Snowy Hydro 2.0 Main Works EPL Sampling: 01 - 31 January 2023

Environmental Protection Licence No:	21266
Licensee:	Snowy Hydro Limited
Licensee address:	PO Box 332, Cooma, NSW 2630
Premises:	Snowy 2.0 Pumped Hydro Power Station Talbingo and Tantangara, Kosciuszko National Park and Rock Forest, Kosciuszko NSW 2642
EPA Public Register:	https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=21266&id=21266&option=licence&searchrange=licence&range=POEO%20licence&prp=no&status=Issued

Monthly water sampling and analysis is performed as part of the Snowy 2.0 Approval Conditions, Environmental Protection Licence No 21266 - Variation 6 July 2022, and the approved Water Management Plan to ensure that works are not impacting on nearby receiving waters. A map showing the location of each of the EPL named sampling points is provided after the results tables.

Reservoir Results: Overall the insitu monitoring results were compliant against WQO's for both Tantangara and Talbingo reservoirs. Those that did have exceedances were minor and remained within historical values. Oil and grease exceedances remain under investigation with QAQC sampling being conducted to understand the root cause. Slightly elevated concentrations of total Phosphorus at EPL38 and EPL39 are not of concern to water quality and remain within historical variation. The Aluminium and Iron exceedances at EPL28 are not likely to be a direct impact from the Snowy 2.0 project as this EPL location is upstream of construction activities. Faecal coliform concentrations at EPL10 and EPL11 likely due to natural occurrences in soil and water such as algal blooms and of other members of the bacteria family that are also included in the analysis, rather than any impact of faecal contamination from project related activities as the discharge results for coliforms are within criteria.

Surface Water Results: The Yarrangobilly River consistently displays results outside of WQO range for select parameters however does not stray from typical variation in this monitoring period, with the upstream location displaying similar exceedances. The more significant exceedances of total Phosphorous at EPL24 and EPL37 are displaying concentrations that likely originated from biological materials with no evidence of depleted dissolved oxygen, indicating that any eutrophication is unlikely in these water bodies. These levels will be closely monitored in the coming events. Oil and grease elevated results remains under investigation however, exceedances were also present at the upstream locations (EPL5, EPL28, EPL29), indicating no impact from project related activities. There are elevated results for EPL24 for select nutrients and metals. The river was dry at the start of the reporting period so the sample taken later in the month is representative of dry conditions per the baseline studies which indicate frequent exceedances of the WQO. The Aluminium exceedance at EPL24 is being checked with the laboratory and will remain under investigation. Elevated Aluminium, Nitrogen and Iron results and minor exceedances of cyanide at EPL 34, 35, 36, 37 display consistent results upstream and downstream of construction activities.

Discharge Results: The exceedances at the final discharge points are due to continual variability in water quality arriving at the plant where changes can be made to address this variability and reach WQO. This is an ongoing process but is managed with no water discharged to the reservoir until WQO are achieved. The RO was not discharging at the time of sampling for both EPL41 and EPL50.

