2	µg/L	5.0			5.7	<5.0	6.6	5.5	5.4	8.3	8.8	64.0	16.5	17.5	11.2	<5.0
Antimony	W-METAXDG1	mg/L	0.020														
Antimony	W-METAXFX1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Antimony	W-METMSDG1	µg/L	1.0	0.28	0.28												



AMULSAR GOLD PROJECT, VAYOTS DZOR PROVINCE, ARMENIA

Q1 2018 Groundwater and Spring Water Sample Chemical Analytical Results
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Watershed				Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Arpa	Vorotan	Arpa	(Blank)
Laboratory Sample ID				PR1822344019	PR1822344020	PR1822344022	PR1822344021	PR1822344016	PR1822344017	PR1822344018	PR1822344004	PR1822344007	PR1822344008	PR1822344014	PR1822344010	PR1822344015
Client Sampling Date				01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	27/02/2018	27/02/2018	27/02/2018	02/03/2018	28/02/2018	27/02/2018
RESULTS OF ANALYSIS																
Parameter	Method	Unit	LOR	Arpa	Vorotan											
				MAC	MAC											
Antimony	W-METMSFX1	µg/L	1.0	0.28	0.28	<1.0	<1.0	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	W-METAXDG1	mg/L	0.010													
Arsenic	W-METAXFX1	mg/L	0.0050			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	W-METMSDG1	µg/L	1.0	20	20											
Arsenic	W-METMSFX1	µg/L	1.0	20	20	2.4	2.0	<1.0	<1.0	1.3	7.9	1.7	<1.0	<1.0	<1.0	<1.0
Barium	W-METAXDG1	mg/L	0.00050													
Barium	W-METAXFX1	mg/L	0.00050			0.0344	0.0779	0.00656	0.209	0.0620	0.0329	0.0260	0.00461	0.00212	0.00200	0.00887
Barium	W-METMSDG2	µg/L	1.0													
Barium	W-METMSFX2	µg/L	1.0			26.0	58.5	4.7	160	45.9	23.9	20.3	4.1	1.6	1.6	6.9
Beryllium	W-METAXDG1	mg/L	0.00020													
Beryllium	W-METAXFX1	mg/L	0.00020			<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Beryllium	W-METMSDG1	µg/L	0.20													
Beryllium	W-METMSFX1	µg/L	0.20			<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bismuth	W-METMSDG2	µg/L	1.0													
Bismuth	W-METMSFX2	µg/L	1.0			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Boron	W-METAXDG1	mg/L	0.010													
Boron	W-METAXFX1	mg/L	0.010			0.045	0.041	0.059	0.069	0.119	0.104	0.112	<0.010	<0.010	<0.010	<0.010
Cadmium	W-METAXDG1	mg/L	0.0020													
Cadmium	W-METAXFX1	mg/L	0.00040			<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Cadmium	W-METMSDG1	µg/L	0.20	1.014	1.01											
Cadmium	W-METMSFX1	µg/L	0.50	1.014	1.01	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium	W-METAXDG1	mg/L	0.050													
Calcium	W-METAXFX1	mg/L	0.0050			63.4	84.1	50.2	60.2	80.8	51.5	58.5	14.1	5.58	5.36	7.61
Chromium	W-METAXDG1	mg/L	0.0020													
Chromium	W-METAXFX1	mg/L	0.0010			<0.0010	0.0025	0.0014	<0.0010	<0.0010	0.0027	0.0020	0.0015	<0.0010	0.0019	0.0020
Chromium	W-METMSDG1	µg/L	5.0	11	10.5											
Chromium	W-METMSFX1	µg/L	5.0	11	10.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cobalt	W-METAXDG1	mg/L	0.0020													
Cobalt	W-METAXFX1	mg/L	0.0020			<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Cobalt	W-METMSDG2	µg/L	0.50	0.36	0.28											
Cobalt	W-METMSFX2	µg/L	0.50	0.36	0.28	<0.50	<0.50	<0.50	<0.50	3.21	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Copper	W-METAXDG1	mg/L	0.0020													
Copper	W-METAXFX1	mg/L	0.0010			0.0023	0.0024	0.0041	0.0015	0.0011	0.0066	0.0039	<0.0010	<0.0010	0.0265	<0.0010
Copper	W-METMSDG2	µg/L	1.0	21	22											
Copper	W-METMSFX2	µg/L	1.0	21	22	1.7	1.7	2.9	1.1	1.0	6.2	1.3	<1.0	<1.0	<1.0	<1.0
Iron	W-METAXDG1	mg/L	0.0050	0.072	0.16											
Iron	W-METAXFX1	mg/L	0.0020	0.072	0.16	0.0097	0.0108	0.0107	0.0113	0.0395	0.0143	0.0095	0.0335	0.0227	0.0259	0.0147
Lead	W-METAXDG1	mg/L	0.010													
Lead	W-METAXFX1	mg/L	0.0050			<0.0050	<0.0050	0.0061	0.0391	<0.0050	0.0059	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Lead	W-METMSDG1	µg/L	1.0	10.14	10.14											
Lead	W-METMSFX1	µg/L	1.0	10.14	10.14	1.2	<1.0	1.8	31.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lithium	W-METAXDG1	mg/L	0.0020													
Lithium	W-METAXFX1	mg/L	0.0010			<0.0010	<0.0010	0.0030	0.0038	<0.0010	0.0052	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Lithium	W-METMSDG2	µg/L	1.0													
Lithium	W-METMSFX2	µg/L	1.0			1.1	<1.0	1.9	3.5	1.2	4.5	1.2	1.3	<1.0	1.1	<1.0
Magnesium	W-METAXDG1	mg/L	0.020													
Magnesium	W-METAXFX1	mg/L	0.0030			14.6	16.6	10.2	26.1	16.1	14.0	12.4	4.01	2.55	2.42	2.53
Magnesium	W-METMSDG2	µg/L	10													
Magnesium	W-METMSFX2	µg/L	10			11700	13400	7850	20700	12700	11000	10100	3590	1980	2000	2070
Manganese	W-METAXDG1	mg/L	0.00050													
Manganese	W-METAXFX1	mg/L	0.00050			0.00411	0.00444	0.00607	0.00096	0.269	0.0129	0.00210	0.00186	0.00135	0.00254	0.00066
Manganese	W-METMSDG2	µg/L	0.50	12	8											
Manganese	W-METMSFX2	µg/L	0.50	12	8	3.19	2.77	4.56	0.58	204	9.88	1.73	1.46	1.08	2.18	0.74




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Client Sampling Date				01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	01/03/2018	27/02/2018	27/02/2018	27/02/2018	02/03/2018	28/02/2018	27/02/2018
RESULTS OF ANALYSIS																
Parameter	Method	Unit	LOR	Arpa	Vorotan											
				MAC	MAC											
Mercury	W-HG-AFSDG	µg/L	0.020	0.3	0.3											
Mercury	W-HG-AFSFX	µg/L	0.010	0.3	0.3	0.013	0.011	0.012	0.012	0.011	0.019	0.014	0.012	0.011	<0.010	0.015
Mercury	W-METAXDG1	mg/L	0.010													
Molybdenum	W-METAXDG1	mg/L	0.0030													
Molybdenum	W-METAXFX1	mg/L	0.0020			<0.0020	<0.0020	0.0040	<0.0020	0.0028	0.0044	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	W-METMSDG1	µg/L	1.0	0.82	2											
Molybdenum	W-METMSFX1	µg/L	1.0	0.82	2	2.3	<1.0	5.1	1.8	4.6	5.6	3.2	<1.0	<1.0	<1.0	<1.0
Nickel	W-METAXDG1	mg/L	0.0050													
Nickel	W-METAXFX1	mg/L	0.0020			<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nickel	W-METMSDG1	µg/L	3.0	10.34	10.45											
Nickel	W-METMSFX1	µg/L	3.0	10.34	10.45	<3.0	<3.0	<3.0	<3.0	3.6	3.1	<3.0	<3.0	<3.0	<3.0	5.3
Phosphorus	W-METAXDG1	mg/L	0.050													
Phosphorus	W-METAXFX1	mg/L	0.050			<0.050	<0.050	<0.050	<0.050	0.062	0.079	<0.050	0.146	0.101	0.095	0.054
Potassium	W-METAXDG1	mg/L	0.015													
Potassium	W-METAXFX1	mg/L	0.015			0.684	0.338	0.180	0.558	5.17	1.77	0.723	2.25	2.02	1.95	1.93
Selenium	W-METAXDG1	mg/L	0.030													
Selenium	W-METAXFX1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Selenium	W-METMSDG1	µg/L	5.0	20	20											
Selenium	W-METMSFX1	µg/L	1.0	20	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	W-METAXDG1	mg/L	0.0050													
Silver	W-METAXFX1	mg/L	0.0010			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	W-METMSDG2	µg/L	1.0													
Silver	W-METMSFX2	µg/L	1.0			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sodium	W-METAXDG1	mg/L	0.030													
Sodium	W-METAXFX1	mg/L	0.030			12.3	11.5	33.7	12.2	25.4	51.1	28.4	5.10	3.53	3.36	3.54
Strontium	W-METMSDG2	µg/L	1.0													
Strontium	W-METMSFX2	µg/L	1.0			484	608	546	667	386	289	334	93.5	44.5	44.8	44.0
Tellurium	W-METMSDG2	µg/L	5.0													
Tellurium	W-METMSFX2	µg/L	5.0			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Thallium	W-METAXDG1	mg/L	0.010													
Thallium	W-METAXFX1	mg/L	0.010			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Thallium	W-METMSDG1	µg/L	0.50													
Thallium	W-METMSFX1	µg/L	0.50			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tin	W-METMSDG2	µg/L	1.0	0.08	0.16											
Tin	W-METMSFX2	µg/L	1.0	0.08	0.16	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	21.7
Titanium	W-METMSDG2	µg/L	5.0													
Titanium	W-METMSFX2	µg/L	5.0			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Uranium	W-METMSDG3	µg/L	0.10													
Uranium	W-METMSFX3	µg/L	0.10			1.29	1.43	1.85	1.41	2.44	2.97	3.81	0.24	<0.10	<0.10	0.16
Vanadium	W-METAXDG1	mg/L	0.0020													
Vanadium	W-METAXFX1	mg/L	0.0010			0.0096	0.0113	<0.0010	0.0044	0.0036	0.0073	0.0049	0.0102	0.0060	0.0060	0.0031
Vanadium	W-METMSDG2	µg/L	5.0	10	16											
Vanadium	W-METMSFX2	µg/L	5.0	10	16	9.1	10.7	<5.0	<5.0	<5.0	7.0	5.3	10.6	6.5	6.7	<5.0
Zinc	W-METAXDG1	mg/L	0.0030													
Zinc	W-METAXFX1	mg/L	0.0020			0.0352	0.0351	0.161	0.0476	0.0321	0.0349	0.0332	0.0306	0.0605	0.0306	0.0321
Zinc	W-METMSDG2	µg/L	2.0	100	100											
Zinc	W-METMSFX2	µg/L	2.0	100	100	27.9	26.9	122	39.9	25.8	27.6	27.1	26.1	45.4	25.1	26.3

** AW022 is a duplicate sample of AW052

	Ծրագրի անվանում՝ ԱՄՈՒԼՍԱՐԻ ՈՍԿՈՒ ՀԱՆՔԻ ԾՐԱԳԻՐ Ծրագրի տեղադիրքը՝ ՀՀ, Վայոց ձորի մարզ	Լիդիանի փաստաթուղթ #	0-00-RPT-ENV-82329	
		Մատակարար ի փաստաթուղթ #	Առկա չեն	
Ամսաթիվ՝ ապրիլ, 2018թ.	Բնապահպանական մոնիթորինգի հաշվետվություն, 2018թ. 1-ին եռամսյակ	Տարբերակ #	0	

Հավելված 7.

Լարորատոր անալիզների
վերաբերյալ վերլուծական
տվյալներ



CERTIFICATE OF ANALYSIS

Work Order	: PR1822344	Issue Date	: 23-Apr-2018
Amendment	: 1		
Customer	: Lydian Armenia	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Armen Stepanyan	Contact	: Client Service
Address	: V. Sargsyan str. 26/1 0010 RA, Yerevan Armenia	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: armen@lydianinternational.co.uk	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Facsimile	: ----	Facsimile	: +420 284 081 635
Project	: Laboratory analysis 15/3/2018 - 26/3/2018	Page	: 1 of 26
Order number	:	Date Samples Received	: 13-Mar-2018
C-O-C number	: ----	Quote number	: PR2015GEOAM-AM0291 (CZ-200-15-0357)
Site	: ----	Date of test	: 15-Mar-2018 - 28-Mar-2018
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples.

Sample(s) PR1822344/012, method W-TPHFID01 - contain(s) high-boiling hydrocarbons with retention time higher than retention time of C40.

Sample(s) PR1822344/016,020, method W-TPHFID01 - contain(s) hydrocarbons with retention time less than retention time of C10 and retention time higher than retention time of C40.

Sample(s) PR1822344/001-022, method W-O2D-ELE were determined in laboratory.

PR1822344/012 METHOD W-CODMN-SPC sample was not analyzed due to matrix interferences (color).

Amendment No.1: Based on client request, sampling dates changed. This amended report PR1822344-1 replaces report PR1822344 issued on 28-Mar-2018

Sample(s) PR1822344/012, method W-CNT-PHO, W-CNF-PHO, W-CNWAD-PHO, W-NNO-SPC, W-NO3-SPC, W-NO2-SPC - LOR for particular sample(s) raised due to matrix interference. (color)

Sample(s) PR1822344/012, method W-METMSDG - LOR for particular sample(s) raised due to matrix interference.

Responsible for accuracy

Signatories

Zdeněk Jiráček

Position

Environmental Business Unit
Manager

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2005





Analytical Results

Sub-Matrix: WATER

Client sample ID
Laboratory sample ID
Client sampling date / time

				AWJ6		AWJ5		FM10	
				PR1822344-001		PR1822344-002		PR1822344-003	
				27-Feb-2018 00:00		27-Feb-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Colour (True)	W-COL-SPC	2.0	mgPt/l	3.6	± 30.0%	4.3	± 30.0%	11.1	± 30.0%
Electrical Conductivity @ 25°C	W-CON-PCT	0.10	mS/m	62.2	± 10.0%	13.6	± 10.0%	12.9	± 10.0%
pH Value	W-PH-PCT	1.00	-	8.82	± 0.9%	7.82	± 1.0%	7.84	± 1.0%
Aggregate Parameters									
Phenol Index	W-PHI-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----
Hardness	W-HARD-FX	0.00020	mmol/L	2.70	----	0.399	----	0.505	----
Calcium Hardness	W-HARD-FX	0.00020	mmol/L	2.19	----	0.242	----	0.344	----
Magnesium Hardness	W-HARD-FX	0.020	mg CaCO3/L	51.0	----	15.8	----	16.2	----
Hardness as CaCO3	W-HARD-FX	0.020	mg CaCO3/L	270	----	39.9	----	50.5	----
Nonmetallic Inorganic Parameters									
Ammonia and ammonium ions as N	W-NH4-SPC	0.040	mg/L	<0.040	----	0.259	± 15.0%	<0.040	----
Ammonia and ammonium ions as NH4	W-NH4-SPC	0.050	mg/L	<0.050	----	0.334	± 15.0%	<0.050	----
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	1.0	mg/L	<1.0	----	<1.0	----	<1.0	----
Carbonates (CO3 2-)	W-CO2F-CC2	0	mg/L	----	----	0	----	0	----
Carbonates (CO3 2-)	W-CO2F-CC2	0.00	mg/L	8.65	± 12.0%	----	----	----	----
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	<5.0	----	<5.0	----	7.0	± 22.1%
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	0.50	mg/L	0.73	± 30.0%	0.88	± 30.0%	2.50	± 30.0%
Chloride	W-CL-IC	1.00	mg/L	3.43	± 15.0%	2.26	± 15.0%	<1.00	----
Dissolved Oxygen	W-O2D-ELE	0.20	mg/L	8.29	± 30.0%	8.10	± 30.0%	8.26	± 30.0%
Dissolved silicate as SiO2	W-SIO3-SPC	0.080	mg/L	39.0	± 20.0%	32.7	± 20.0%	32.4	± 20.0%
Easily released cyanides	W-CNF-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----
Inorganic Nitrogen as N	W-NING-CC	0.500	mg/L	<0.500	----	0.877	----	<0.500	----
Nitrates	W-NO3-SPC	0.27	mg/L	0.87	----	2.71	----	1.95	----
Nitrite + Nitrate as N	W-NNO-SPC	0.060	mg/L	0.197	± 20.0%	0.618	± 20.0%	0.444	± 20.0%
Nitrites	W-NO2-SPC	0.0050	mg/L	<0.0050	----	0.0187	± 15.0%	0.0113	± 15.0%
Orthophosphate	W-PO4O-SPC	0.040	mg/L	0.345	± 20.0%	0.167	± 20.0%	0.292	± 20.0%
Phosphorus (as P2O5)	W-PTOT-SPC	0.120	mg/L	0.256	± 20.0%	0.123	± 20.0%	0.190	± 20.0%
Sulfides as H2S	W-H2S-PHO	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----
Sulphate as SO4 2-	W-SO4-IC	5.00	mg/L	254	± 15.0%	10.3	± 15.0%	8.45	± 15.0%
Total Cyanide	W-CNT-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----
Total Phosphorus as P	W-PTOT-SPC	0.050	mg/L	0.112	± 20.0%	0.054	± 20.0%	0.083	± 20.0%
Total Phosphorus as PO4 3-	W-PTOT-SPC	0.150	mg/L	0.343	± 20.0%	0.165	± 20.0%	0.255	± 20.0%
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----
Dissolved silicate as SiO3	W-SIO3-SPC	0.100	mg/L	49.4	± 20.0%	41.4	± 20.0%	41.0	± 20.0%
Free Cyanide	W-CNF-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0.00	mg/L	120	± 12.0%	60.3	± 12.0%	59.2	± 12.0%
Nitrate as N	W-NO3-SPC	0.060	mg/L	0.197	----	0.612	----	0.441	----
Nitrite as N	W-NO2-SPC	0.0020	mg/L	<0.0020	----	0.0057	± 15.0%	0.0034	± 15.0%
Orthophosphate as P	W-PO4O-SPC	0.010	mg/L	0.112	± 20.0%	0.054	± 20.0%	0.095	± 20.0%
Oxygen Saturation	W-O2D-ELE	1	%	103	± 30.0%	100	± 30.0%	101	± 30.0%
Sulfide as S2-	W-H2S-PHO	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----
Dissolved silicate as H2SiO3	W-SIO3-SPC	0.100	mg/L	50.7	----	42.5	----	42.1	----
Total Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	93.3	± 12.0%	45.5	± 12.0%	44.6	± 12.0%
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----
Free Carbon Dioxide as CO2	W-CO2F-CC2	0	mg/L	0	----	----	----	----	----
Free Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	----	----	2.02	± 12.0%	1.98	± 12.0%
Suspended solids dried at 105 °C	W-TSS-GR	5.0	mg/L	6.8	± 12.2%	<5.0	----	9.2	± 11.6%
Aggressive CO2	W-CO2F-CC2	0	mg/L	0	----	----	----	----	----