The Tantangara and Marica EPL sampling locations for in-situ data were collected with a piece of equipment that had errors with EC and ORP for some of the locations. As a result, this data is missing.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 January 2023 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40	EPL46	EPL51
Field													
pH	pH Unit	-	6.5-8	7.8	7.9	6.5	6.4	6.8	6.9	6.8	6.5	6.4	6.5
Electrical Conductivity	µS/cm	-	20-30	64	62	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	190	166	116.0	192.0	167.0	153.0	-	-	-	-
Temperature	°C	-	No Water Quality Objective Value	21.16	20.98	19.45	21.07	20.86	20.28	19.41	19.4	21.07	20.99
Dissolved Oxygen	% saturation	-	90-110	54.6	59.3	161.2	89.6	99.9	143.9	161.7	168.3	90.9	188.2
Turbidity	NTU	-	1-20	7.2	14.4	4.7	3.6	3.8	3.1	7.4	8.9	3.6	3.5
Laboratory analytes													
Total suspended solids	mg/L	5	No Water Quality Objective Value	< 5	< 5	16	<5	<5	<5	< 5	< 5	< 5	20
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	27	24	5.4	8	8	8	8.2	10	7.8	5.5
Nutrients													
Ammonia as N	µg/L	5	10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	20	20	120	120	60	90	9	120	110	60
Nitrogen (Total)	µg/L	10	350	20	20	120	120	60	90	9	120	110	60
Reactive Phosphorus	µg/L	1	5	3	2	3	2	<1	2	2	3	2	4
Phosphorus (Total)	µg/L	5	10	10	<5	9	9	7	19	23	9	10	5
Inorganics													
Cyanide Total	µg/L	4	7	<4	<4	<4	<4	6	<4	<4	4	5	4
Hydrocarbons													
Oil and Grease	mg/L	5	5	<5	<5	8	80	12	5.4	<5	<5	<5	<5
Metals													
Aluminium (dissolved)	µg/L	5	55	31	15	60	46	51	45	24	21	37	52
Arsenic (dissolved)	µg/L	0.2	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	0.2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	0.5	14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	2	300	<50	<50	380	260	270	280	260	230	250	250
Lead (dissolved)	µg/L	0.1	3.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	0.5	1,900	<5	<5	16	9	9	14	16	28	8	10
Nickel (dissolved)	µg/L	0.5	11	<1	<1	<1	<1	<1	<1	`	<1	<1	<1
Silver (dissolved)	µg/L	0.01	0.05	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	1	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biological													
Faecal Coliforms	CFU/100mL	1	10/100^	12	10	<1	-	-	-	-	-	-	2
Biochemical Oxygen Demand	mg/L	2	1/5^	<5	<5	<5	-	-	-	-	-	-	<5

***** Water Quality Objective values for Talbingo and Tantangara Reservoir refer to the default trigger values for physical and chemical stressors in south-east Australia (fresh lakes and reservoirs) for the protection of 95% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

^ 90th percentile concentration limits / 100 percentile concentration limits

\- Sample not required at this location.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 January 2023- Surface Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL5	EPL6	EPL8	EPL9	EPL12	EPL14	EPL15	EPL16	EPL24	EPL26	EPL27	EPL30	EPL31	EPL33	EPL34	EPL35	EPL36	EPL37
Field																					
pH	-	-	6.5-8	7.59	8.00	7.93	8.15	7.90	7.88	7.97	8.10	6.80	6.86	6.79	6.34	6.58	6.66	7.57	7.36	7.40	7.18
Electrical Conductivity	µS/cm	-	30-350	84	95	91	87	84	84	86	86	71	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	87	144	155	132	136	147	151	135	-7	115.0	127.0	177.0	161.0	156.0	79.0	94.0	120.0	137.0
Temperature	°C	-	No Water Quality Objective Value	13.92	12.73	18.06	20.57	14.15	15.72	17.08	8.11	19.08	17.85	18.37	21.85	12.67	18.17	16.34	16.17	15.84	16.02
Dissolved Oxygen	% saturation	-	90-110	93.5	86.5	98.9	93.2	94.6	98.6	82.1	99	80.2	128	102.8	138.5	127.6	133.1	122.9	179.9	164.4	252.2
Turbidity	NTU	-	2-25	0	51.4	3.1	0	5	0.5	1.4	0	477	59.9	76.3	44.6	20.3	2.54	9.59	8.26	13.83	21.2
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	< 5	< 5	< 5	< 5	9.6	< 5	< 5	< 5	320	<5	<5	16	12	<5	<5	<5	13.0	7.8
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	44	51	46	46	44	45	46	46	160	15	15	13	9.6	8	7.5	7.3	17	18
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	<5	<5	<5	<5	<5	<5	17	<5	<5	<5	<5	<5	<5	<5	<5	26
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	40	20	30	20	230	30	110	180	280	<10	20	200	170	150	260	150	190	350
Nitrogen (Total)	µg/L	10	250	40	20	30	20	760	270	110	180	1200	<10	20	220	180	150	260	150	370	540
Reactive Phosphorus	µg/L	1	15	3	8	4	4	4	4	4	4	3	3	3	5	4	2	3	2	4	4
Phosphorus (Total)	µg/L	5	20	<5	8	<5	<5	<5	<5	<5	<5	640	<5	9	<5	22	9	15	7	7	120
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	6	7	<4	4	4	5	5	6	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	5	23	10	<5	<5	<5	18	<5	<5	17	7.2	7.3	<5	<5	<5	<5	<5	<5	<5
Metals																					
Aluminium (dissolved)	µg/L	5	27	15	28	17	22	17	14	27	15	30000	12	16	13	22	7	35	52	56	69
Arsenic (dissolved)	µg/L	1	0.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	1	0.01	<1	<1	<1	<1	<1	<1	<1	<1	4	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50	300	<50	<50	<50	<50	<50	<50	<50	<50	<50	60	<50	90	70	170	400	410	670	730
Lead (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5	1,200	<5	<5	<5	<5	<5	<5	<5	<5	75	7	7	7	<5	24	<5	<5	6	<5
Nickel (dissolved)	µg/L	1	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.0
Silver (dissolved)	µg/L	5	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	<5	<5	<5	<5	<5	<5

* Water Quality Objective values for surface water refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 January 2023 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45	EPL 47	EPL 48	EPL 49	EPL 50
Flow Rate											
Inflow#	**ML/day**			-	-	0.5400	0.0367	0.0948	0.0563	0.0948	-
Outflow#	**ML/day**		4.32 (EPL 43 / 50)	-	0.2114	-	-	-	-	-	-
Field											
pH	**pH Unit**	-	6.5-8.5	8.56	-	-	-	-	-	-	7.3
Electrical Conductivity	**µS/cm**	-	700 (EPL 41) / 200 (EPL 50)	228	-	-	-	-	-	-	-
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	154	-	-	-	-	-	-	117
Temperature	**°C**	-	15	19.01	-	-	-	-	-	-	21.5
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	104.2	-	-	-	-	-	-	173
Turbidity	**NTU**	-	<25	27.3	-	-	-	-	-	-	0.5
Laboratory analytes											
Total suspended solids	**mg/L**	5	5/10	<5	-	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	21	-	-	-	-	-	-	7.3
Nutrients											
Ammonia as N	**µg/L**	5	0.2/2^	<5	-	-	-	-	-	-	<5
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	100	-	-	-	-	-	-	190
Nitrogen (Total)	**µg/L**	10	350	220	-	-	-	-	-	-	220
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	4	-	-	-	-	-	-	3
Phosphorus (Total)	**µg/L**	5	0.1/0.3^	30	-	-	-	-	-	-	5
Inorganics											
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	<4	-	-	-	-	-	-	5
Hydrocarbons											
Oil and Grease	**mg/L**	5	2/5^	<5	-	-	-	-	-	-	<5
Metals											
Aluminium (dissolved)	**µg/L**	5	55	320	-	-	-	-	-	-	<5
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-	-	-	-	<1
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	22	-	-	-	-	-	-	<1
Copper (dissolved)	**µg/L**	0.5	14	2	-	-	-	-	-	-	<1
Iron (dissolved)	**µg/L**	2	300	<50	-	-	-	-	-	-	<50
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-	-	-	-	<1
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	-	-	-	-	-	-	<5
Nickel (dissolved)	**µg/L**	0.5	11	1	-	-	-	-	-	-	<1
Silver (dissolved)	**µg/L**	0.01	0.05	<5	-	-	-	-	-	-	<5
Zinc (dissolved)	**µg/L**	1	8	<5	-	-	-	-	-	-	<5
Biological											
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-	-	-	-	<1
Biological Oxygen Demand	**mg/L**	2	5	<5	-	-	-	-	-	-	<5

Note: Treated water was not being discharged at Talbingo and Tantangara Reservoirs at the time of EPL sampling

* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- Samples not required

^ 90 Percentile concentration limit/100 Percentile limit

\# Inflows to STP and CWTP do not directly correspond to outflow at RO as much of the water is reused on site

Snowy Hydro 2.0 Main Works EPL Sampling: 01 - 28 February 2023

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Monthly water sampling and analysis is performed as part of the Snowy 2.0 Approval Conditions, Environmental Protection Licence No 21266 - Variation 5 October 2022, and the approved Water Management Plan to ensure that works are not impacting on nearby receiving waters.