Sub-Matrix: WATER				Client sample ID		AWJ6		AWJ5		FM10	
				Laboratory sample ID		PR1822344-001		PR1822344-002		PR1822344-003	
				Client sampling date / time		27-Feb-2018 00:00		27-Feb-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Nonmetallic Inorganic Parameters - Continued											
Aggressive CO2	W-CO2F-CC2	0.00	mg/L	----	----	1.74	± 12.0%	1.72	± 12.0%	1.72	± 12.0%
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	0.150	mmol/L	2.26	± 12.0%	0.988	± 12.0%	0.970	± 12.0%	0.970	± 12.0%
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----	<0.150	----
Total Metals / Major Cations											
Aluminium	W-METMSFX2	5.0	µg/L	31.6	± 10.0%	35.1	± 10.0%	129	± 10.0%	129	± 10.0%
Aluminium	W-METAXFX1	0.010	mg/L	0.058	± 10.0%	0.036	± 10.0%	0.137	± 10.0%	0.137	± 10.0%
Antimony	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----	<1.0	----
Antimony	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----	<0.010	----
Arsenic	W-METMSFX1	1.0	µg/L	8.1	± 10.0%	4.6	± 10.0%	<1.0	----	<1.0	----
Arsenic	W-METAXFX1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----	<0.0050	----
Barium	W-METMSFX2	1.0	µg/L	16.6	± 10.0%	9.8	± 10.0%	7.6	± 10.0%	7.6	± 10.0%
Barium	W-METAXFX1	0.00050	mg/L	0.0216	± 10.0%	0.0130	± 10.0%	0.00973	± 10.0%	0.00973	± 10.0%
Beryllium	W-METMSFX1	0.20	µg/L	<0.20	----	<0.20	----	<0.20	----	<0.20	----
Beryllium	W-METAXFX1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----	<0.00020	----
Bismuth	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----	<1.0	----
Boron	W-METAXFX1	0.010	mg/L	0.080	± 10.0%	0.049	± 10.0%	<0.010	----	<0.010	----
Cadmium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----	<0.50	----
Cadmium	W-METAXFX1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----	<0.00040	----
Calcium	W-METAXFX1	0.0050	mg/L	87.6	± 10.0%	9.68	± 10.0%	13.8	± 10.0%	13.8	± 10.0%
Chromium	W-METMSFX1	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----	<5.0	----
Chromium	W-METAXFX1	0.0010	mg/L	0.0025	± 10.0%	0.0026	± 10.0%	0.0018	± 10.0%	0.0018	± 10.0%
Cobalt	W-METMSFX2	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----	<0.50	----
Cobalt	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----	<0.0020	----
Copper	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----	<1.0	----
Copper	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----	<0.0010	----
Iron	W-METAXFX1	0.0020	mg/L	0.450	± 10.0%	0.0844	± 10.0%	0.264	± 10.0%	0.264	± 10.0%
Lead	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----	<1.0	----
Lead	W-METAXFX1	0.0050	mg/L	0.0058	± 10.0%	<0.0050	----	0.0072	± 10.0%	0.0072	± 10.0%
Lithium	W-METMSFX2	1.0	µg/L	4.9	± 10.0%	7.2	± 10.0%	1.0	± 10.0%	1.0	± 10.0%
Lithium	W-METAXFX1	0.0010	mg/L	0.0044	± 10.0%	0.0084	± 10.0%	<0.0010	----	<0.0010	----
Magnesium	W-METMSFX2	10	µg/L	9850	± 10.0%	3060	± 10.0%	3170	± 10.0%	3170	± 10.0%
Magnesium	W-METAXFX1	0.0030	mg/L	12.4	± 10.0%	3.83	± 10.0%	3.93	± 10.0%	3.93	± 10.0%
Manganese	W-METMSFX2	0.50	µg/L	5.86	± 10.0%	11.9	± 10.0%	21.4	± 10.0%	21.4	± 10.0%
Manganese	W-METAXFX1	0.00050	mg/L	0.00751	± 10.0%	0.0155	± 10.0%	0.0276	± 10.0%	0.0276	± 10.0%
Mercury	W-HG-AFSFX	0.010	µg/L	0.014	± 10.0%	0.012	± 10.0%	<0.010	----	<0.010	----
Molybdenum	W-METMSFX1	1.0	µg/L	3.3	± 10.0%	<1.0	----	<1.0	----	<1.0	----
Molybdenum	W-METAXFX1	0.0020	mg/L	0.0023	± 10.0%	<0.0020	----	<0.0020	----	<0.0020	----
Nickel	W-METMSFX1	3.0	µg/L	<3.0	----	<3.0	----	<3.0	----	<3.0	----
Nickel	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----	<0.0020	----
Phosphorus	W-METAXFX1	0.050	mg/L	0.167	± 10.0%	0.070	± 10.0%	0.120	± 10.0%	0.120	± 10.0%
Potassium	W-METAXFX1	0.015	mg/L	3.11	± 10.0%	2.90	± 10.0%	2.15	± 10.0%	2.15	± 10.0%
Selenium	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----	<1.0	----
Selenium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----	<0.010	----
Silver	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----	<1.0	----
Silver	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----	<0.0010	----
Sodium	W-METAXFX1	0.030	mg/L	27.4	± 10.0%	11.0	± 10.0%	5.22	± 10.0%	5.22	± 10.0%
Strontium	W-METMSFX2	1.0	µg/L	728	± 10.0%	79.0	± 10.0%	78.3	± 10.0%	78.3	± 10.0%
Tellurium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----	<5.0	----
Thallium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----	<0.50	----
Thallium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----	<0.010	----
Tin	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----	<1.0	----
Titanium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----	<5.0	----
Uranium	W-METMSFX3	0.10	µg/L	0.50	± 10.0%	<0.10	----	0.12	± 10.0%	0.12	± 10.0%
Vanadium	W-METMSFX2	5.0	µg/L	5.9	± 10.0%	5.2	± 10.0%	8.6	± 10.0%	8.6	± 10.0%
Vanadium	W-METAXFX1	0.0010	mg/L	0.0061	± 10.0%	0.0050	± 10.0%	0.0085	± 10.0%	0.0085	± 10.0%
Zinc	W-METMSFX2	2.0	µg/L	24.0	± 10.0%	25.0	± 10.0%	25.5	± 10.0%	25.5	± 10.0%



Sub-Matrix: WATER				Client sample ID		AWJ6		AWJ5		FM10	
				Laboratory sample ID		PR1822344-001		PR1822344-002		PR1822344-003	
				Client sampling date / time		27-Feb-2018 00:00		27-Feb-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Total Metals / Major Cations - Continued											
Zinc	W-METAXFX1	0.0020	mg/L	0.0307	± 10.0%	0.0313	± 10.0%	0.0325	± 10.0%		
Dissolved Metals / Major Cations											
Aluminium	W-METAXFL1	0.010	mg/L	0.020	± 10.0%	<0.010	---	<0.010	---		
Antimony	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---		
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---		
Barium	W-METAXFL1	0.00050	mg/L	0.0205	± 10.0%	0.0132	± 10.0%	0.00795	± 10.0%		
Beryllium	W-METAXFL1	0.00020	mg/L	<0.00020	---	<0.00020	---	<0.00020	---		
Boron	W-METAXFL1	0.010	mg/L	0.078	± 10.0%	0.051	± 10.0%	<0.010	---		
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	<0.00040	---	<0.00040	---		
Calcium	W-METAXFL1	0.0050	mg/L	88.7	± 10.0%	10.4	± 10.0%	13.8	± 10.0%		
Chromium	W-METAXFL1	0.0010	mg/L	0.0020	± 10.0%	0.0011	± 10.0%	<0.0010	---		
Cobalt	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---		
Copper	W-METAXFL1	0.0010	mg/L	<0.0010	---	<0.0010	---	<0.0010	---		
Hexavalent Chromium - Soluble	W-CR6-IC	0.40	µg/L	<0.40	---	<0.40	---	<0.40	---		
Iron	W-METAXFL1	0.0020	mg/L	0.0141	± 10.0%	<0.0020	---	0.0036	± 10.0%		
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---		
Lithium	W-METAXFL1	0.0010	mg/L	0.0028	± 10.0%	0.0083	± 10.0%	<0.0010	---		
Magnesium	W-METAXFL1	0.0030	mg/L	12.5	± 10.0%	4.13	± 10.0%	3.92	± 10.0%		
Manganese	W-METAXFL1	0.00050	mg/L	<0.00050	---	<0.00050	---	<0.00050	---		
Molybdenum	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---		
Nickel	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---		
Phosphorus	W-METAXFL1	0.050	mg/L	0.091	± 10.0%	0.055	± 10.0%	0.086	± 10.0%		
Potassium	W-METAXFL1	0.015	mg/L	3.31	± 10.0%	2.56	± 10.0%	2.30	± 10.0%		
Selenium	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---		
Silver	W-METAXFL1	0.0010	mg/L	<0.0010	---	<0.0010	---	<0.0010	---		
Sodium	W-METAXFL1	0.030	mg/L	27.9	± 10.0%	12.0	± 10.0%	5.32	± 10.0%		
Thallium	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---		
Vanadium	W-METAXFL1	0.0010	mg/L	0.0052	± 10.0%	0.0051	± 10.0%	0.0077	± 10.0%		
Zinc	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---		
Petroleum Hydrocarbons											
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---		
C10 - C40 Fraction	W-TPHFID01	50.0	µg/L	<50.0	---	<50.0	---	<50.0	---		
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---		
C16 - C35 Fraction	W-TPHFID01	30.0	µg/L	<30.0	---	<30.0	---	<30.0	---		
C35 - C40 Fraction	W-TPHFID01	10.0	µg/L	<10.0	---	<10.0	---	<10.0	---		

Sub-Matrix: WATER				Client sample ID		SP83		AW041		AW056	
				Laboratory sample ID		PR1822344-004		PR1822344-005		PR1822344-006	
				Client sampling date / time		27-Feb-2018 00:00		27-Feb-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Physical Parameters											
Colour (True)	W-COL-SPC	2.0	mgPt/l	2.4	± 30.0%	2.0	± 30.0%	3.9	± 30.0%		
Electrical Conductivity @ 25°C	W-CON-PCT	0.10	mS/m	14.0	± 10.0%	32.4	± 10.0%	17.3	± 10.0%		
pH Value	W-PH-PCT	1.00	-	7.57	± 1.0%	7.53	± 1.1%	7.70	± 1.0%		
Aggregate Parameters											
Phenol Index	W-PHI-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		
Hardness	W-HARD-FX	0.00020	mmol/L	0.518	---	1.22	---	0.482	---		
Calcium Hardness	W-HARD-FX	0.00020	mmol/L	0.353	---	0.887	---	0.300	---		
Magnesium Hardness	W-HARD-FX	0.020	mg CaCO3/L	16.5	---	32.9	---	18.2	---		
Hardness as CaCO3	W-HARD-FX	0.020	mg CaCO3/L	51.8	---	122	---	48.2	---		
Nonmetallic Inorganic Parameters											
Ammonia and ammonium ions as N	W-NH4-SPC	0.040	mg/L	<0.040	---	<0.040	---	<0.040	---		
Ammonia and ammonium ions as NH4	W-NH4-SPC	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	1.0	mg/L	<1.0	---	<1.0	---	<1.0	---		



Sub-Matrix: WATER				Client sample ID		SP83		AW041		AW056	
				Laboratory sample ID		PR1822344-004		PR1822344-005		PR1822344-006	
				Client sampling date / time		27-Feb-2018 00:00		27-Feb-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
Nonmetallic Inorganic Parameters - Continued											
Carbonates (CO3 2-)	W-CO2F-CC2	0	mg/L	0	----	0	----	0	----		
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	<5.0	----	<5.0	----	<5.0	----		
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	0.50	mg/L	0.88	± 30.0%	0.92	± 30.0%	1.23	± 30.0%		
Chloride	W-CL-IC	1.00	mg/L	<1.00	----	1.05	± 15.0%	5.01	± 15.0%		
Dissolved Oxygen	W-O2D-ELE	0.20	mg/L	8.27	± 30.0%	8.35	± 30.0%	7.96	± 30.0%		
Dissolved silicate as SiO2	W-SIO3-SPC	0.080	mg/L	36.6	± 20.0%	20.5	± 20.0%	27.4	± 20.0%		
Easily released cyanides	W-CNF-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Inorganic Nitrogen as N	W-NING-CC	0.500	mg/L	1.02	----	<0.500	----	0.813	----		
Nitrates	W-NO3-SPC	0.27	mg/L	4.52	----	<0.27	----	3.60	----		
Nitrite + Nitrate as N	W-NNO-SPC	0.060	mg/L	1.02	± 20.0%	<0.060	----	0.813	± 20.0%		
Nitrites	W-NO2-SPC	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Orthophosphate	W-PO4O-SPC	0.040	mg/L	0.416	± 20.0%	<0.040	----	0.071	± 20.0%		
Phosphorus (as P2O5)	W-PTOT-SPC	0.120	mg/L	0.252	± 20.0%	<0.120	----	<0.120	----		
Sulfides as H2S	W-H2S-PHO	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----		
Sulphate as SO4 2-	W-SO4-IC	5.00	mg/L	8.32	± 15.0%	126	± 15.0%	14.8	± 15.0%		
Total Cyanide	W-CNT-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Total Phosphorus as P	W-PTOT-SPC	0.050	mg/L	0.110	± 20.0%	<0.050	----	<0.050	----		
Total Phosphorus as PO4 3-	W-PTOT-SPC	0.150	mg/L	0.338	± 20.0%	<0.150	----	<0.150	----		
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----		
Dissolved silicate as SiO3	W-SIO3-SPC	0.100	mg/L	46.4	± 20.0%	25.9	± 20.0%	34.7	± 20.0%		
Free Cyanide	W-CNF-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0.00	mg/L	64.8	± 12.0%	25.5	± 12.0%	70.9	± 12.0%		
Nitrate as N	W-NO3-SPC	0.060	mg/L	1.02	----	<0.060	----	0.813	----		
Nitrite as N	W-NO2-SPC	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Orthophosphate as P	W-PO4O-SPC	0.010	mg/L	0.136	± 20.0%	<0.010	----	0.023	± 20.0%		
Oxygen Saturation	W-O2D-ELE	1	%	101	± 30.0%	102	± 30.0%	99	± 30.0%		
Sulfide as S2-	W-H2S-PHO	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----		
Dissolved silicate as H2SiO3	W-SIO3-SPC	0.100	mg/L	47.6	----	26.6	----	35.6	----		
Total Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	50.1	± 12.0%	20.3	± 12.0%	53.8	± 12.0%		
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----		
Free Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	3.34	± 12.0%	1.94	± 12.0%	2.60	± 12.0%		
Suspended solids dried at 105 °C	W-TSS-GR	5.0	mg/L	<5.0	----	<5.0	----	<5.0	----		
Aggressive CO2	W-CO2F-CC2	0.00	mg/L	2.93	± 12.0%	1.93	± 12.0%	2.10	± 12.0%		
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	0.150	mmol/L	1.06	± 12.0%	0.418	± 12.0%	1.16	± 12.0%		
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----		
Radiological Parameters											
Gross alpha activity	W-GAA-SCI	0.04	Bq/L	<0.04	----	----	----	----	----		
Gross beta activity	W-GBA-PRO	0.10	Bq/L	<0.10	----	----	----	----	----		
Total Metals / Major Cations											
Aluminium	W-METMSFX2	5.0	µg/L	64.0	± 10.0%	246	± 10.0%	20.6	± 10.0%		
Aluminium	W-METAXFX1	0.010	mg/L	0.052	± 10.0%	0.272	± 10.0%	0.025	± 10.0%		
Antimony	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Antimony	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Arsenic	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	4.7	± 10.0%		
Arsenic	W-METAXFX1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Barium	W-METMSFX2	1.0	µg/L	4.1	± 10.0%	8.9	± 10.0%	10.0	± 10.0%		
Barium	W-METAXFX1	0.00050	mg/L	0.00461	± 10.0%	0.0123	± 10.0%	0.0110	± 10.0%		
Beryllium	W-METMSFX1	0.20	µg/L	<0.20	----	<0.20	----	<0.20	----		
Beryllium	W-METAXFX1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----		
Bismuth	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Boron	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	0.077	± 10.0%		