A map showing the location of each of the EPL named sampling points is provided after the results tables.

Groundwater Results: The metals exceedances for EPL1, EPL2 and EPL4 are representative of natural conditions as these metals occur naturally within the project area. The EPL25 minor metals exceedances for zinc, nickel and copper fall within standard fluctuations in this well, and the iron exceedance remains consistent with previous quarterly results. Shallower wells (EPL1 and EPL25) are more likely to see higher nutrient exceedances as nutrients likely leach through the soil into the aquifer during rainfall. The nutrient exceedances fall within standard variation for these wells with no evidence of impacts to Yarrangobilly River.

Surface Water Results: EPL36 and EPL37 (Rock Forest) and EPL26 and EPL27 (Marica) displayed similar exceedances at the upstream and downstream locations, indicating it is unlikely that these exceedances are due to any project related impacts and more likely pertain to off-site sources or natural background conditions. There were no metal or nutrient exceedances for any of the Lobs Hole EPL sites except for EPL24 which displayed exceedances for aluminium and phosphorous. EPL24 during the dryer months holds little water which becomes stagnant. It states in the SWMP that frequent exceedances of the WQO are likely to occur in the summer months. During the February sampling round, there was a slight flow of water with the sample collected from the deepest puddle which consisted of exceedances in aluminium and phosphorous which are likely attributed to the higher turbidity reading. Tantangara surface water EPL points displayed results that are consistent with previous monitoring rounds, with minor exceedances for select nutrients and metals.

Reservoir Results: There were no metals exceedances for Tantangara Reservoir in the February 2023 monitoring round, with minor exceedances of phosphorous that remain within historical variation. The Oil and Grease concentrations remain under investigation with a stronger focus on determining if naturally occurring oils could be causing the concentrations rather than project related impacts. Slight nutrient exceedances on the reservoirs could be attributed to algal blooms occurring as a result of warmer weather. EPL10 and EPL11 results are consistent with previous monitoring rounds except for the thermotolerant (faecal) coliform results. The coliform analysis includes all coliforms that can survive in thermotolerant conditions, indicating that these results could have been a result of an algal bloom in the reservoir or other other organic origins. EPL41 also didn't display any exceedances for coliforms, indicating the exceedances on the reservoir aren't a result of faecal contamination being discharged to the reservoir.

Discharge Results: EPL41 was discharging to Talbingo Reservoir on the day of sampling with in-situ parameters falling within WQO, apart from a minor temperature exceedance. Exceedance in Aluminum is currently being investigated. EPL50 results remained mostly within water quality with the exception of zinc.

GF01 Results: EPL54 was dry during the month of February and as a result, could not be sampled. EPL57 was not sampled due to access issues. EPL52, EPL53 and EPL55 were sampled for in-situ parameters following rainfall which caused enough water to collect in-situ however, not enough to complete a comprehensive sample. EPL56 exceedances were suspected to be a result of grout contamination in the well occuring the install process and is therefore, not representative of background conditions. This well will be decommissioned and redrilled. This well has been purged with continual weekly monitoring on in-situ parameters. EPL58 results are consistent with groundwater accross Lobs Hole and will be monitored on a weekly basis for any changes in parameters.

Tantangara Results: Tantangara spoil emplacement area works had not commenced in February 2023.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: February 2023 Groundwater

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL1 (RMSB6)	EPL2 (RSMB7)	EPL4 (RSMB9)	EPL25 (RSMB8)
Physiochemical							
pH	**pH Unit**	-	6.5-8	7.66	7.31	7.64	6.67
Electrical Conductivity	**µS/cm**	-	30-350	1,070	418	1260	479
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	-152	-8	-101	-31
Temperature	**°C**	-	No Water Quality Objective Value	22.83	20.66	22.62	20.41
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	10.3	30.8	14	31.7
Turbidity	**NTU**	-	No Water Quality Objective Value	150	377	1000	1000
Nutrients							
Nitrogen (Total)	**µg/L**	10	250	1,800	300	700	700
Reactive Phosphorus	**µg/L**	1	15	<50	<50	<50	<50
Metals							
Aluminium (dissolved)	**µg/L**	5	27	6	7	<5	13
Copper (dissolved)	**µg/L**	0.5	1	<1	160	37	5
Iron (dissolved)	**µg/L**	2	300	200	<50	<5	2,700
Lead (dissolved)	**µg/L**	0.1	1	<1	<1	<1	2
Manganese (dissolved)	**µg/L**	0.5	1,200	150	210	260	970
Nickel (dissolved)	**µg/L**	0.5	8	12	5	6	9
Silver (dissolved)	**µg/L**	0.01	0.02	<5	<5	<5	<5
Zinc (dissolved)	**µg/L**	1	2.4	<5	20	<5	8

* Water Quality Objective values for groundwater refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 28 February 2023 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40	EPL51
Field												
pH	pH Unit	-	6.5-8	8.8	8.8	6.5	7.4	7.7	8.0	6.3	6.5	8.6
Electrical Conductivity	µS/cm	-	20-30	82	80	20	19	20	19	20	18	18
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	81	91	259	152	182	169	255	257	119
Temperature	°C	-	No Water Quality Objective Value	23.69	23.77	14.41	16.41	16.4	15.88	12.71	11.89	16.46
Dissolved Oxygen	% saturation	-	90-110	112.9	110.1	135.8	140.7	129.7	84.6	93.5	169.6	114.6
Turbidity	NTU	-	1-20	35.2	16.5	10.7	6.7	7.8	30.4	8.7	16.9	6.7
Laboratory analytes												
Total suspended solids	mg/L	5	No Water Quality Objective Value	5	<5	8.1	<5	<5	5.2	5.9	7.6	5.4
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	35	32	6.4	9.8	9.7	9.6	10	8.7	6.3
Nutrients												
Ammonia as N	µg/L	5	10	50	<5	<5	<5	7	6	<5	<5	34
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	110	90	110	150	140	210	120	160	130
Nitrogen (Total)	µg/L	10	350	110	90	110	150	140	210	120	170	130
Reactive Phosphorus	µg/L	1	5	5	4	<1	<1	<1	<1	<1	<1	<1
Phosphorus (Total)	µg/L	5	10	15	13	8	17	17	<5	11	13	<5
Inorganics												
Cyanide Total	µg/L	4	7	<4	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons												
Oil and Grease	mg/L	5	5	8	15	<5	41	24	13	30	<5	<5
Metals												
Aluminium (dissolved)	µg/L	5	55	11	15	14	22	20	24	23	26	29
Arsenic (dissolved)	µg/L	0.2	13	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	0.2	1	<1	2	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	0.5	14	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	2	300	<50	60	250	160	160	150	150	190	230
Lead (dissolved)	µg/L	0.1	3.4	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	0.5	1,900	<5	<5	68	<5	<5	<5	<5	<5	<5
Nickel (dissolved)	µg/L	0.5	11	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	0.01	0.05	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	1	8	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biological												
Faecal Coliforms	CFU/100mL	1	10/100^	220000**	26000**	<1	-	-	-	-	-	<1
Biochemical Oxygen Demand	mg/L	2	1/5^	<5	<5	<5	-	-	-	-	-	<5

* Water Quality Objective values for Talbingo and Tantangara Reservoir refer to the default trigger values for physical and chemical stressors in south-east Australia (fresh lakes and reservoirs) for the protection of 95% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