Sub-Matrix: **WATER**

Client sample ID
Laboratory sample ID
Client sampling date / time

				SP83		AW041		AW056	
				PR1822344-004		PR1822344-005		PR1822344-006	
				27-Feb-2018 00:00		27-Feb-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Total Metals / Major Cations - Continued									
Cadmium	W-METMSFX1	0.50	µg/L	<0.50	---	<0.50	---	<0.50	---
Cadmium	W-METAXFX1	0.00040	mg/L	<0.00040	---	<0.00040	---	<0.00040	---
Calcium	W-METAXFX1	0.0050	mg/L	14.1	± 10.0%	35.5	± 10.0%	12.0	± 10.0%
Chromium	W-METMSFX1	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---
Chromium	W-METAXFX1	0.0010	mg/L	0.0015	± 10.0%	0.0015	± 10.0%	<0.0010	---
Cobalt	W-METMSFX2	0.50	µg/L	<0.50	---	2.19	± 10.0%	<0.50	---
Cobalt	W-METAXFX1	0.0020	mg/L	<0.0020	---	0.0022	± 10.0%	<0.0020	---
Copper	W-METMSFX2	1.0	µg/L	<1.0	---	3.8	± 10.0%	<1.0	---
Copper	W-METAXFX1	0.0010	mg/L	<0.0010	---	0.0032	± 10.0%	<0.0010	---
Iron	W-METAXFX1	0.0020	mg/L	0.0335	± 10.0%	0.547	± 10.0%	0.274	± 10.0%
Lead	W-METMSFX1	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Lead	W-METAXFX1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---
Lithium	W-METMSFX2	1.0	µg/L	1.3	± 10.0%	1.2	± 10.0%	16.9	± 10.0%
Lithium	W-METAXFX1	0.0010	mg/L	<0.0010	---	<0.0010	---	0.0194	± 10.0%
Magnesium	W-METMSFX2	10	µg/L	3590	± 10.0%	7180	± 10.0%	3940	± 10.0%
Magnesium	W-METAXFX1	0.0030	mg/L	4.01	± 10.0%	8.00	± 10.0%	4.43	± 10.0%
Manganese	W-METMSFX2	0.50	µg/L	1.46	± 10.0%	204	± 10.0%	65.1	± 10.0%
Manganese	W-METAXFX1	0.00050	mg/L	0.00186	± 10.0%	0.222	± 10.0%	0.0731	± 10.0%
Mercury	W-HG-AFSFX	0.010	µg/L	0.012	± 10.0%	<0.010	---	<0.010	---
Molybdenum	W-METMSFX1	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Molybdenum	W-METAXFX1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---
Nickel	W-METMSFX1	3.0	µg/L	<3.0	---	<3.0	---	<3.0	---
Nickel	W-METAXFX1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---
Phosphorus	W-METAXFX1	0.050	mg/L	0.146	± 10.0%	<0.050	---	<0.050	---
Potassium	W-METAXFX1	0.015	mg/L	2.25	± 10.0%	0.295	± 10.0%	2.82	± 10.0%
Selenium	W-METMSFX1	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Selenium	W-METAXFX1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---
Silver	W-METMSFX2	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Silver	W-METAXFX1	0.0010	mg/L	<0.0010	---	<0.0010	---	<0.0010	---
Sodium	W-METAXFX1	0.030	mg/L	5.10	± 10.0%	7.15	± 10.0%	12.4	± 10.0%
Strontium	W-METMSFX2	1.0	µg/L	93.5	± 10.0%	200	± 10.0%	109	± 10.0%
Tellurium	W-METMSFX2	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---
Thallium	W-METMSFX1	0.50	µg/L	<0.50	---	<0.50	---	<0.50	---
Thallium	W-METAXFX1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---
Tin	W-METMSFX2	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Titanium	W-METMSFX2	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---
Uranium	W-METMSFX3	0.10	µg/L	0.24	± 10.0%	<0.10	---	0.15	± 10.0%
Vanadium	W-METMSFX2	5.0	µg/L	10.6	± 10.0%	<5.0	---	<5.0	---
Vanadium	W-METAXFX1	0.0010	mg/L	0.0102	± 10.0%	<0.0010	---	0.0020	± 10.0%
Zinc	W-METMSFX2	2.0	µg/L	26.1	± 10.0%	35.6	± 10.0%	25.5	± 10.0%
Zinc	W-METAXFX1	0.0020	mg/L	0.0306	± 10.0%	0.0552	± 10.0%	0.0294	± 10.0%
Dissolved Metals / Major Cations									
Aluminium	W-METAXFL1	0.010	mg/L	0.038	± 10.0%	0.034	± 10.0%	<0.010	---
Antimony	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---
Barium	W-METAXFL1	0.00050	mg/L	0.00436	± 10.0%	0.0104	± 10.0%	0.00991	± 10.0%
Beryllium	W-METAXFL1	0.00020	mg/L	<0.00020	---	<0.00020	---	<0.00020	---
Boron	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	0.078	± 10.0%
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	<0.00040	---	<0.00040	---
Calcium	W-METAXFL1	0.0050	mg/L	14.5	± 10.0%	39.2	± 10.0%	12.3	± 10.0%
Chromium	W-METAXFL1	0.0010	mg/L	0.0011	± 10.0%	<0.0010	---	<0.0010	---
Cobalt	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---
Copper	W-METAXFL1	0.0010	mg/L	<0.0010	---	0.0015	± 10.0%	<0.0010	---
Hexavalent Chromium - Soluble	W-CR6-IC	0.40	µg/L	<0.40	---	<0.40	---	<0.40	---
Iron	W-METAXFL1	0.0020	mg/L	<0.0020	---	0.0230	± 10.0%	0.0152	± 10.0%
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---
Lithium	W-METAXFL1	0.0010	mg/L	<0.0010	---	<0.0010	---	0.0200	± 10.0%
Magnesium	W-METAXFL1	0.0030	mg/L	4.16	± 10.0%	7.74	± 10.0%	4.55	± 10.0%



Sub-Matrix: **WATER**

Client sample ID
Laboratory sample ID
Client sampling date / time

				SP83		AW041		AW056	
				PR1822344-004		PR1822344-005		PR1822344-006	
				27-Feb-2018 00:00		27-Feb-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Dissolved Metals / Major Cations - Continued									
Manganese	W-METAXFL1	0.00050	mg/L	<0.00050	---	0.223	± 10.0%	<0.00050	---
Molybdenum	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---
Nickel	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---
Phosphorus	W-METAXFL1	0.050	mg/L	0.126	± 10.0%	<0.050	---	<0.050	---
Potassium	W-METAXFL1	0.015	mg/L	2.33	± 10.0%	0.318	± 10.0%	2.92	± 10.0%
Selenium	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---
Silver	W-METAXFL1	0.0010	mg/L	<0.0010	---	<0.0010	---	<0.0010	---
Sodium	W-METAXFL1	0.030	mg/L	5.19	± 10.0%	7.69	± 10.0%	12.9	± 10.0%
Thallium	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---
Vanadium	W-METAXFL1	0.0010	mg/L	0.0104	± 10.0%	<0.0010	---	0.0015	± 10.0%
Zinc	W-METAXFL1	0.0020	mg/L	<0.0020	---	0.0078	± 10.0%	<0.0020	---
Petroleum Hydrocarbons									
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---
C10 - C40 Fraction	W-TPHFID01	50.0	µg/L	<50.0	---	<50.0	---	<50.0	---
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---
C16 - C35 Fraction	W-TPHFID01	30.0	µg/L	<30.0	---	<30.0	---	<30.0	---
C35 - C40 Fraction	W-TPHFID01	10.0	µg/L	<10.0	---	<10.0	---	<10.0	---

Sub-Matrix: **WATER**

Client sample ID
Laboratory sample ID
Client sampling date / time

				AW052		AW022		AW010	
				PR1822344-007		PR1822344-008		PR1822344-009	
				27-Feb-2018 00:00		27-Feb-2018 00:00		28-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Colour (True)	W-COL-SPC	2.0	mgPt/l	<2.0	---	<2.0	---	4.5	± 30.0%
Electrical Conductivity @ 25°C	W-CON-PCT	0.10	mS/m	6.73	± 10.0%	6.78	± 10.0%	19.7	± 10.0%
pH Value	W-PH-PCT	1.00	-	7.82	± 1.0%	7.72	± 1.0%	8.00	± 1.0%
Aggregate Parameters									
Phenol Index	W-PHI-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---
Hardness	W-HARD-FX	0.00020	mmol/L	0.244	---	0.233	---	0.621	---
Calcium Hardness	W-HARD-FX	0.00020	mmol/L	0.139	---	0.134	---	0.407	---
Magnesium Hardness	W-HARD-FX	0.020	mg CaCO3/L	10.5	---	9.96	---	21.4	---
Hardness as CaCO3	W-HARD-FX	0.020	mg CaCO3/L	24.4	---	23.3	---	62.1	---
Nonmetallic Inorganic Parameters									
Ammonia and ammonium ions as N	W-NH4-SPC	0.040	mg/L	<0.040	---	<0.040	---	<0.040	---
Ammonia and ammonium ions as NH4	W-NH4-SPC	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	1.0	mg/L	<1.0	---	<1.0	---	<1.0	---
Carbonates (CO3 2-)	W-CO2F-CC2	0	mg/L	0	---	0	---	0	---
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	22.0	± 17.3%	5.0	± 25.0%	<5.0	---
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	0.50	mg/L	1.04	± 30.0%	0.85	± 30.0%	1.17	± 30.0%
Chloride	W-CL-IC	1.00	mg/L	<1.00	---	<1.00	---	5.97	± 15.0%
Dissolved Oxygen	W-O2D-ELE	0.20	mg/L	8.42	± 30.0%	8.65	± 30.0%	8.43	± 30.0%
Dissolved silicate as SiO2	W-SIO3-SPC	0.080	mg/L	39.3	± 20.0%	39.0	± 20.0%	29.0	± 20.0%
Easily released cyanides	W-CNF-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---
Inorganic Nitrogen as N	W-NING-CC	0.500	mg/L	0.763	---	0.765	---	0.973	---
Nitrates	W-NO3-SPC	0.27	mg/L	3.38	---	3.39	---	4.29	---
Nitrite + Nitrate as N	W-NNO-SPC	0.060	mg/L	0.763	± 20.0%	0.765	± 20.0%	0.973	± 20.0%
Nitrites	W-NO2-SPC	0.0050	mg/L	<0.0050	---	<0.0050	---	0.0111	± 15.0%
Orthophosphate	W-PO4O-SPC	0.040	mg/L	0.292	± 20.0%	0.265	± 20.0%	0.157	± 20.0%
Phosphorus (as P2O5)	W-PTOT-SPC	0.120	mg/L	0.149	± 20.0%	0.151	± 20.0%	<0.120	---
Sulfides as H2S	W-H2S-PHO	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---
Sulphate as SO4 2-	W-SO4-IC	5.00	mg/L	<5.00	---	<5.00	---	14.9	± 15.0%
Total Cyanide	W-CNT-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---



Sub-Matrix: **WATER**

Client sample ID
Laboratory sample ID
Client sampling date / time

				AW052		AW022		AW010	
				PR1822344-007		PR1822344-008		PR1822344-009	
				27-Feb-2018 00:00		27-Feb-2018 00:00		28-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Nonmetallic Inorganic Parameters - Continued									
Total Phosphorus as P	W-PTOT-SPC	0.050	mg/L	0.065	± 20.0%	0.066	± 20.0%	<0.050	----
Total Phosphorus as PO4 3-	W-PTOT-SPC	0.150	mg/L	0.199	± 20.0%	0.202	± 20.0%	<0.150	----
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----
Dissolved silicate as SiO3	W-SiO3-SPC	0.100	mg/L	49.8	± 20.0%	49.3	± 20.0%	36.7	± 20.0%
Free Cyanide	W-CNF-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0.00	mg/L	35.9	± 12.0%	36.5	± 12.0%	105	± 12.0%
Nitrate as N	W-NO3-SPC	0.060	mg/L	0.763	----	0.765	----	0.969	----
Nitrite as N	W-NO2-SPC	0.0020	mg/L	<0.0020	----	<0.0020	----	0.0034	± 15.0%
Orthophosphate as P	W-PO4O-SPC	0.010	mg/L	0.095	± 20.0%	0.086	± 20.0%	0.051	± 20.0%
Oxygen Saturation	W-O2D-ELE	1	%	104	± 30.0%	106	± 30.0%	102	± 30.0%
Sulfide as S2-	W-H2S-PHO	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----
Dissolved silicate as H2SiO3	W-SiO3-SPC	0.100	mg/L	51.1	----	50.6	----	37.7	----
Total Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	28.6	± 12.0%	28.9	± 12.0%	77.9	± 12.0%
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----
Free Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	2.68	± 12.0%	2.60	± 12.0%	1.85	± 12.0%
Suspended solids dried at 105 °C	W-TSS-GR	5.0	mg/L	<5.0	----	<5.0	----	<5.0	----
Aggressive CO2	W-CO2F-CC2	0.00	mg/L	2.64	± 12.0%	2.55	± 12.0%	0.41	± 12.0%
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	0.150	mmol/L	0.589	± 12.0%	0.598	± 12.0%	1.73	± 12.0%
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----
Radiological Parameters									
Gross alpha activity	W-GAA-SCI	0.04	Bq/L	<0.04	----	----	----	----	----
Gross beta activity	W-GBA-PRO	0.10	Bq/L	<0.10	----	----	----	----	----
Total Metals / Major Cations									
Aluminium	W-METMSFX2	5.0	µg/L	16.5	± 10.0%	17.5	± 10.0%	27.4	± 10.0%
Aluminium	W-METAXFX1	0.010	mg/L	0.022	± 10.0%	0.021	± 10.0%	0.038	± 10.0%
Antimony	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Antimony	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Arsenic	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	5.4	± 10.0%
Arsenic	W-METAXFX1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----
Barium	W-METMSFX2	1.0	µg/L	1.6	± 10.0%	1.6	± 10.0%	11.0	± 10.0%
Barium	W-METAXFX1	0.00050	mg/L	0.00212	± 10.0%	0.00200	± 10.0%	0.0150	± 10.0%
Beryllium	W-METMSFX1	0.20	µg/L	<0.20	----	<0.20	----	<0.20	----
Beryllium	W-METAXFX1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----
Bismuth	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Boron	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	0.090	± 10.0%
Cadmium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----
Cadmium	W-METAXFX1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----
Calcium	W-METAXFX1	0.0050	mg/L	5.58	± 10.0%	5.36	± 10.0%	16.3	± 10.0%
Chromium	W-METMSFX1	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----
Chromium	W-METAXFX1	0.0010	mg/L	<0.0010	----	0.0019	± 10.0%	0.0019	± 10.0%
Cobalt	W-METMSFX2	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----
Cobalt	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Copper	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Copper	W-METAXFX1	0.0010	mg/L	<0.0010	----	0.0265	± 10.0%	<0.0010	----
Iron	W-METAXFX1	0.0020	mg/L	0.0227	± 10.0%	0.0259	± 10.0%	0.101	± 10.0%
Lead	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Lead	W-METAXFX1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----
Lithium	W-METMSFX2	1.0	µg/L	<1.0	----	1.1	± 10.0%	16.4	± 10.0%
Lithium	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	0.0176	± 10.0%
Magnesium	W-METMSFX2	10	µg/L	1980	± 10.0%	2000	± 10.0%	4220	± 10.0%
Magnesium	W-METAXFX1	0.0030	mg/L	2.55	± 10.0%	2.42	± 10.0%	5.20	± 10.0%
Manganese	W-METMSFX2	0.50	µg/L	1.08	± 10.0%	2.18	± 10.0%	13.1	± 10.0%
Manganese	W-METAXFX1	0.00050	mg/L	0.00135	± 10.0%	0.00254	± 10.0%	0.0166	± 10.0%



Sub-Matrix: **WATER**

Client sample ID
Laboratory sample ID
Client sampling date / time

				AW052		AW022		AW010	
				PR1822344-007		PR1822344-008		PR1822344-009	
				27-Feb-2018 00:00		27-Feb-2018 00:00		28-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Total Metals / Major Cations - Continued									
Mercury	W-HG-AFSFX	0.010	µg/L	0.011	± 10.0%	<0.010	----	<0.010	----
Molybdenum	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Molybdenum	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Nickel	W-METMSFX1	3.0	µg/L	<3.0	----	<3.0	----	<3.0	----
Nickel	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Phosphorus	W-METAXFX1	0.050	mg/L	0.101	± 10.0%	0.095	± 10.0%	<0.050	----
Potassium	W-METAXFX1	0.015	mg/L	2.02	± 10.0%	1.95	± 10.0%	2.86	± 10.0%
Selenium	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Selenium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Silver	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Silver	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----
Sodium	W-METAXFX1	0.030	mg/L	3.53	± 10.0%	3.36	± 10.0%	13.8	± 10.0%
Strontium	W-METMSFX2	1.0	µg/L	44.5	± 10.0%	44.8	± 10.0%	113	± 10.0%
Tellurium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----
Thallium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----
Thallium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Tin	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Titanium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----
Uranium	W-METMSFX3	0.10	µg/L	<0.10	----	<0.10	----	0.31	± 10.0%
Vanadium	W-METMSFX2	5.0	µg/L	6.5	± 10.0%	6.7	± 10.0%	<5.0	----
Vanadium	W-METAXFX1	0.0010	mg/L	0.0060	± 10.0%	0.0060	± 10.0%	0.0043	± 10.0%
Zinc	W-METMSFX2	2.0	µg/L	45.4	± 10.0%	25.1	± 10.0%	24.9	± 10.0%
Zinc	W-METAXFX1	0.0020	mg/L	0.0605	± 10.0%	0.0306	± 10.0%	0.0339	± 10.0%
Dissolved Metals / Major Cations									
Aluminium	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Antimony	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----
Barium	W-METAXFL1	0.00050	mg/L	0.00190	± 10.0%	0.00188	± 10.0%	0.0140	± 10.0%
Beryllium	W-METAXFL1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----
Boron	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	0.093	± 10.0%
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----
Calcium	W-METAXFL1	0.0050	mg/L	5.33	± 10.0%	5.49	± 10.0%	17.0	± 10.0%
Chromium	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----
Cobalt	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Copper	W-METAXFL1	0.0010	mg/L	<0.0010	----	0.0010	± 10.0%	<0.0010	----
Hexavalent Chromium - Soluble	W-CR6-IC	0.40	µg/L	0.45	± 26.2%	<0.40	----	<0.40	----
Iron	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----
Lithium	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	0.0175	± 10.0%
Magnesium	W-METAXFL1	0.0030	mg/L	2.43	± 10.0%	2.50	± 10.0%	5.39	± 10.0%
Manganese	W-METAXFL1	0.00050	mg/L	<0.00050	----	<0.00050	----	<0.00050	----
Molybdenum	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Nickel	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Phosphorus	W-METAXFL1	0.050	mg/L	0.087	± 10.0%	0.078	± 10.0%	0.051	± 10.0%
Potassium	W-METAXFL1	0.015	mg/L	2.04	± 10.0%	2.09	± 10.0%	3.09	± 10.0%
Selenium	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Silver	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----
Sodium	W-METAXFL1	0.030	mg/L	3.49	± 10.0%	3.52	± 10.0%	14.4	± 10.0%
Thallium	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Vanadium	W-METAXFL1	0.0010	mg/L	0.0061	± 10.0%	0.0064	± 10.0%	0.0041	± 10.0%
Zinc	W-METAXFL1	0.0020	mg/L	<0.0020	----	0.0044	± 10.0%	<0.0020	----
Petroleum Hydrocarbons									
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----
C10 - C40 Fraction	W-TPHFID01	50.0	µg/L	<50.0	----	<50.0	----	<50.0	----
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----
C16 - C35 Fraction	W-TPHFID01	30.0	µg/L	<30.0	----	<30.0	----	<30.0	----
C35 - C40 Fraction	W-TPHFID01	10.0	µg/L	<10.0	----	<10.0	----	<10.0	----