** Algal blooms can present as feacal coliforms - green tinge noted in Talbingo Resevroir water at time of sampling.

^ 90th percentile concentration limits / 100 percentile concentration limits

\- Sample not required at this location.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 28 February 2023 - Surface Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL5	EPL6	EPL8	EPL9	EPL12	EPL14	EPL15	EPL16	EPL24	EPL26	EPL27	EPL30	EPL31	EPL33	EPL34	EPL35	EPL36	EPL37
Field																					
pH	-	-	6.5-8	7.64	8.19	8.13	8.01	8.05	8.13	8.29	8.30	6.84	7.34	6.76	8.14	8.47	11.15	6.42	6.16	6.75	6.39
Electrical Conductivity	µS/cm	-	30-350	100	128	114	105	101	103	106	106	173	-	-	220	260	230	140	140	40	43
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	48	104	117	116	52	116	109	100	47	182	220	127	104	24	203	259	230	234
Temperature	°C	-	No Water Quality Objective Value	16.52	15.34	19.79	21.2	16.67	17.1	19.44	21.06	20.48	10.85	9.34	18.84	18.6	19.21	9.57	9.62	11.37	10.94
Dissolved Oxygen	% saturation	-	90-110	94.9	97.2	88.7	92.8	99.8	100.7	85.4	101.1	72.1	108	-	-	-	-	-	-	94.1	-
Turbidity	NTU	-	2-25	0	0	0	0	0	0	0	0	223	6.4	5.7	11.4	27.1	6.2	10.2	10.5	24	12.3
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	5.2	5.7	12	<5	<5	5	<5	<5	130	<5	<5	<5	<5	<5	<5	<5	8.6	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	51	67	54	54	53	52	53	52	69	15	15	12	10	13	8.3	8.6	19	19
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	34	31	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	70	<10	50	60	20	50	50	90	30	60	130	150	160	130	120	110	230	300
Nitrogen (Total)	µg/L	10	250	70	70	60	60	20	50	50	90	240	60	130	160	180	130	120	110	400	310
Reactive Phosphorus	µg/L	1	15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phosphorus (Total)	µg/L	5	20	<5	6	<5	6	<5	5	6	<5	31	<5	<5	19	<5	10	<5	7	11	5
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	5	<5	8.8	<5	7.8	8.5	8.1	6.4	30	<5	<5	9.8	17	<5	<5	11	<5	62	5
Metals																					
Aluminium (dissolved)	µg/L	5	27	7	<5	<5	8	9	11	10	8	120	12	<5	12	17	10	31	29	54	41
Arsenic (dissolved)	µg/L	1	0.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	1	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50	300	<50	<50	<50	<50	<50	<50	<50	<50	200	<50	<50	60	80	110	260	250	830	730
Lead (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5	1,200	<5	7	<5	<5	<5	<5	<5	<5	580	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel (dissolved)	µg/L	1	8	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	8	8	<5	<5	<5	<5	<5	<5	<5