Sub-Matrix: WATER				Client sample ID		AFF1		AW009		DF1	
				Laboratory sample ID		PR1822344-010		PR1822344-011		PR1822344-012	
				Client sampling date / time		28-Feb-2018 00:00		28-Feb-2018 00:00		28-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Physical Parameters											
Colour (True)	W-COL-SPC	2.0	mgPt/l	<2.0	---	4.6	± 30.0%	1880	± 30.0%		
Electrical Conductivity @ 25°C	W-CON-PCT	0.10	mS/m	30.5	± 10.0%	21.3	± 10.0%	251	± 10.0%		
pH Value	W-PH-PCT	1.00	-	8.14	± 1.0%	7.92	± 1.0%	7.41	± 1.1%		
Aggregate Parameters											
Phenol Index	W-PHI-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		
Sum of calcium and magnesium	W-HARD-DG	0.0020	mmol/L	---	---	---	---	6.96	---		
Hardness	W-HARD-FX	0.00020	mmol/L	1.30	---	0.704	---	---	---		
Calcium Hardness	W-HARD-FX	0.00020	mmol/L	0.870	---	0.463	---	---	---		
Magnesium Hardness	W-HARD-FX	0.020	mg CaCO3/L	43.5	---	24.1	---	---	---		
Hardness as CaCO3	W-HARD-FX	0.020	mg CaCO3/L	130	---	70.4	---	---	---		
Calcium (Ca)	W-HARD-DG	0.0020	mmol/L	---	---	---	---	4.42	---		
Magnesium (Mg)	W-HARD-DG	0.00040	mmol/L	---	---	---	---	2.54	---		
Sum of Calcium and Magnesium as CaCO3	W-HARD-DG	0.20	mg CaCO3/L	---	---	---	---	696	---		
Nonmetallic Inorganic Parameters											
Ammonia and ammonium ions as N	W-NH4-SPC	0.040	mg/L	<0.040	---	<0.040	---	78.4	± 15.0%		
Ammonia and ammonium ions as NH4	W-NH4-SPC	0.050	mg/L	<0.050	---	<0.050	---	101	± 15.0%		
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	1.0	mg/L	<1.0	---	<1.0	---	787	± 15.0%		
Carbonates (CO3 2-)	W-CO2F-CC2	0	mg/L	0	---	0	---	0	---		
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	<5.0	---	5.0	± 25.0%	3010	± 15.0%		
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	0.50	mg/L	0.85	± 30.0%	1.17	± 30.0%	---	---		
Chloride	W-CL-IC	1.00	mg/L	2.94	± 15.0%	6.28	± 15.0%	95.9	± 15.0%		
Dissolved Oxygen	W-O2D-ELE	0.20	mg/L	8.49	± 30.0%	8.77	± 30.0%	0.30	± 30.0%		
Dissolved silicate as SiO2	W-SIO3-SPC	0.080	mg/L	37.0	± 20.0%	29.0	± 20.0%	61.8	± 20.0%		
Easily released cyanides	W-CNF-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.025	---		
Inorganic Nitrogen as N	W-NING-CC	0.500	mg/L	2.67	---	0.998	---	78.4	---		
Nitrates	W-NO3-SPC	0.27	mg/L	11.8	---	4.40	---	<3.30	---		
Nitrite + Nitrate as N	W-NNO-SPC	0.060	mg/L	2.67	± 20.0%	0.998	± 20.0%	<0.750	---		
Nitrites	W-NO2-SPC	0.0050	mg/L	<0.0050	---	0.0124	± 15.0%	<0.164	---		
Orthophosphate	W-PO4O-SPC	0.040	mg/L	0.191	± 20.0%	0.136	± 20.0%	49.3	± 20.0%		
Phosphorus (as P2O5)	W-PTOT-SPC	0.120	mg/L	<0.120	---	<0.120	---	81.5	± 20.0%		
Sulfides as H2S	W-H2S-PHO	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
Sulphate as SO4 2-	W-SO4-IC	5.00	mg/L	12.2	± 15.0%	16.3	± 15.0%	<5.00	---		
Total Cyanide	W-CNT-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.025	---		
Total Phosphorus as P	W-PTOT-SPC	0.050	mg/L	<0.050	---	<0.050	---	35.6	± 20.0%		
Total Phosphorus as PO4 3-	W-PTOT-SPC	0.150	mg/L	<0.150	---	<0.150	---	109	± 20.0%		
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.025	---		
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	0.150	mmol/L	<0.150	---	<0.150	---	1.99	± 15.0%		
Dissolved silicate as SiO3	W-SIO3-SPC	0.100	mg/L	46.9	± 20.0%	36.8	± 20.0%	78.3	± 20.0%		
Free Cyanide	W-CNF-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.025	---		
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0.00	mg/L	155	± 12.0%	88.9	± 12.0%	1290	± 12.0%		
Nitrate as N	W-NO3-SPC	0.060	mg/L	2.67	---	0.994	---	<0.750	---		
Nitrite as N	W-NO2-SPC	0.0020	mg/L	<0.0020	---	0.0038	± 15.0%	<0.0500	---		
Orthophosphate as P	W-PO4O-SPC	0.010	mg/L	0.062	± 20.0%	0.044	± 20.0%	16.1	± 20.0%		
Oxygen Saturation	W-O2D-ELE	1	%	104	± 30.0%	107	± 30.0%	4	± 30.0%		
Sulfide as S2-	W-H2S-PHO	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
Dissolved silicate as H2SiO3	W-SIO3-SPC	0.100	mg/L	48.2	---	37.8	---	80.4	---		
Total Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	112	± 12.0%	66.2	± 12.0%	1020	± 12.0%		
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	0.150	mmol/L	<0.150	---	<0.150	---	<0.150	---		
Free Carbon Dioxide as CO2	W-CO2F-CC2	0	mg/L	0	---	---	---	---	---		
Free Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	---	---	2.02	± 12.0%	87.8	± 12.0%		
Suspended solids dried at 105 °C	W-TSS-GR	5.0	mg/L	<5.0	---	<5.0	---	1120	± 10.0%		



Sub-Matrix: WATER				Client sample ID		AFF1		AW009		DF1	
				Laboratory sample ID		PR1822344-010		PR1822344-011		PR1822344-012	
				Client sampling date / time		28-Feb-2018 00:00		28-Feb-2018 00:00		28-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Nonmetallic Inorganic Parameters - Continued											
Aggressive CO2	W-CO2F-CC2	0	mg/L	0	---	---	---	---	---	0	---
Aggressive CO2	W-CO2F-CC2	0.00	mg/L	---	---	1.12	± 12.0%	---	---	---	---
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	0.150	mmol/L	2.54	± 12.0%	1.46	± 12.0%	21.2	± 12.0%	---	---
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	0.150	mmol/L	<0.150	---	<0.150	---	<0.150	---	<0.150	---
Total Metals / Major Cations											
Aluminium	W-METMSDG2	5.0	µg/L	---	---	---	---	2440	± 10.0%	---	---
Aluminium	W-METMSFX2	5.0	µg/L	<5.0	---	24.7	± 10.0%	---	---	---	---
Aluminium	W-METAXDG1	0.010	mg/L	---	---	---	---	2.82	± 10.0%	---	---
Aluminium	W-METAXFX1	0.010	mg/L	0.014	± 10.0%	0.036	± 10.0%	---	---	---	---
Antimony	W-METMSDG1	1.0	µg/L	---	---	---	---	<2.0	---	---	---
Antimony	W-METMSFX1	1.0	µg/L	<1.0	---	<1.0	---	---	---	---	---
Antimony	W-METAXFX1	0.010	mg/L	<0.010	---	<0.010	---	---	---	---	---
Antimony	W-METAXDG1	0.020	mg/L	---	---	---	---	<0.020	---	---	---
Arsenic	W-METMSDG1	1.0	µg/L	---	---	---	---	6.4	± 10.0%	---	---
Arsenic	W-METMSFX1	1.0	µg/L	2.2	± 10.0%	5.0	± 10.0%	---	---	---	---
Arsenic	W-METAXFX1	0.0050	mg/L	<0.0050	---	<0.0050	---	---	---	---	---
Arsenic	W-METAXDG1	0.010	mg/L	---	---	---	---	<0.010	---	---	---
Barium	W-METMSDG2	1.0	µg/L	---	---	---	---	725	± 10.0%	---	---
Barium	W-METMSFX2	1.0	µg/L	5.7	± 10.0%	11.6	± 10.0%	---	---	---	---
Barium	W-METAXDG1	0.00050	mg/L	---	---	---	---	0.733	± 10.0%	---	---
Barium	W-METAXFX1	0.00050	mg/L	0.00722	± 10.0%	0.0152	± 10.0%	---	---	---	---
Beryllium	W-METMSDG1	0.20	µg/L	---	---	---	---	<0.40	---	---	---
Beryllium	W-METMSFX1	0.20	µg/L	<0.20	---	<0.20	---	---	---	---	---
Beryllium	W-METAXDG1	0.00020	mg/L	---	---	---	---	0.00030	± 10.0%	---	---
Beryllium	W-METAXFX1	0.00020	mg/L	<0.00020	---	<0.00020	---	---	---	---	---
Bismuth	W-METMSDG2	1.0	µg/L	---	---	---	---	<2.0	---	---	---
Bismuth	W-METMSFX2	1.0	µg/L	<1.0	---	<1.0	---	---	---	---	---
Boron	W-METAXDG1	0.010	mg/L	---	---	---	---	0.198	± 10.0%	---	---
Boron	W-METAXFX1	0.010	mg/L	0.045	± 10.0%	0.101	± 10.0%	---	---	---	---
Cadmium	W-METMSDG1	0.20	µg/L	---	---	---	---	0.93	± 10.0%	---	---
Cadmium	W-METMSFX1	0.50	µg/L	<0.50	---	<0.50	---	---	---	---	---
Cadmium	W-METAXFX1	0.00040	mg/L	<0.00040	---	<0.00040	---	---	---	---	---
Cadmium	W-METAXDG1	0.0020	mg/L	---	---	---	---	<0.0020	---	---	---
Calcium	W-METAXFX1	0.0050	mg/L	34.9	± 10.0%	18.6	± 10.0%	---	---	---	---
Calcium	W-METAXDG1	0.050	mg/L	---	---	---	---	177	± 10.0%	---	---
Chromium	W-METMSDG1	5.0	µg/L	---	---	---	---	<10.0	---	---	---
Chromium	W-METMSFX1	5.0	µg/L	<5.0	---	<5.0	---	---	---	---	---
Chromium	W-METAXFX1	0.0010	mg/L	<0.0010	---	<0.0010	---	---	---	---	---
Chromium	W-METAXDG1	0.0020	mg/L	---	---	---	---	0.0144	± 10.0%	---	---
Cobalt	W-METMSDG2	0.50	µg/L	---	---	---	---	14.0	± 10.0%	---	---
Cobalt	W-METMSFX2	0.50	µg/L	<0.50	---	<0.50	---	---	---	---	---
Cobalt	W-METAXDG1	0.0020	mg/L	---	---	---	---	0.0136	± 10.0%	---	---
Cobalt	W-METAXFX1	0.0020	mg/L	<0.0020	---	<0.0020	---	---	---	---	---
Copper	W-METMSDG2	1.0	µg/L	---	---	---	---	137	± 10.0%	---	---
Copper	W-METMSFX2	1.0	µg/L	<1.0	---	<1.0	---	---	---	---	---
Copper	W-METAXFX1	0.0010	mg/L	<0.0010	---	<0.0010	---	---	---	---	---
Copper	W-METAXDG1	0.0020	mg/L	---	---	---	---	0.150	± 10.0%	---	---
Iron	W-METAXFX1	0.0020	mg/L	0.0082	± 10.0%	0.0886	± 10.0%	---	---	---	---
Iron	W-METAXDG1	0.0050	mg/L	---	---	---	---	5.14	± 10.0%	---	---
Lead	W-METMSDG1	1.0	µg/L	---	---	---	---	4.5	± 10.0%	---	---
Lead	W-METMSFX1	1.0	µg/L	<1.0	---	<1.0	---	---	---	---	---
Lead	W-METAXFX1	0.0050	mg/L	<0.0050	---	<0.0050	---	---	---	---	---
Lead	W-METAXDG1	0.010	mg/L	---	---	---	---	<0.010	---	---	---
Lithium	W-METMSDG2	1.0	µg/L	---	---	---	---	13.1	± 10.0%	---	---
Lithium	W-METMSFX2	1.0	µg/L	3.4	± 10.0%	15.4	± 10.0%	---	---	---	---
Lithium	W-METAXFX1	0.0010	mg/L	0.0042	± 10.0%	0.0187	± 10.0%	---	---	---	---



Sub-Matrix: WATER				Client sample ID		AFF1		AW009		DF1	
				Laboratory sample ID		PR1822344-010		PR1822344-011		PR1822344-012	
				Client sampling date / time		28-Feb-2018 00:00		28-Feb-2018 00:00		28-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Total Metals / Major Cations - Continued											
Lithium	W-METAXDG1	0.0020	mg/L	----	----	----	----	0.0148	± 10.0%		
Magnesium	W-METMSDG2	10	µg/L	----	----	----	----	53600	± 10.0%		
Magnesium	W-METMSFX2	10	µg/L	8620	± 10.0%	4680	± 10.0%	----	----		
Magnesium	W-METAXFX1	0.0030	mg/L	10.6	± 10.0%	5.86	± 10.0%	----	----		
Magnesium	W-METAXDG1	0.020	mg/L	----	----	----	----	61.6	± 10.0%		
Manganese	W-METMSDG2	0.50	µg/L	----	----	----	----	3190	± 10.0%		
Manganese	W-METMSFX2	0.50	µg/L	<0.50	----	12.1	± 10.0%	----	----		
Manganese	W-METAXDG1	0.00050	mg/L	----	----	----	----	3.29	± 10.0%		
Manganese	W-METAXFX1	0.00050	mg/L	<0.00050	----	0.0157	± 10.0%	----	----		
Mercury	W-HG-AFSFX	0.010	µg/L	0.013	± 10.0%	0.016	± 10.0%	----	----		
Mercury	W-HG-AFSDG	0.020	µg/L	----	----	----	----	0.149	± 10.0%		
Mercury	W-METAXDG1	0.010	mg/L	----	----	----	----	<0.010	----		
Molybdenum	W-METMSDG1	1.0	µg/L	----	----	----	----	17.8	± 10.0%		
Molybdenum	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	----	----		
Molybdenum	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	----	----		
Molybdenum	W-METAXDG1	0.0030	mg/L	----	----	----	----	0.0180	± 10.0%		
Nickel	W-METMSDG1	3.0	µg/L	----	----	----	----	34.5	± 10.0%		
Nickel	W-METMSFX1	3.0	µg/L	<3.0	----	<3.0	----	----	----		
Nickel	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	----	----		
Nickel	W-METAXDG1	0.0050	mg/L	----	----	----	----	0.0346	± 10.0%		
Phosphorus	W-METAXDG1	0.050	mg/L	----	----	----	----	44.0	± 10.0%		
Phosphorus	W-METAXFX1	0.050	mg/L	0.064	± 10.0%	0.053	± 10.0%	----	----		
Potassium	W-METAXDG1	0.015	mg/L	----	----	----	----	314	± 10.0%		
Potassium	W-METAXFX1	0.015	mg/L	1.55	± 10.0%	2.89	± 10.0%	----	----		
Selenium	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	----	----		
Selenium	W-METMSDG1	5.0	µg/L	----	----	----	----	<10.0	----		
Selenium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	----	----		
Selenium	W-METAXDG1	0.030	mg/L	----	----	----	----	<0.030	----		
Silver	W-METMSDG2	1.0	µg/L	----	----	----	----	<2.0	----		
Silver	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	----	----		
Silver	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	----	----		
Silver	W-METAXDG1	0.0050	mg/L	----	----	----	----	<0.0050	----		
Sodium	W-METAXDG1	0.030	mg/L	----	----	----	----	34.6	± 10.0%		
Sodium	W-METAXFX1	0.030	mg/L	9.55	± 10.0%	14.8	± 10.0%	----	----		
Strontium	W-METMSDG2	1.0	µg/L	----	----	----	----	1100	± 10.0%		
Strontium	W-METMSFX2	1.0	µg/L	196	± 10.0%	123	± 10.0%	----	----		
Tellurium	W-METMSDG2	5.0	µg/L	----	----	----	----	<10.0	----		
Tellurium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	----	----		
Thallium	W-METMSDG1	0.50	µg/L	----	----	----	----	<1.00	----		
Thallium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	----	----		
Thallium	W-METAXDG1	0.010	mg/L	----	----	----	----	<0.010	----		
Thallium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	----	----		
Tin	W-METMSDG2	1.0	µg/L	----	----	----	----	<2.0	----		
Tin	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	----	----		
Titanium	W-METMSDG2	5.0	µg/L	----	----	----	----	93.7	± 10.0%		
Titanium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	----	----		
Uranium	W-METMSDG3	0.10	µg/L	----	----	----	----	0.42	± 10.0%		
Uranium	W-METMSFX3	0.10	µg/L	1.99	± 10.0%	0.36	± 10.0%	----	----		
Vanadium	W-METMSDG2	5.0	µg/L	----	----	----	----	20.2	± 10.0%		
Vanadium	W-METMSFX2	5.0	µg/L	21.3	± 10.0%	<5.0	----	----	----		
Vanadium	W-METAXFX1	0.0010	mg/L	0.0224	± 10.0%	0.0043	± 10.0%	----	----		
Vanadium	W-METAXDG1	0.0020	mg/L	----	----	----	----	0.0241	± 10.0%		
Zinc	W-METMSDG2	2.0	µg/L	----	----	----	----	442	± 10.0%		
Zinc	W-METMSFX2	2.0	µg/L	24.0	± 10.0%	37.7	± 10.0%	----	----		
Zinc	W-METAXFX1	0.0020	mg/L	0.0300	± 10.0%	0.0455	± 10.0%	----	----		
Zinc	W-METAXDG1	0.0030	mg/L	----	----	----	----	0.484	± 10.0%		
Dissolved Metals / Major Cations											
Aluminium	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	0.038	± 10.0%		



Sub-Matrix: WATER				Client sample ID		AFF1		AW009		DF1	
				Laboratory sample ID		PR1822344-010		PR1822344-011		PR1822344-012	
				Client sampling date / time		28-Feb-2018 00:00		28-Feb-2018 00:00		28-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Dissolved Metals / Major Cations - Continued											
Antimony	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---	<0.010	---
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---
Barium	W-METAXFL1	0.00050	mg/L	0.00731	± 10.0%	0.0147	± 10.0%	0.337	± 10.0%	0.337	± 10.0%
Beryllium	W-METAXFL1	0.00020	mg/L	<0.00020	---	<0.00020	---	<0.00020	---	<0.00020	---
Boron	W-METAXFL1	0.010	mg/L	0.045	± 10.0%	0.101	± 10.0%	0.172	± 10.0%	0.172	± 10.0%
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	<0.00040	---	<0.00040	---	<0.00040	---
Calcium	W-METAXFL1	0.0050	mg/L	36.4	± 10.0%	18.9	± 10.0%	129	± 10.0%	129	± 10.0%
Chromium	W-METAXFL1	0.0010	mg/L	<0.0010	---	<0.0010	---	0.0055	± 10.0%	0.0055	± 10.0%
Cobalt	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	0.0058	± 10.0%	0.0058	± 10.0%
Copper	W-METAXFL1	0.0010	mg/L	<0.0010	---	<0.0010	---	0.0024	± 10.0%	0.0024	± 10.0%
Hexavalent Chromium - Soluble	W-CR6-IC	0.40	µg/L	<0.40	---	<0.40	---	16.1	± 10.0%	16.1	± 10.0%
Iron	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	0.656	± 10.0%	0.656	± 10.0%
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---
Lithium	W-METAXFL1	0.0010	mg/L	0.0027	± 10.0%	0.0153	± 10.0%	0.0137	± 10.0%	0.0137	± 10.0%
Magnesium	W-METAXFL1	0.0030	mg/L	10.8	± 10.0%	6.03	± 10.0%	51.1	± 10.0%	51.1	± 10.0%
Manganese	W-METAXFL1	0.00050	mg/L	<0.00050	---	<0.00050	---	1.58	± 10.0%	1.58	± 10.0%
Molybdenum	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---
Nickel	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	0.0081	± 10.0%	0.0081	± 10.0%
Phosphorus	W-METAXFL1	0.050	mg/L	0.051	± 10.0%	<0.050	---	20.5	± 10.0%	20.5	± 10.0%
Potassium	W-METAXFL1	0.015	mg/L	1.60	± 10.0%	3.04	± 10.0%	257	± 10.0%	257	± 10.0%
Selenium	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---	<0.010	---
Silver	W-METAXFL1	0.0010	mg/L	<0.0010	---	<0.0010	---	<0.0010	---	<0.0010	---
Sodium	W-METAXFL1	0.030	mg/L	9.90	± 10.0%	15.4	± 10.0%	33.1	± 10.0%	33.1	± 10.0%
Thallium	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---	<0.010	---
Vanadium	W-METAXFL1	0.0010	mg/L	0.0232	± 10.0%	0.0040	± 10.0%	0.0038	± 10.0%	0.0038	± 10.0%
Zinc	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	0.0091	± 10.0%	0.0091	± 10.0%
Petroleum Hydrocarbons											
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	9.1	± 30.0%	9.1	± 30.0%
C10 - C40 Fraction	W-TPHFID01	50.0	µg/L	<50.0	---	<50.0	---	736	± 30.0%	736	± 30.0%
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	17.0	± 30.0%	17.0	± 30.0%
C16 - C35 Fraction	W-TPHFID01	30.0	µg/L	<30.0	---	<30.0	---	660	± 30.0%	660	± 30.0%
C35 - C40 Fraction	W-TPHFID01	10.0	µg/L	<10.0	---	<10.0	---	50.1	± 30.0%	50.1	± 30.0%

Sub-Matrix: WATER				Client sample ID		AW003		AW070		AW023	
				Laboratory sample ID		PR1822344-013		PR1822344-014		PR1822344-015	
				Client sampling date / time		02-Mar-2018 00:00		02-Mar-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Physical Parameters											
Colour (True)	W-COL-SPC	2.0	mgPt/l	5.0	± 30.0%	<2.0	---	<2.0	---	<2.0	---
Electrical Conductivity @ 25°C	W-CON-PCT	0.10	mS/m	6.81	± 10.0%	8.00	± 10.0%	0.18	± 10.0%	0.18	± 10.0%
pH Value	W-PH-PCT	1.00	-	7.96	± 1.0%	7.86	± 1.0%	6.88	± 1.2%	6.88	± 1.2%
Agregate Parameters											
Phenol Index	W-PHI-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---	<0.005	---
Hardness	W-HARD-FX	0.00020	mmol/L	0.223	---	0.294	---	0.00408	---	0.00408	---
Calcium Hardness	W-HARD-FX	0.00020	mmol/L	0.137	---	0.190	---	0.00321	---	0.00321	---
Magnesium Hardness	W-HARD-FX	0.020	mg CaCO3/L	8.63	---	10.4	---	0.086	---	0.086	---
Hardness as CaCO3	W-HARD-FX	0.020	mg CaCO3/L	22.3	---	29.4	---	0.408	---	0.408	---
Nonmetallic Inorganic Parameters											
Ammonia and ammonium ions as N	W-NH4-SPC	0.040	mg/L	<0.040	---	<0.040	---	<0.040	---	<0.040	---
Ammonia and ammonium ions as NH4	W-NH4-SPC	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---	<0.050	---
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	1.0	mg/L	<1.0	---	<1.0	---	<1.0	---	<1.0	---
Carbonates (CO3 2-)	W-CO2F-CC2	0	mg/L	0	---	0	---	0	---	0	---
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	8.0	± 21.2%	<5.0	---	7.0	± 22.1%	7.0	± 22.1%



Sub-Matrix: WATER				Client sample ID		AW003		AW070		AW023	
Laboratory sample ID				PR1822344-013		PR1822344-014		PR1822344-015			
Client sampling date / time				02-Mar-2018 00:00		02-Mar-2018 00:00		27-Feb-2018 00:00			
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Nonmetallic Inorganic Parameters - Continued											
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	0.50	mg/L	1.23	± 30.0%	0.76	± 30.0%	0.69	± 30.0%		
Chloride	W-CL-IC	1.00	mg/L	<1.00	---	<1.00	---	<1.00	---		
Dissolved Oxygen	W-O2D-ELE	0.20	mg/L	8.12	± 30.0%	7.75	± 30.0%	7.87	± 30.0%		
Dissolved silicate as SiO2	W-SIO3-SPC	0.080	mg/L	34.3	± 20.0%	44.5	± 20.0%	<0.080	---		
Easily released cyanides	W-CNF-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		
Inorganic Nitrogen as N	W-NING-CC	0.500	mg/L	<0.500	---	0.809	---	<0.500	---		
Nitrates	W-NO3-SPC	0.27	mg/L	0.95	---	3.58	---	<0.27	---		
Nitrite + Nitrate as N	W-NNO-SPC	0.060	mg/L	0.218	± 20.0%	0.809	± 20.0%	<0.060	---		
Nitrites	W-NO2-SPC	0.0050	mg/L	0.0144	± 15.0%	<0.0050	---	<0.0050	---		
Orthophosphate	W-PO4O-SPC	0.040	mg/L	0.175	± 20.0%	0.160	± 20.0%	<0.040	---		
Phosphorus (as P2O5)	W-PTOT-SPC	0.120	mg/L	0.130	± 20.0%	<0.120	---	<0.120	---		
Sulfides as H2S	W-H2S-PHO	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
Sulphate as SO4 2-	W-SO4-IC	5.00	mg/L	5.84	± 15.0%	<5.00	---	<5.00	---		
Total Cyanide	W-CNT-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		
Total Phosphorus as P	W-PTOT-SPC	0.050	mg/L	0.057	± 20.0%	<0.050	---	<0.050	---		
Total Phosphorus as PO4 3-	W-PTOT-SPC	0.150	mg/L	0.174	± 20.0%	<0.150	---	<0.150	---		
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	0.150	mmol/L	<0.150	---	<0.150	---	<0.150	---		
Dissolved silicate as SiO3	W-SIO3-SPC	0.100	mg/L	43.4	± 20.0%	56.3	± 20.0%	<0.100	---		
Free Cyanide	W-CNF-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0	mg/L	----	---	----	---	0	---		
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0.00	mg/L	31.5	± 12.0%	44.6	± 12.0%	----	---		
Nitrate as N	W-NO3-SPC	0.060	mg/L	0.214	---	0.809	---	<0.060	---		
Nitrite as N	W-NO2-SPC	0.0020	mg/L	0.0044	± 15.0%	<0.0020	---	<0.0020	---		
Orthophosphate as P	W-PO4O-SPC	0.010	mg/L	0.057	± 20.0%	0.052	± 20.0%	<0.010	---		
Oxygen Saturation	W-O2D-ELE	1	%	97	± 30.0%	96	± 30.0%	97	± 30.0%		
Sulfide as S2-	W-H2S-PHO	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
Dissolved silicate as H2SiO3	W-SIO3-SPC	0.100	mg/L	44.6	---	57.8	---	<0.100	---		
Total Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	22.7	± 12.0%	34.5	± 12.0%	2.24	± 12.0%		
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	0.150	mmol/L	<0.150	---	<0.150	---	<0.150	---		
Free Carbon Dioxide as CO2	W-CO2F-CC2	0	mg/L	0	---	----	---	----	---		
Free Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	----	---	2.33	± 12.0%	2.24	± 12.0%		
Suspended solids dried at 105 °C	W-TSS-GR	5.0	mg/L	5.7	± 12.6%	<5.0	---	<5.0	---		
Aggressive CO2	W-CO2F-CC2	0	mg/L	0	---	----	---	----	---		
Aggressive CO2	W-CO2F-CC2	0.00	mg/L	----	---	2.23	± 12.0%	2.24	± 12.0%		
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	0.150	mmol/L	0.517	± 12.0%	0.731	± 12.0%	<0.150	---		
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	0.150	mmol/L	<0.150	---	<0.150	---	<0.150	---		
Radiological Parameters											
Gross alpha activity	W-GAA-SCI	0.04	Bq/L	----	---	0.04	± 52.2%	----	---		
Gross beta activity	W-GBA-PRO	0.10	Bq/L	----	---	<0.10	---	----	---		
Total Metals / Major Cations											
Aluminium	W-METMSFX2	5.0	µg/L	113	± 10.0%	11.2	± 10.0%	11.0	± 10.0%		
Aluminium	W-METAXFX1	0.010	mg/L	0.138	± 10.0%	0.012	± 10.0%	0.012	± 10.0%		
Antimony	W-METMSFX1	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Antimony	W-METAXFX1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---		
Arsenic	W-METMSFX1	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Arsenic	W-METAXFX1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---		
Barium	W-METMSFX2	1.0	µg/L	5.2	± 10.0%	6.9	± 10.0%	2.2	± 10.0%		
Barium	W-METAXFX1	0.00050	mg/L	0.00643	± 10.0%	0.00887	± 10.0%	0.00254	± 10.0%		
Beryllium	W-METMSFX1	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
Beryllium	W-METAXFX1	0.00020	mg/L	<0.00020	---	<0.00020	---	<0.00020	---		
Bismuth	W-METMSFX2	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Boron	W-METAXFX1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---		



Sub-Matrix: WATER				Client sample ID		AW003		AW070		AW023	
				Laboratory sample ID		PR1822344-013		PR1822344-014		PR1822344-015	
				Client sampling date / time		02-Mar-2018 00:00		02-Mar-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
Total Metals / Major Cations - Continued											
Cadmium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----		
Cadmium	W-METAXFX1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----		
Calcium	W-METAXFX1	0.0050	mg/L	5.50	± 10.0%	7.61	± 10.0%	0.129	± 10.0%		
Chromium	W-METMSFX1	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
Chromium	W-METAXFX1	0.0010	mg/L	0.0021	± 10.0%	0.0020	± 10.0%	0.0014	± 10.0%		
Cobalt	W-METMSFX2	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----		
Cobalt	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Copper	W-METMSFX2	1.0	µg/L	1.6	± 10.0%	<1.0	----	9.8	± 10.0%		
Copper	W-METAXFX1	0.0010	mg/L	0.0018	± 10.0%	<0.0010	----	0.0098	± 10.0%		
Iron	W-METAXFX1	0.0020	mg/L	0.126	± 10.0%	0.0147	± 10.0%	0.0304	± 10.0%		
Lead	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Lead	W-METAXFX1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Lithium	W-METMSFX2	1.0	µg/L	1.2	± 10.0%	<1.0	----	<1.0	----		
Lithium	W-METAXFX1	0.0010	mg/L	0.0017	± 10.0%	<0.0010	----	<0.0010	----		
Magnesium	W-METMSFX2	10	µg/L	1760	± 10.0%	2070	± 10.0%	21	± 10.0%		
Magnesium	W-METAXFX1	0.0030	mg/L	2.10	± 10.0%	2.53	± 10.0%	0.0210	± 10.0%		
Manganese	W-METMSFX2	0.50	µg/L	8.33	± 10.0%	0.74	± 10.0%	15.3	± 10.0%		
Manganese	W-METAXFX1	0.00050	mg/L	0.0103	± 10.0%	0.00066	± 10.0%	0.0176	± 10.0%		
Mercury	W-HG-AFSFX	0.010	µg/L	<0.010	----	0.015	± 10.0%	<0.010	----		
Molybdenum	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Molybdenum	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Nickel	W-METMSFX1	3.0	µg/L	<3.0	----	<3.0	----	5.3	± 10.0%		
Nickel	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Phosphorus	W-METAXFX1	0.050	mg/L	0.083	± 10.0%	0.054	± 10.0%	<0.050	----		
Potassium	W-METAXFX1	0.015	mg/L	1.68	± 10.0%	1.93	± 10.0%	0.052	± 10.0%		
Selenium	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Selenium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Silver	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Silver	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----		
Sodium	W-METAXFX1	0.030	mg/L	3.41	± 10.0%	3.54	± 10.0%	0.060	± 10.0%		
Strontium	W-METMSFX2	1.0	µg/L	38.3	± 10.0%	44.0	± 10.0%	<1.0	----		
Tellurium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
Thallium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----		
Thallium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Tin	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	21.7	± 10.0%		
Titanium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
Uranium	W-METMSFX3	0.10	µg/L	<0.10	----	0.16	± 10.0%	<0.10	----		
Vanadium	W-METMSFX2	5.0	µg/L	6.0	± 10.0%	<5.0	----	<5.0	----		
Vanadium	W-METAXFX1	0.0010	mg/L	0.0059	± 10.0%	0.0031	± 10.0%	<0.0010	----		
Zinc	W-METMSFX2	2.0	µg/L	24.6	± 10.0%	26.3	± 10.0%	66.0	± 10.0%		
Zinc	W-METAXFX1	0.0020	mg/L	0.0306	± 10.0%	0.0321	± 10.0%	0.0739	± 10.0%		
Dissolved Metals / Major Cations											
Aluminium	W-METAXFL1	0.010	mg/L	0.026	± 10.0%	<0.010	----	<0.010	----		
Antimony	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Barium	W-METAXFL1	0.00050	mg/L	0.00535	± 10.0%	0.00916	± 10.0%	0.00241	± 10.0%		
Beryllium	W-METAXFL1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----		
Boron	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----		
Calcium	W-METAXFL1	0.0050	mg/L	5.43	± 10.0%	7.95	± 10.0%	0.0345	± 10.0%		
Chromium	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----		
Cobalt	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Copper	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	0.0108	± 10.0%		
Hexavalent Chromium - Soluble	W-CR6-IC	0.40	µg/L	<0.40	----	<0.40	----	<0.40	----		
Iron	W-METAXFL1	0.0020	mg/L	0.0130	± 10.0%	<0.0020	----	0.0172	± 10.0%		
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Lithium	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----		
Magnesium	W-METAXFL1	0.0030	mg/L	2.09	± 10.0%	2.68	± 10.0%	0.0037	± 10.0%		



Sub-Matrix: WATER				Client sample ID		AW003		AW070		AW023	
				Laboratory sample ID		PR1822344-013		PR1822344-014		PR1822344-015	
				Client sampling date / time		02-Mar-2018 00:00		02-Mar-2018 00:00		27-Feb-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Dissolved Metals / Major Cations - Continued											
Manganese	W-METAXFL1	0.00050	mg/L	<0.00050	---	<0.00050	---	0.0162	± 10.0%		
Molybdenum	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---		
Nickel	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	<0.0020	---		
Phosphorus	W-METAXFL1	0.050	mg/L	0.053	± 10.0%	<0.050	---	<0.050	---		
Potassium	W-METAXFL1	0.015	mg/L	1.76	± 10.0%	2.13	± 10.0%	0.031	± 10.0%		
Selenium	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---		
Silver	W-METAXFL1	0.0010	mg/L	<0.0010	---	<0.0010	---	<0.0010	---		
Sodium	W-METAXFL1	0.030	mg/L	3.52	± 10.0%	3.87	± 10.0%	0.064	± 10.0%		
Thallium	W-METAXFL1	0.010	mg/L	<0.010	---	<0.010	---	<0.010	---		
Vanadium	W-METAXFL1	0.0010	mg/L	0.0050	± 10.0%	0.0032	± 10.0%	<0.0010	---		
Zinc	W-METAXFL1	0.0020	mg/L	<0.0020	---	<0.0020	---	0.0432	± 10.0%		
Petroleum Hydrocarbons											
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---		
C10 - C40 Fraction	W-TPHFID01	50.0	µg/L	<50.0	---	<50.0	---	81.4	± 30.0%		
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	28.8	± 30.0%		
C16 - C35 Fraction	W-TPHFID01	30.0	µg/L	<30.0	---	<30.0	---	48.2	± 30.0%		
C35 - C40 Fraction	W-TPHFID01	10.0	µg/L	<10.0	---	<10.0	---	<10.0	---		

Sub-Matrix: WATER				Client sample ID		DDGW026		DDGW027		DDGW028	
				Laboratory sample ID		PR1822344-016		PR1822344-017		PR1822344-018	
				Client sampling date / time		01-Mar-2018 00:00		01-Mar-2018 00:00		01-Mar-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Physical Parameters											
Colour (True)	W-COL-SPC	2.0	mgPt/l	3.8	± 30.0%	16.5	± 30.0%	<2.0	---		
Electrical Conductivity @ 25°C	W-CON-PCT	0.10	mS/m	59.0	± 10.0%	54.0	± 10.0%	49.5	± 10.0%		
pH Value	W-PH-PCT	1.00	-	7.68	± 1.0%	7.96	± 1.0%	8.04	± 1.0%		
Aggregate Parameters											
Phenol Index	W-PHI-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		
Hardness	W-HARD-FX	0.00020	mmol/L	2.68	---	1.86	---	1.97	---		
Calcium Hardness	W-HARD-FX	0.00020	mmol/L	2.02	---	1.28	---	1.46	---		
Magnesium Hardness	W-HARD-FX	0.020	mg CaCO3/L	66.1	---	57.8	---	51.0	---		
Hardness as CaCO3	W-HARD-FX	0.020	mg CaCO3/L	268	---	186	---	197	---		
Nonmetallic Inorganic Parameters											
Ammonia and ammonium ions as N	W-NH4-SPC	0.040	mg/L	<0.040	---	<0.040	---	<0.040	---		
Ammonia and ammonium ions as NH4	W-NH4-SPC	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	1.0	mg/L	<1.0	---	<1.0	---	<1.0	---		
Carbonates (CO3 2-)	W-CO2F-CC2	0	mg/L	0	---	0	---	0	---		
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	14.0	± 18.6%	26.0	± 16.9%	11.0	± 19.5%		
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	0.50	mg/L	1.74	± 30.0%	4.13	± 30.0%	1.64	± 30.0%		
Chloride	W-CL-IC	1.00	mg/L	4.78	± 15.0%	8.98	± 15.0%	4.67	± 15.0%		
Dissolved Oxygen	W-O2D-ELE	0.20	mg/L	7.03	± 30.0%	5.59	± 30.0%	7.99	± 30.0%		
Dissolved silicate as SiO2	W-SIO3-SPC	0.080	mg/L	26.5	± 20.0%	27.8	± 20.0%	21.5	± 20.0%		
Easily released cyanides	W-CNF-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		
Inorganic Nitrogen as N	W-NING-CC	0.500	mg/L	0.918	---	5.79	---	4.38	---		
Nitrates	W-NO3-SPC	0.27	mg/L	3.84	---	25.6	---	19.4	---		
Nitrite + Nitrate as N	W-NNO-SPC	0.060	mg/L	0.918	± 20.0%	5.79	± 20.0%	4.38	± 20.0%		
Nitrites	W-NO2-SPC	0.0050	mg/L	0.164	± 15.0%	<0.0050	---	<0.0050	---		
Orthophosphate	W-PO4O-SPC	0.040	mg/L	0.124	± 20.0%	0.166	± 20.0%	0.068	± 20.0%		
Phosphorus (as P2O5)	W-PTOT-SPC	0.120	mg/L	0.166	± 20.0%	0.197	± 20.0%	<0.120	---		
Sulfides as H2S	W-H2S-PHO	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
Sulphate as SO4 2-	W-SO4-IC	5.00	mg/L	24.7	± 15.0%	33.7	± 15.0%	17.4	± 15.0%		
Total Cyanide	W-CNT-PHO	0.005	mg/L	<0.005	---	<0.005	---	<0.005	---		



Sub-Matrix: WATER				Client sample ID		DDGW026		DDGW027		DDGW028	
				Laboratory sample ID		PR1822344-016		PR1822344-017		PR1822344-018	
				Client sampling date / time		01-Mar-2018 00:00		01-Mar-2018 00:00		01-Mar-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Nonmetallic Inorganic Parameters - Continued											
Total Phosphorus as P	W-PTOT-SPC	0.050	mg/L	0.073	± 20.0%	0.086	± 20.0%	0.052	± 20.0%		
Total Phosphorus as PO4 3-	W-PTOT-SPC	0.150	mg/L	0.223	± 20.0%	0.264	± 20.0%	0.158	± 20.0%		
Weak Acid Dissociable Cyanide	W-CNWD-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	0.150	mmol/L	0.259	± 15.0%	<0.150	----	<0.150	----		
Dissolved silicate as SiO3	W-SiO3-SPC	0.100	mg/L	33.6	± 20.0%	35.2	± 20.0%	27.2	± 20.0%		
Free Cyanide	W-CNF-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0.00	mg/L	335	± 12.0%	259	± 12.0%	250	± 12.0%		
Nitrate as N	W-NO3-SPC	0.060	mg/L	0.868	----	5.79	----	4.38	----		
Nitrite as N	W-NO2-SPC	0.0020	mg/L	0.0500	± 15.0%	<0.0020	----	<0.0020	----		
Orthophosphate as P	W-PO4O-SPC	0.010	mg/L	0.040	± 20.0%	0.054	± 20.0%	0.022	± 20.0%		
Oxygen Saturation	W-O2D-ELE	1	%	86	± 30.0%	68	± 30.0%	98	± 30.0%		
Sulfide as S2-	W-H2S-PHO	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----		
Dissolved silicate as H2SiO3	W-SiO3-SPC	0.100	mg/L	34.4	----	36.1	----	28.0	----		
Total Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	253	± 12.0%	192	± 12.0%	184	± 12.0%		
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----		
Free Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	11.4	± 12.0%	4.71	± 12.0%	3.70	± 12.0%		
Suspended solids dried at 105 °C	W-TSS-GR	5.0	mg/L	6.4	± 12.4%	12.0	± 11.2%	23.8	± 10.6%		
Aggressive CO2	W-CO2F-CC2	0	mg/L	0	----	0	----	0	----		
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	0.150	mmol/L	5.49	± 12.0%	4.25	± 12.0%	4.10	± 12.0%		
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----		
Total Metals / Major Cations											
Aluminium	W-METMSFX2	5.0	µg/L	5.4	± 10.0%	8.3	± 10.0%	8.8	± 10.0%		
Aluminium	W-METAXFX1	0.010	mg/L	0.021	± 10.0%	0.022	± 10.0%	0.023	± 10.0%		
Antimony	W-METMSFX1	1.0	µg/L	<1.0	----	1.8	± 10.0%	<1.0	----		
Antimony	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Arsenic	W-METMSFX1	1.0	µg/L	1.3	± 10.0%	7.9	± 10.0%	1.7	± 10.0%		
Arsenic	W-METAXFX1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Barium	W-METMSFX2	1.0	µg/L	45.9	± 10.0%	23.9	± 10.0%	20.3	± 10.0%		
Barium	W-METAXFX1	0.00050	mg/L	0.0620	± 10.0%	0.0329	± 10.0%	0.0260	± 10.0%		
Beryllium	W-METMSFX1	0.20	µg/L	<0.20	----	<0.20	----	<0.20	----		
Beryllium	W-METAXFX1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----		
Bismuth	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Boron	W-METAXFX1	0.010	mg/L	0.119	± 10.0%	0.104	± 10.0%	0.112	± 10.0%		
Cadmium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----		
Cadmium	W-METAXFX1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----		
Calcium	W-METAXFX1	0.0050	mg/L	80.8	± 10.0%	51.5	± 10.0%	58.5	± 10.0%		
Chromium	W-METMSFX1	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
Chromium	W-METAXFX1	0.0010	mg/L	<0.0010	----	0.0027	± 10.0%	0.0020	± 10.0%		
Cobalt	W-METMSFX2	0.50	µg/L	3.21	± 10.0%	<0.50	----	<0.50	----		
Cobalt	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Copper	W-METMSFX2	1.0	µg/L	1.0	± 10.0%	6.2	± 10.0%	1.3	± 10.0%		
Copper	W-METAXFX1	0.0010	mg/L	0.0011	± 10.0%	0.0066	± 10.0%	0.0039	± 10.0%		
Iron	W-METAXFX1	0.0020	mg/L	0.0395	± 10.0%	0.0143	± 10.0%	0.0095	± 10.0%		
Lead	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Lead	W-METAXFX1	0.0050	mg/L	<0.0050	----	0.0059	± 10.0%	<0.0050	----		
Lithium	W-METMSFX2	1.0	µg/L	1.2	± 10.0%	4.5	± 10.0%	1.2	± 10.0%		
Lithium	W-METAXFX1	0.0010	mg/L	<0.0010	----	0.0052	± 10.0%	<0.0010	----		
Magnesium	W-METMSFX2	10	µg/L	12700	± 10.0%	11000	± 10.0%	10100	± 10.0%		
Magnesium	W-METAXFX1	0.0030	mg/L	16.1	± 10.0%	14.0	± 10.0%	12.4	± 10.0%		
Manganese	W-METMSFX2	0.50	µg/L	204	± 10.0%	9.88	± 10.0%	1.73	± 10.0%		
Manganese	W-METAXFX1	0.00050	mg/L	0.269	± 10.0%	0.0129	± 10.0%	0.00210	± 10.0%		
Mercury	W-HG-AFSFX	0.010	µg/L	0.011	± 10.0%	0.019	± 10.0%	0.014	± 10.0%		
Molybdenum	W-METMSFX1	1.0	µg/L	4.6	± 10.0%	5.6	± 10.0%	3.2	± 10.0%		
Molybdenum	W-METAXFX1	0.0020	mg/L	0.0028	± 10.0%	0.0044	± 10.0%	<0.0020	----		



Sub-Matrix: WATER				Client sample ID		DDGW026		DDGW027		DDGW028	
				Laboratory sample ID		PR1822344-016		PR1822344-017		PR1822344-018	
				Client sampling date / time		01-Mar-2018 00:00		01-Mar-2018 00:00		01-Mar-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Total Metals / Major Cations - Continued											
Nickel	W-METMSFX1	3.0	µg/L	3.6	± 10.0%	3.1	± 10.0%	<3.0	----		
Nickel	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Phosphorus	W-METAXFX1	0.050	mg/L	0.062	± 10.0%	0.079	± 10.0%	<0.050	----		
Potassium	W-METAXFX1	0.015	mg/L	5.17	± 10.0%	1.77	± 10.0%	0.723	± 10.0%		
Selenium	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Selenium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Silver	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Silver	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----		
Sodium	W-METAXFX1	0.030	mg/L	25.4	± 10.0%	51.1	± 10.0%	28.4	± 10.0%		
Strontium	W-METMSFX2	1.0	µg/L	386	± 10.0%	289	± 10.0%	334	± 10.0%		
Tellurium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
Thallium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----		
Thallium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Tin	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----		
Titanium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
Uranium	W-METMSFX3	0.10	µg/L	2.44	± 10.0%	2.97	± 10.0%	3.81	± 10.0%		
Vanadium	W-METMSFX2	5.0	µg/L	<5.0	----	7.0	± 10.0%	5.3	± 10.0%		
Vanadium	W-METAXFX1	0.0010	mg/L	0.0036	± 10.0%	0.0073	± 10.0%	0.0049	± 10.0%		
Zinc	W-METMSFX2	2.0	µg/L	25.8	± 10.0%	27.6	± 10.0%	27.1	± 10.0%		
Zinc	W-METAXFX1	0.0020	mg/L	0.0321	± 10.0%	0.0349	± 10.0%	0.0332	± 10.0%		
Dissolved Metals / Major Cations											
Aluminium	W-METAXFL1	0.010	mg/L	0.018	± 10.0%	0.015	± 10.0%	0.017	± 10.0%		
Antimony	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Barium	W-METAXFL1	0.00050	mg/L	0.0660	± 10.0%	0.0338	± 10.0%	0.0285	± 10.0%		
Beryllium	W-METAXFL1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----		
Boron	W-METAXFL1	0.010	mg/L	0.119	± 10.0%	0.105	± 10.0%	0.115	± 10.0%		
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----		
Calcium	W-METAXFL1	0.0050	mg/L	84.7	± 10.0%	52.4	± 10.0%	63.9	± 10.0%		
Chromium	W-METAXFL1	0.0010	mg/L	<0.0010	----	0.0026	± 10.0%	0.0012	± 10.0%		
Cobalt	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Copper	W-METAXFL1	0.0010	mg/L	0.0011	± 10.0%	0.0073	± 10.0%	<0.0010	----		
Hexavalent Chromium - Soluble	W-CR6-IC	0.40	µg/L	<0.40	----	0.75	± 17.8%	<0.40	----		
Iron	W-METAXFL1	0.0020	mg/L	0.0182	± 10.0%	<0.0020	----	<0.0020	----		
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Lithium	W-METAXFL1	0.0010	mg/L	<0.0010	----	0.0043	± 10.0%	<0.0010	----		
Magnesium	W-METAXFL1	0.0030	mg/L	17.0	± 10.0%	14.5	± 10.0%	13.4	± 10.0%		
Manganese	W-METAXFL1	0.00050	mg/L	0.257	± 10.0%	<0.00050	----	<0.00050	----		
Molybdenum	W-METAXFL1	0.0020	mg/L	<0.0020	----	0.0046	± 10.0%	<0.0020	----		
Nickel	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Phosphorus	W-METAXFL1	0.050	mg/L	<0.050	----	0.052	± 10.0%	<0.050	----		
Potassium	W-METAXFL1	0.015	mg/L	5.56	± 10.0%	1.76	± 10.0%	0.746	± 10.0%		
Selenium	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Silver	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----		
Sodium	W-METAXFL1	0.030	mg/L	26.9	± 10.0%	53.7	± 10.0%	30.4	± 10.0%		
Thallium	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Vanadium	W-METAXFL1	0.0010	mg/L	0.0038	± 10.0%	0.0080	± 10.0%	0.0052	± 10.0%		
Zinc	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Petroleum Hydrocarbons											
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
C10 - C40 Fraction	W-TPHFID01	50.0	µg/L	183	± 30.0%	<50.0	----	<50.0	----		
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	12.1	± 30.0%	<5.0	----	<5.0	----		
C16 - C35 Fraction	W-TPHFID01	30.0	µg/L	149	± 30.0%	<30.0	----	<30.0	----		
C35 - C40 Fraction	W-TPHFID01	10.0	µg/L	18.3	± 30.0%	<10.0	----	<10.0	----		

Sub-Matrix: WATER				Client sample ID		DDGW029		DDGW030		GGDW012	
				Laboratory sample ID		PR1822344-019		PR1822344-020		PR1822344-021	



Sub-Matrix: **WATER**

Client sample ID
Laboratory sample ID
Client sampling date / time

Sub-Matrix: WATER				Client sample ID		DDGW029		DDGW030		GGDW012	
				Laboratory sample ID		PR1822344-019		PR1822344-020		PR1822344-021	
Client sampling date / time						01-Mar-2018 00:00		01-Mar-2018 00:00		01-Mar-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
Physical Parameters											
Colour (True)	W-COL-SPC	2.0	mgPt/l	<2.0	----	<2.0	----	<2.0	----		
Electrical Conductivity @ 25°C	W-CON-PCT	0.10	mS/m	45.3	± 10.0%	55.3	± 10.0%	52.3	± 10.0%		
pH Value	W-PH-PCT	1.00	-	7.96	± 1.0%	7.60	± 1.0%	7.88	± 1.0%		
Aggregate Parameters											
Phenol Index	W-PHI-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Hardness	W-HARD-FX	0.00020	mmol/L	2.18	----	2.78	----	2.57	----		
Calcium Hardness	W-HARD-FX	0.00020	mmol/L	1.58	----	2.10	----	1.50	----		
Magnesium Hardness	W-HARD-FX	0.020	mg CaCO3/L	60.1	----	68.2	----	107	----		
Hardness as CaCO3	W-HARD-FX	0.020	mg CaCO3/L	218	----	278	----	257	----		
Nonmetallic Inorganic Parameters											
Ammonia and ammonium ions as N	W-NH4-SPC	0.040	mg/L	<0.040	----	<0.040	----	<0.040	----		
Ammonia and ammonium ions as NH4	W-NH4-SPC	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----		
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	1.0	mg/L	<1.0	----	<1.0	----	<1.0	----		
Carbonates (CO3 2-)	W-CO2F-CC2	0	mg/L	0	----	0	----	0	----		
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	7.0	± 22.1%	6.0	± 23.3%	<5.0	----		
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	0.50	mg/L	0.79	± 30.0%	1.11	± 30.0%	0.95	± 30.0%		
Chloride	W-CL-IC	1.00	mg/L	2.10	± 15.0%	2.36	± 15.0%	4.77	± 15.0%		
Dissolved Oxygen	W-O2D-ELE	0.20	mg/L	7.89	± 30.0%	8.36	± 30.0%	8.15	± 30.0%		
Dissolved silicate as SiO2	W-SIO3-SPC	0.080	mg/L	27.4	± 20.0%	25.9	± 20.0%	16.2	± 20.0%		
Easily released cyanides	W-CNF-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Inorganic Nitrogen as N	W-NING-CC	0.500	mg/L	2.98	----	0.873	----	3.60	----		
Nitrates	W-NO3-SPC	0.27	mg/L	13.2	----	3.86	----	16.0	----		
Nitrite + Nitrate as N	W-NNO-SPC	0.060	mg/L	2.98	± 20.0%	0.873	± 20.0%	3.60	± 20.0%		
Nitrites	W-NO2-SPC	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----		
Orthophosphate	W-PO4O-SPC	0.040	mg/L	<0.040	----	<0.040	----	<0.040	----		
Phosphorus (as P2O5)	W-PTOT-SPC	0.120	mg/L	<0.120	----	<0.120	----	<0.120	----		
Sulfides as H2S	W-H2S-PHO	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----		
Sulphate as SO4 2-	W-SO4-IC	5.00	mg/L	10.6	± 15.0%	8.09	± 15.0%	9.14	± 15.0%		
Total Cyanide	W-CNT-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Total Phosphorus as P	W-PTOT-SPC	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----		
Total Phosphorus as PO4 3-	W-PTOT-SPC	0.150	mg/L	<0.150	----	<0.150	----	<0.150	----		
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	0.150	mmol/L	<0.150	----	0.303	± 15.0%	<0.150	----		
Dissolved silicate as SiO3	W-SIO3-SPC	0.100	mg/L	34.6	± 20.0%	32.8	± 20.0%	20.5	± 20.0%		
Free Cyanide	W-CNF-PHO	0.005	mg/L	<0.005	----	<0.005	----	<0.005	----		
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0.00	mg/L	262	± 12.0%	335	± 12.0%	313	± 12.0%		
Nitrate as N	W-NO3-SPC	0.060	mg/L	2.98	----	0.873	----	3.60	----		
Nitrite as N	W-NO2-SPC	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Orthophosphate as P	W-PO4O-SPC	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Oxygen Saturation	W-O2D-ELE	1	%	96	± 30.0%	102	± 30.0%	99	± 30.0%		
Sulfide as S2-	W-H2S-PHO	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----		
Dissolved silicate as H2SiO3	W-SIO3-SPC	0.100	mg/L	35.6	----	33.7	----	21.0	----		
Total Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	194	± 12.0%	255	± 12.0%	232	± 12.0%		
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----		
Free Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	4.71	± 12.0%	13.3	± 12.0%	6.07	± 12.0%		
Suspended solids dried at 105 °C	W-TSS-GR	5.0	mg/L	<5.0	----	10.7	± 11.4%	<5.0	----		
Aggressive CO2	W-CO2F-CC2	0	mg/L	0	----	0	----	0	----		
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	0.150	mmol/L	4.29	± 12.0%	5.48	± 12.0%	5.13	± 12.0%		
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	0.150	mmol/L	<0.150	----	<0.150	----	<0.150	----		



Sub-Matrix: **WATER**

Client sample ID
Laboratory sample ID
Client sampling date / time

				DDGW029		DDGW030		GGDW012	
				PR1822344-019		PR1822344-020		PR1822344-021	
				01-Mar-2018 00:00		01-Mar-2018 00:00		01-Mar-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Total Metals / Major Cations									
Aluminium	W-METMSFX2	5.0	µg/L	5.7	± 10.0%	<5.0	----	5.5	± 10.0%
Aluminium	W-METAXFX1	0.010	mg/L	0.020	± 10.0%	0.022	± 10.0%	0.021	± 10.0%
Antimony	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Antimony	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Arsenic	W-METMSFX1	1.0	µg/L	2.4	± 10.0%	2.0	± 10.0%	<1.0	----
Arsenic	W-METAXFX1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----
Barium	W-METMSFX2	1.0	µg/L	26.0	± 10.0%	58.5	± 10.0%	160	± 10.0%
Barium	W-METAXFX1	0.00050	mg/L	0.0344	± 10.0%	0.0779	± 10.0%	0.209	± 10.0%
Beryllium	W-METMSFX1	0.20	µg/L	<0.20	----	<0.20	----	<0.20	----
Beryllium	W-METAXFX1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----
Bismuth	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Boron	W-METAXFX1	0.010	mg/L	0.045	± 10.0%	0.041	± 10.0%	0.069	± 10.0%
Cadmium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----
Cadmium	W-METAXFX1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----
Calcium	W-METAXFX1	0.0050	mg/L	63.4	± 10.0%	84.1	± 10.0%	60.2	± 10.0%
Chromium	W-METMSFX1	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----
Chromium	W-METAXFX1	0.0010	mg/L	<0.0010	----	0.0025	± 10.0%	<0.0010	----
Cobalt	W-METMSFX2	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----
Cobalt	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Copper	W-METMSFX2	1.0	µg/L	1.7	± 10.0%	1.7	± 10.0%	1.1	± 10.0%
Copper	W-METAXFX1	0.0010	mg/L	0.0023	± 10.0%	0.0024	± 10.0%	0.0015	± 10.0%
Iron	W-METAXFX1	0.0020	mg/L	0.0097	± 10.0%	0.0108	± 10.0%	0.0113	± 10.0%
Lead	W-METMSFX1	1.0	µg/L	1.2	± 10.0%	<1.0	----	31.4	± 10.0%
Lead	W-METAXFX1	0.0050	mg/L	<0.0050	----	<0.0050	----	0.0391	± 10.0%
Lithium	W-METMSFX2	1.0	µg/L	1.1	± 10.0%	<1.0	----	3.5	± 10.0%
Lithium	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	0.0038	± 10.0%
Magnesium	W-METMSFX2	10	µg/L	11700	± 10.0%	13400	± 10.0%	20700	± 10.0%
Magnesium	W-METAXFX1	0.0030	mg/L	14.6	± 10.0%	16.6	± 10.0%	26.1	± 10.0%
Manganese	W-METMSFX2	0.50	µg/L	3.19	± 10.0%	2.77	± 10.0%	0.58	± 10.0%
Manganese	W-METAXFX1	0.00050	mg/L	0.00411	± 10.0%	0.00444	± 10.0%	0.00096	± 10.0%
Mercury	W-HG-AFSFX	0.010	µg/L	0.013	± 10.0%	0.011	± 10.0%	0.012	± 10.0%
Molybdenum	W-METMSFX1	1.0	µg/L	2.3	± 10.0%	<1.0	----	1.8	± 10.0%
Molybdenum	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Nickel	W-METMSFX1	3.0	µg/L	<3.0	----	<3.0	----	<3.0	----
Nickel	W-METAXFX1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----
Phosphorus	W-METAXFX1	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----
Potassium	W-METAXFX1	0.015	mg/L	0.684	± 10.0%	0.338	± 10.0%	0.558	± 10.0%
Selenium	W-METMSFX1	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Selenium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Silver	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Silver	W-METAXFX1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----
Sodium	W-METAXFX1	0.030	mg/L	12.3	± 10.0%	11.5	± 10.0%	12.2	± 10.0%
Strontium	W-METMSFX2	1.0	µg/L	484	± 10.0%	608	± 10.0%	667	± 10.0%
Tellurium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----
Thallium	W-METMSFX1	0.50	µg/L	<0.50	----	<0.50	----	<0.50	----
Thallium	W-METAXFX1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Tin	W-METMSFX2	1.0	µg/L	<1.0	----	<1.0	----	<1.0	----
Titanium	W-METMSFX2	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----
Uranium	W-METMSFX3	0.10	µg/L	1.29	± 10.0%	1.43	± 10.0%	1.41	± 10.0%
Vanadium	W-METMSFX2	5.0	µg/L	9.1	± 10.0%	10.7	± 10.0%	<5.0	----
Vanadium	W-METAXFX1	0.0010	mg/L	0.0096	± 10.0%	0.0113	± 10.0%	0.0044	± 10.0%
Zinc	W-METMSFX2	2.0	µg/L	27.9	± 10.0%	26.9	± 10.0%	39.9	± 10.0%
Zinc	W-METAXFX1	0.0020	mg/L	0.0352	± 10.0%	0.0351	± 10.0%	0.0476	± 10.0%
Dissolved Metals / Major Cations									
Aluminium	W-METAXFL1	0.010	mg/L	0.015	± 10.0%	0.018	± 10.0%	0.016	± 10.0%
Antimony	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	----	<0.0050	----	<0.0050	----
Barium	W-METAXFL1	0.00050	mg/L	0.0341	± 10.0%	0.0854	± 10.0%	0.219	± 10.0%



Sub-Matrix: WATER				Client sample ID		DDGW029		DDGW030		GGDW012	
				Laboratory sample ID		PR1822344-019		PR1822344-020		PR1822344-021	
				Client sampling date / time		01-Mar-2018 00:00		01-Mar-2018 00:00		01-Mar-2018 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
Dissolved Metals / Major Cations - Continued											
Beryllium	W-METAXFL1	0.00020	mg/L	<0.00020	----	<0.00020	----	<0.00020	----		
Boron	W-METAXFL1	0.010	mg/L	0.044	± 10.0%	0.044	± 10.0%	0.069	± 10.0%		
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	----	<0.00040	----	<0.00040	----		
Calcium	W-METAXFL1	0.0050	mg/L	63.2	± 10.0%	90.6	± 10.0%	62.2	± 10.0%		
Chromium	W-METAXFL1	0.0010	mg/L	<0.0010	----	0.0010	± 10.0%	<0.0010	----		
Cobalt	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Copper	W-METAXFL1	0.0010	mg/L	0.0012	± 10.0%	0.0025	± 10.0%	0.0014	± 10.0%		
Hexavalent Chromium - Soluble	W-CR6-IC	0.40	µg/L	<0.40	----	<0.40	----	<0.40	----		
Iron	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	----	<0.0050	----	0.0417	± 10.0%		
Lithium	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	0.0022	± 10.0%		
Magnesium	W-METAXFL1	0.0030	mg/L	14.6	± 10.0%	18.1	± 10.0%	27.0	± 10.0%		
Manganese	W-METAXFL1	0.00050	mg/L	<0.00050	----	<0.00050	----	<0.00050	----		
Molybdenum	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Nickel	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	<0.0020	----		
Phosphorus	W-METAXFL1	0.050	mg/L	<0.050	----	<0.050	----	<0.050	----		
Potassium	W-METAXFL1	0.015	mg/L	0.626	± 10.0%	0.314	± 10.0%	0.484	± 10.0%		
Selenium	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Silver	W-METAXFL1	0.0010	mg/L	<0.0010	----	<0.0010	----	<0.0010	----		
Sodium	W-METAXFL1	0.030	mg/L	12.5	± 10.0%	12.5	± 10.0%	12.1	± 10.0%		
Thallium	W-METAXFL1	0.010	mg/L	<0.010	----	<0.010	----	<0.010	----		
Vanadium	W-METAXFL1	0.0010	mg/L	0.0093	± 10.0%	0.0120	± 10.0%	0.0042	± 10.0%		
Zinc	W-METAXFL1	0.0020	mg/L	<0.0020	----	<0.0020	----	0.0038	± 10.0%		
Petroleum Hydrocarbons											
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
C10 - C40 Fraction	W-TPHFID01	50.0	µg/L	<50.0	----	70.0	± 30.0%	<50.0	----		
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	----	<5.0	----	<5.0	----		
C16 - C35 Fraction	W-TPHFID01	30.0	µg/L	<30.0	----	57.0	± 30.0%	<30.0	----		
C35 - C40 Fraction	W-TPHFID01	10.0	µg/L	<10.0	----	<10.0	----	<10.0	----		

Sub-Matrix: WATER				Client sample ID		GGDW011		----		----	
				Laboratory sample ID		PR1822344-022		----		----	
				Client sampling date / time		01-Mar-2018 00:00		----		----	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
Physical Parameters											
Colour (True)	W-COL-SPC	2.0	mgPt/l	2.6	± 30.0%	----	----	----	----		
Electrical Conductivity @ 25°C	W-CON-PCT	0.10	mS/m	43.2	± 10.0%	----	----	----	----		
pH Value	W-PH-PCT	1.00	-	7.92	± 1.0%	----	----	----	----		
Aggregate Parameters											
Phenol Index	W-PHI-PHO	0.005	mg/L	<0.005	----	----	----	----	----		
Hardness	W-HARD-FX	0.00020	mmol/L	1.67	----	----	----	----	----		
Calcium Hardness	W-HARD-FX	0.00020	mmol/L	1.25	----	----	----	----	----		
Magnesium Hardness	W-HARD-FX	0.020	mg CaCO3/L	41.8	----	----	----	----	----		
Hardness as CaCO3	W-HARD-FX	0.020	mg CaCO3/L	167	----	----	----	----	----		
Nonmetallic Inorganic Parameters											
Ammonia and ammonium ions as N	W-NH4-SPC	0.040	mg/L	<0.040	----	----	----	----	----		
Ammonia and ammonium ions as NH4	W-NH4-SPC	0.050	mg/L	<0.050	----	----	----	----	----		
Biochemical Oxygen Demand (BOD 5)	W-BOD5-OXY	1.0	mg/L	<1.0	----	----	----	----	----		
Carbonates (CO3 2-)	W-CO2F-CC2	0	mg/L	0	----	----	----	----	----		
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	5.0	± 25.0%	----	----	----	----		
Chemical Oxygen Demand (COD-Mn)	W-CODMN-SPC	0.50	mg/L	1.17	± 30.0%	----	----	----	----		
Chloride	W-CL-IC	1.00	mg/L	2.28	± 15.0%	----	----	----	----		



Sub-Matrix: WATER				Client sample ID		GGDW011		----		----	
				Laboratory sample ID		PR1822344-022		----		----	
				Client sampling date / time		01-Mar-2018 00:00		----		----	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Nonmetallic Inorganic Parameters - Continued											
Dissolved Oxygen	W-O2D-ELE	0.20	mg/L	7.91	± 30.0%	----	----	----	----	----	----
Dissolved silicate as SiO2	W-SIO3-SPC	0.080	mg/L	17.2	± 20.0%	----	----	----	----	----	----
Easily released cyanides	W-CNF-PHO	0.005	mg/L	<0.005	----	----	----	----	----	----	----
Inorganic Nitrogen as N	W-NING-CC	0.500	mg/L	0.979	----	----	----	----	----	----	----
Nitrates	W-NO3-SPC	0.27	mg/L	4.34	----	----	----	----	----	----	----
Nitrite + Nitrate as N	W-NNO-SPC	0.060	mg/L	0.979	± 20.0%	----	----	----	----	----	----
Nitrites	W-NO2-SPC	0.0050	mg/L	<0.0050	----	----	----	----	----	----	----
Orthophosphate	W-PO4O-SPC	0.040	mg/L	<0.040	----	----	----	----	----	----	----
Phosphorus (as P2O5)	W-PTOT-SPC	0.120	mg/L	<0.120	----	----	----	----	----	----	----
Sulfides as H2S	W-H2S-PHO	0.050	mg/L	<0.050	----	----	----	----	----	----	----
Sulphate as SO4 2-	W-SO4-IC	5.00	mg/L	10.7	± 15.0%	----	----	----	----	----	----
Total Cyanide	W-CNT-PHO	0.005	mg/L	<0.005	----	----	----	----	----	----	----
Total Phosphorus as P	W-PTOT-SPC	0.050	mg/L	<0.050	----	----	----	----	----	----	----
Total Phosphorus as PO4 3-	W-PTOT-SPC	0.150	mg/L	<0.150	----	----	----	----	----	----	----
Weak Acid Dissociable Cyanide	W-CNWAD-PHO	0.005	mg/L	<0.005	----	----	----	----	----	----	----
Base neutralizing capacity (acidity) pH 8.3	W-ACID-PCT	0.150	mmol/L	<0.150	----	----	----	----	----	----	----
Dissolved silicate as SiO3	W-SIO3-SPC	0.100	mg/L	21.8	± 20.0%	----	----	----	----	----	----
Free Cyanide	W-CNF-PHO	0.005	mg/L	<0.005	----	----	----	----	----	----	----
Hydrogen carbonates (HCO3-)	W-CO2F-CC2	0.00	mg/L	245	± 12.0%	----	----	----	----	----	----
Nitrate as N	W-NO3-SPC	0.060	mg/L	0.979	----	----	----	----	----	----	----
Nitrite as N	W-NO2-SPC	0.0020	mg/L	<0.0020	----	----	----	----	----	----	----
Orthophosphate as P	W-PO4O-SPC	0.010	mg/L	<0.010	----	----	----	----	----	----	----
Oxygen Saturation	W-O2D-ELE	1	%	96	± 30.0%	----	----	----	----	----	----
Sulfide as S2-	W-H2S-PHO	0.050	mg/L	<0.050	----	----	----	----	----	----	----
Dissolved silicate as H2SiO3	W-SIO3-SPC	0.100	mg/L	22.4	----	----	----	----	----	----	----
Total Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	181	± 12.0%	----	----	----	----	----	----
Base neutralizing capacity (acidity) pH 4.5	W-ACID-PCT	0.150	mmol/L	<0.150	----	----	----	----	----	----	----
Free Carbon Dioxide as CO2	W-CO2F-CC2	0.00	mg/L	4.53	± 12.0%	----	----	----	----	----	----
Suspended solids dried at 105 °C	W-TSS-GR	5.0	mg/L	5.2	± 12.8%	----	----	----	----	----	----
Aggressive CO2	W-CO2F-CC2	0	mg/L	0	----	----	----	----	----	----	----
Acid neutralizing capacity (alkalinity) pH 4.5	W-ALK-PCT	0.150	mmol/L	4.02	± 12.0%	----	----	----	----	----	----
Acid neutralizing capacity (alkalinity) pH 8.3	W-ALK-PCT	0.150	mmol/L	<0.150	----	----	----	----	----	----	----
Total Metals / Major Cations											
Aluminium	W-METMSFX2	5.0	µg/L	6.6	± 10.0%	----	----	----	----	----	----
Aluminium	W-METAXFX1	0.010	mg/L	0.020	± 10.0%	----	----	----	----	----	----
Antimony	W-METMSFX1	1.0	µg/L	<1.0	----	----	----	----	----	----	----
Antimony	W-METAXFX1	0.010	mg/L	<0.010	----	----	----	----	----	----	----
Arsenic	W-METMSFX1	1.0	µg/L	<1.0	----	----	----	----	----	----	----
Arsenic	W-METAXFX1	0.0050	mg/L	<0.0050	----	----	----	----	----	----	----
Barium	W-METMSFX2	1.0	µg/L	4.7	± 10.0%	----	----	----	----	----	----
Barium	W-METAXFX1	0.00050	mg/L	0.00656	± 10.0%	----	----	----	----	----	----
Beryllium	W-METMSFX1	0.20	µg/L	<0.20	----	----	----	----	----	----	----
Beryllium	W-METAXFX1	0.00020	mg/L	<0.00020	----	----	----	----	----	----	----
Bismuth	W-METMSFX2	1.0	µg/L	<1.0	----	----	----	----	----	----	----
Boron	W-METAXFX1	0.010	mg/L	0.059	± 10.0%	----	----	----	----	----	----
Cadmium	W-METMSFX1	0.50	µg/L	<0.50	----	----	----	----	----	----	----
Cadmium	W-METAXFX1	0.00040	mg/L	<0.00040	----	----	----	----	----	----	----
Calcium	W-METAXFX1	0.0050	mg/L	50.2	± 10.0%	----	----	----	----	----	----
Chromium	W-METMSFX1	5.0	µg/L	<5.0	----	----	----	----	----	----	----
Chromium	W-METAXFX1	0.0010	mg/L	0.0014	± 10.0%	----	----	----	----	----	----
Cobalt	W-METMSFX2	0.50	µg/L	<0.50	----	----	----	----	----	----	----
Cobalt	W-METAXFX1	0.0020	mg/L	<0.0020	----	----	----	----	----	----	----
Copper	W-METMSFX2	1.0	µg/L	2.9	± 10.0%	----	----	----	----	----	----
Copper	W-METAXFX1	0.0010	mg/L	0.0041	± 10.0%	----	----	----	----	----	----



Sub-Matrix: **WATER**

Client sample ID
Laboratory sample ID
Client sampling date / time

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Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Total Metals / Major Cations - Continued									
Iron	W-METAXFX1	0.0020	mg/L	0.0107	± 10.0%	----	----	----	----
Lead	W-METMSFX1	1.0	µg/L	1.8	± 10.0%	----	----	----	----
Lead	W-METAXFX1	0.0050	mg/L	0.0061	± 10.0%	----	----	----	----
Lithium	W-METMSFX2	1.0	µg/L	1.9	± 10.0%	----	----	----	----
Lithium	W-METAXFX1	0.0010	mg/L	0.0030	± 10.0%	----	----	----	----
Magnesium	W-METMSFX2	10	µg/L	7850	± 10.0%	----	----	----	----
Magnesium	W-METAXFX1	0.0030	mg/L	10.2	± 10.0%	----	----	----	----
Manganese	W-METMSFX2	0.50	µg/L	4.56	± 10.0%	----	----	----	----
Manganese	W-METAXFX1	0.00050	mg/L	0.00607	± 10.0%	----	----	----	----
Mercury	W-HG-AFSFX	0.010	µg/L	0.012	± 10.0%	----	----	----	----
Molybdenum	W-METMSFX1	1.0	µg/L	5.1	± 10.0%	----	----	----	----
Molybdenum	W-METAXFX1	0.0020	mg/L	0.0040	± 10.0%	----	----	----	----
Nickel	W-METMSFX1	3.0	µg/L	<3.0	----	----	----	----	----
Nickel	W-METAXFX1	0.0020	mg/L	<0.0020	----	----	----	----	----
Phosphorus	W-METAXFX1	0.050	mg/L	<0.050	----	----	----	----	----
Potassium	W-METAXFX1	0.015	mg/L	0.180	± 10.0%	----	----	----	----
Selenium	W-METMSFX1	1.0	µg/L	<1.0	----	----	----	----	----
Selenium	W-METAXFX1	0.010	mg/L	<0.010	----	----	----	----	----
Silver	W-METMSFX2	1.0	µg/L	<1.0	----	----	----	----	----
Silver	W-METAXFX1	0.0010	mg/L	<0.0010	----	----	----	----	----
Sodium	W-METAXFX1	0.030	mg/L	33.7	± 10.0%	----	----	----	----
Strontium	W-METMSFX2	1.0	µg/L	546	± 10.0%	----	----	----	----
Tellurium	W-METMSFX2	5.0	µg/L	<5.0	----	----	----	----	----
Thallium	W-METMSFX1	0.50	µg/L	<0.50	----	----	----	----	----
Thallium	W-METAXFX1	0.010	mg/L	<0.010	----	----	----	----	----
Tin	W-METMSFX2	1.0	µg/L	<1.0	----	----	----	----	----
Titanium	W-METMSFX2	5.0	µg/L	<5.0	----	----	----	----	----
Uranium	W-METMSFX3	0.10	µg/L	1.85	± 10.0%	----	----	----	----
Vanadium	W-METMSFX2	5.0	µg/L	<5.0	----	----	----	----	----
Vanadium	W-METAXFX1	0.0010	mg/L	<0.0010	----	----	----	----	----
Zinc	W-METMSFX2	2.0	µg/L	122	± 10.0%	----	----	----	----
Zinc	W-METAXFX1	0.0020	mg/L	0.161	± 10.0%	----	----	----	----
Dissolved Metals / Major Cations									
Aluminium	W-METAXFL1	0.010	mg/L	0.016	± 10.0%	----	----	----	----
Antimony	W-METAXFL1	0.010	mg/L	<0.010	----	----	----	----	----
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	----	----	----	----	----
Barium	W-METAXFL1	0.00050	mg/L	0.00787	± 10.0%	----	----	----	----
Beryllium	W-METAXFL1	0.00020	mg/L	<0.00020	----	----	----	----	----
Boron	W-METAXFL1	0.010	mg/L	0.060	± 10.0%	----	----	----	----
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	----	----	----	----	----
Calcium	W-METAXFL1	0.0050	mg/L	53.7	± 10.0%	----	----	----	----
Chromium	W-METAXFL1	0.0010	mg/L	<0.0010	----	----	----	----	----
Cobalt	W-METAXFL1	0.0020	mg/L	<0.0020	----	----	----	----	----
Copper	W-METAXFL1	0.0010	mg/L	0.0032	± 10.0%	----	----	----	----
Hexavalent Chromium - Soluble	W-CR6-IC	0.40	µg/L	<0.40	----	----	----	----	----
Iron	W-METAXFL1	0.0020	mg/L	<0.0020	----	----	----	----	----
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	----	----	----	----	----
Lithium	W-METAXFL1	0.0010	mg/L	<0.0010	----	----	----	----	----
Magnesium	W-METAXFL1	0.0030	mg/L	10.8	± 10.0%	----	----	----	----
Manganese	W-METAXFL1	0.00050	mg/L	<0.00050	----	----	----	----	----
Molybdenum	W-METAXFL1	0.0020	mg/L	0.0024	± 10.0%	----	----	----	----
Nickel	W-METAXFL1	0.0020	mg/L	<0.0020	----	----	----	----	----
Phosphorus	W-METAXFL1	0.050	mg/L	<0.050	----	----	----	----	----
Potassium	W-METAXFL1	0.015	mg/L	0.136	± 10.0%	----	----	----	----
Selenium	W-METAXFL1	0.010	mg/L	<0.010	----	----	----	----	----
Silver	W-METAXFL1	0.0010	mg/L	<0.0010	----	----	----	----	----
Sodium	W-METAXFL1	0.030	mg/L	37.1	± 10.0%	----	----	----	----
Thallium	W-METAXFL1	0.010	mg/L	<0.010	----	----	----	----	----



Sub-Matrix: **WATER**

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Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Dissolved Metals / Major Cations - Continued									
Vanadium	W-METAXFL1	0.0010	mg/L	<0.0010	---	----	----	----	----
Zinc	W-METAXFL1	0.0020	mg/L	<0.0020	---	----	----	----	----
Petroleum Hydrocarbons									
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	----	----	----	----
C10 - C40 Fraction	W-TPHFID01	50.0	µg/L	<50.0	---	----	----	----	----
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	----	----	----	----
C16 - C35 Fraction	W-TPHFID01	30.0	µg/L	<30.0	---	----	----	----	----
C35 - C40 Fraction	W-TPHFID01	10.0	µg/L	<10.0	---	----	----	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

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Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
W-GAA-SCI	CSN 75 7611 chapter 4 Determination of gross alpha activity by measuring of evaporated residue in a mixture with ZnS (Ag) scintillator.
W-GBA-PRO	CZ_SOP_D06_07_361 (CSN 75 7612; Recommendation of SÚJB Measurement and assessment of the content of natural radionuclides in drinking water from public sources Rev. 1, SUJB 2012). Determination of gross beta activity by measuring of evaporated residue by means of proportional detector and determination of gross beta activity corrected for potassium 40 by calculation from measured values.
W-H2S-PHO	CZ_SOP_D06_07_015.A (CSN 83 0520:1978-part 16, CSN 83 0530:1980-part 31, SM 4500-S2- D) Determination of sum of sulfan and sulfide by spectrophotometry and determination of free sulfan by calculation from measured values.
W-PHI-PHO	CZ_SOP_D06_07_030 (CSN ISO 6439, CSN EN 16192) Determination of phenol index by spectrophotometric method after distillation.
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-ACID-PCT	CZ_SOP_D06_02_073 (CSN 75 73 72) Determination of base neutralizing capacity (acidity) by potentiometric titration.
W-ALK-PCT	CZ_SOP_D06_02_072 (CSN EN ISO 9963-1, CSN EN ISO 9963-2, CSN 75 7373, SM2320) Determination of acid neutralizing capacity (alkalinity) by potentiometric titration and determination of the carbonate hardness and determination of CO 2 forms by calculation from measured values including the calculation of total mineralization.
W-BOD5-OXY	CZ_SOP_D06_02_077/CZ_SOP_D06_07_042 (CSN EN 1899-1) Determination of biochemical oxygen demand after n days (BODn) by dilution method with allylthiourea addition. CZ_SOP_D06_02_078/CZ_SOP_D06_07_043 (CSN EN 1899-2) Determination of biochemical oxygen demand after n days (BODn) by method for undiluted samples.
W-CL-IC	CZ_SOP_D06_02_068 (CSN EN ISO 10304-1, CSN EN 16192) Determination of dissolved fluoride, chloride, nitrite, bromide, nitrate and sulphate by ion liquid chromatography and determination of nitrite nitrogen and nitrate nitrogen and sulfate sulfur by calculation from measured values including the calculation of total mineralization.
W-CNF-PHO	CZ_SOP_D06_02_090.A (CSN ISO 6703-2, CSN EN 16192, CSN EN ISO 14403-2, SM 4500 CN) Determination of easily releasable cyanide (free cyanide) and cyanide dissociated by weak acid by spectrophotometry/ CZ_SOP_D06_07_011 (CSN ISO 6703-2, CSN EN 16192) Determination of easily releasable cyanide (free cyanide) by spectrophotometry.
W-CNT-PHO	CZ_SOP_D06_02_089.A (CSN 75 7415, CSN EN ISO 14403-2)/ CZ_SOP_D06_07_010 (CSN 75 7415) Determination of total cyanide by spectrophotometry and determination of complex-forming cyanides by calculation from measure values.
W-CNWAD-PHO	CZ_SOP_D06_02_090.A (CSN ISO 6703-2, CSN EN 16192, CSN EN ISO 14403-2, SM 4500 CN) Determination of easily releasable cyanide (free cyanide) and cyanide dissociated by weak acid by spectrophotometry/ CZ_SOP_D06_07_123A (SM 4500 CN) Determination of weak acid dissociable cyanide (WAD) by spectrophotometry.
W-CO2F-CC2	CZ_SOP_D06_02_072 (CSN EN ISO 9963-1, CSN 75 7373) Determination of acid neutralizing capacity (alkalinity) by potentiometric titration and determination of the carbonate hardness and determination of CO 2 forms by calculation from measured values including the calculation of total mineralization.
W-CODMN-SPC	CZ_SOP_D06_02_092 (CSN EN ISO 8467, Z1) Determination of chemical oxygen demand using permanganate (CODMn) by titration.
W-COD-SPC	CZ_SOP_D06_02_076 (CSN ISO 15705) Determination of chemical oxygen demand using dichromate (COD-Cr) by photometry. / CZ_SOP_D06_02_076.A / CZ_SOP_D06_07_040 (CSN ISO 6060, CSN ISO 15705) Determination of chemical oxygen demand using dichromate (COD-Cr) by titration.
W-COL-SPC	CZ_SOP_D06_02_079 (CSN EN ISO 7887) Determination of colour by spectrometry.
W-CON-PCT	CZ_SOP_D06_02_075 Determination of electrical conductivity (based on CSN EN 27 888, SM 2520 B, CSN EN 16192).



Analytical Methods	Method Descriptions
W-CR6-IC	CZ_SOP_D06_02_122 except chap. 10.2; 11.3.2; 11.5; 12.2.2; 15.5 (CSN EN 16192, EPA 7199, SM 3500-Cr) Determination of hexavalent chromium by ion chromatography with spectrophotometric detection and trivalent chromium determination by calculation from measured values.
W-HARD-DG	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, CSN EN 16192, US EPA 6010, SM 3120, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-HARD-FX	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, CSN EN 16192, US EPA 6010, SM 3120, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was fixed by nitric acid addition prior to analysis.
W-HG-AFSDG	CZ_SOP_D06_02_096 (US EPA 245.7, CSN EN ISO 178 52, CSN EN 16192, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-HG-AFSFX	CZ_SOP_D06_02_096 (US EPA 245.7, CSN EN ISO 178 52, CSN EN 16192, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was fixed by nitric acid addition prior to analysis.
W-METAXDG1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, CSN EN 16192, US EPA 6010, SM 3120, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, CSN EN 16192, US EPA 6010, SM 3120, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFX1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, CSN EN 16192, US EPA 6010, SM 3120, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was fixed by nitric acid addition prior to analysis.
W-METMSDG1	CZ_SOP_D06_02_002 (US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-METMSDG2	CZ_SOP_D06_02_002 (US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-METMSDG3	CZ_SOP_D06_02_002 (US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-METMSFX1	CZ_SOP_D06_02_002 (US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was fixed by nitric acid addition prior to analysis.
W-METMSFX2	CZ_SOP_D06_02_002 (US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was fixed by nitric acid addition prior to analysis.
W-METMSFX3	CZ_SOP_D06_02_002 (US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was fixed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN EN ISO 11732, CSN EN ISO 13395, CSN EN 16192, CSN EN 13370, SM 4500-NO2(-), SM 4500-NO3(-)) Determination of sum of ammonium and ammonium ions, nitrite and the sum of nitrite and nitrate ions by discrete spectrophotometry and determination of nitrite, nitrate, ammonia, inorganic, organic, total nitrogen, free ammonia and dissociated ammonium ions by calculation from measured values including the calculation of total mineralization.



Analytical Methods	Method Descriptions
W-NING-CC	CZ_SOP_D06_02_019 (CSN EN ISO 11732, CSN EN ISO 13395, CSN EN 16192, SM 4500-NO2(-), SM 4500-NO3(-)) Determination of sum of ammonium and ammonium ions, nitrite and the sum of nitrite and nitrate ions by discrete spectrophotometry and determination of nitrite, nitrate, ammonia, inorganic, organic, total nitrogen, free ammonia and dissociated ammonium ions by calculation from measured values including the calculation of total mineralization.
W-NNO-SPC	CZ_SOP_D06_02_019 (CSN EN ISO 11732, CSN EN ISO 13395, CSN EN 16192, SM 4500-NO2(-), SM 4500-NO3(-)) Determination of sum of ammonium and ammonium ions, nitrite and the sum of nitrite and nitrate ions by discrete spectrophotometry and determination of nitrite, nitrate, ammonia, inorganic, organic, total nitrogen, free ammonia and dissociated ammonium ions by calculation from measured values including the calculation of total mineralization.
W-NO2-SPC	CZ_SOP_D06_02_019 (CSN EN ISO 11732, CSN EN ISO 13395, CSN EN 16192, SM 4500-NO2(-), SM 4500-NO3(-)) Determination of sum of ammonium and ammonium ions, nitrite and the sum of nitrite and nitrate ions by discrete spectrophotometry and determination of nitrite, nitrate, ammonia, inorganic, organic, total nitrogen, free ammonia and dissociated ammonium ions by calculation from measured values including the calculation of total mineralization.
W-NO3-SPC	CZ_SOP_D06_02_019 (CSN EN ISO 11732, CSN EN ISO 13395, CSN EN 16192, SM 4500-NO2(-), SM 4500-NO3(-)) Determination of sum of ammonium and ammonium ions, nitrite and the sum of nitrite and nitrate ions by discrete spectrophotometry and determination of nitrite, nitrate, ammonia, inorganic, organic, total nitrogen, free ammonia and dissociated ammonium ions by calculation from measured values including the calculation of total mineralization.
W-O2D-ELE	CZ_SOP_D06_07_044 (CSN EN ISO 5814) Determination of dissolved oxygen by electrochemical method.
W-PH-PCT	CZ_SOP_D06_02_105 Determination of pH by potentiometry (based on CSN ISO 10523, US EPA 150.1, CSN EN 16192, SM 4500-H(+) B).
W-PO4O-SPC	CZ_SOP_D06_02_022 (CSN EN ISO 6878 SM 4500-P) Determination of orthophosphate by discrete spectrophotometry and determination of orthophosphate's phosphorus by calculation from measured values including the calculation of total mineralization.
W-PTOT-SPC	CZ_SOP_D06_02_080 Determination of total phosphorus by discrete spectrophotometry and determination of phosphorus as P2O5 and PO4 3- by calculation from measured values (based on CSN EN ISO 6878 and CSN ISO 15681-1).
W-SIO3-SPC	CZ_SOP_D06_02_109 Determination of dissolved silicates by discrete spectrophotometry and determination of H2SiO3 and total mineralization by calculation from measured values (CSN EN ISO 16264, EPA 370.1).
W-SO4-IC	CZ_SOP_D06_02_068 (CSN EN ISO 10304-1, CSN EN 16192) Determination of dissolved fluoride, chloride, nitrite, bromide, nitrate and sulphate by ion liquid chromatography and determination of nitrite nitrogen and nitrate nitrogen and sulfate sulfur by calculation from measured values including the calculation of total mineralization.
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1, US EPA 8015, US EPA 3510, TNRCC Method 1006) Determination of extractable compounds in the range of hydrocarbons C10- C40, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TSS-GR	CZ_SOP_D06_02_070 (CSN EN 872, CSN 757350) Determination of dry suspended solids and annealed suspended solids by gravimetry and determination of loss of ignition of suspended solids and total solids by calculation from measured values (glass microfibre filter of porosity 1,5 µm - Environmental Express).

A ** symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.