* Water Quality Objective values for surface water refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 28 February 2023 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45	EPL 47	EPL 48	EPL 49	EPL 50
Flow Rate											
Inflow#	**ML/day**	-	-	-	-	0.41996	0.03796	0.11654	0.05404	0.09761	-
Outflow#	**ML/day**	-	4.32 (EPL 43 / 50)	-	0.36082	-	-	-	-	-	-
Field											
pH	**pH Unit**	-	6.5-8.5	7.93	-	-	-	-	-	-	5.95
Electrical Conductivity	**µS/cm**	-	700 (EPL 41) / 200 (EPL 50)	195	-	-	-	-	-	-	7.39
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	336	-	-	-	-	-	-	388
Temperature	**°C**	-	15	26.09	-	-	-	-	-	-	17.9
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	65	-	-	-	-	-	-	-
Turbidity	**NTU**	-	<25	0	-	-	-	-	-	-	0.58
Laboratory analytes											
Total suspended solids	**mg/L**	5	5/10	<5	-	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	26	-	-	-	-	-	-	<5
Nutrients											
Ammonia as N	**µg/L**	5	200/2000^	450	-	-	-	-	-	-	<5
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	790	-	-	-	-	-	-	40
Nitrogen (Total)	**µg/L**	10	350/-^	790	-	-	-	-	-	-	160
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	4	-	-	-	-	-	-	<1
Phosphorus (Total)	**µg/L**	5	100/300^	10	-	-	-	-	-	-	<5
Inorganics											
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	<4	-	-	-	-	-	-	<4
Hydrocarbons											
Oil and Grease	**mg/L**	5	2/5^	<5	-	-	-	-	-	-	<5
Metals											
Aluminium (dissolved)	**µg/L**	5	55	500	-	-	-	-	-	-	21
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-	-	-	-	<5
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	3	-	-	-	-	-	-	<1
Copper (dissolved)	**µg/L**	0.5	14	31	-	-	-	-	-	-	2
Iron (dissolved)	**µg/L**	2	300	100	-	-	-	-	-	-	<50
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-	-	-	-	<1
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	-	-	-	-	-	-	<5
Nickel (dissolved)	**µg/L**	0.5	11	<1	-	-	-	-	-	-	<1
Silver (dissolved)	**µg/L**	0.01	0.05	<5	-	-	-	-	-	-	<5
Zinc (dissolved)	**µg/L**	1	8	11	-	-	-	-	-	-	18
Biological											
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-	-	-	-	<1
Biological Oxygen Demand	**mg/L**		5	<5	-	-	-	-	-	-	<5

Note: Treated water was not being discharged at Tantangara Reservoirs at the time of EPL sampling.
There is no 100th percentile limit for Nitrogen (Total).

* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- Samples not required

^ 90 Percentile concentration limit/100 Percentile limit

Inflows to STP and CWTP do not directly correspond to outflow at RO as much of the water is reused on site

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 28 February 2023 - GF01

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL52	EPL53	EPL54	EPL55	EPL56	EPL57	EPL58
Field										
pH	-	-	6.5-8	10.2	8.58	Dry	7.96	12.32	-	6.41
Electrical Conductivity	µS/cm	-	30-350	290.0	110.0	Dry	233.0	3770	-	101
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	14	60	Dry	114	-91	-	144
Temperature	°C	-	No Water Quality Objective Value	24.72	28.07	Dry	21.3	19.66	-	21.26
Dissolved Oxygen	% saturation	-	90-110	72.3	60.6	Dry	70.5	22.3	-	21.5
Turbidity	NTU	-	2-25	117	247	Dry	787	78.5	-	16.3
Laboratory analytes										
TSS	mg/L	5	No Water Quality Objective Value	-	-	Dry	-	8.6	-	22
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	-	-	Dry	-	680	-	37
Nutrients										
Ammonia as N	µg/L	5	13	-	-	Dry	-	340	-	12
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	-	-	Dry	-	720	-	600
Nitrogen (Total)	µg/L	10	250	-	-	Dry	-	780	-	1800
Reactive Phosphorus	µg/L	1	15	-	-	Dry	-	<1	-	6
Phosphorus (Total)	µg/L	5	20	-	-	Dry	-	15	-	17
Inorganics										
Cyanide Total	µg/L	4	4	-	-	Dry	-	5	-	<4
Hydrocarbons										
Oil and Grease	mg/L	5	5	-	-	Dry	-	<5	-	<5
Metals										
Aluminium (dissolved)	µg/L	5	27	-	-	Dry	-	310	-	12
Arsenic (dissolved)	µg/L	1	0.8	-	-	Dry	-	<1	-	<1
Chromium (III+VI) (dissolved)	µg/L	1	0.01	-	-	Dry	-	500	-	<1
Copper (dissolved)	µg/L	1	1	-	-	Dry	-	15	-	17
Iron (dissolved)	µg/L	50	300	-	-	Dry	-	60	-	<50
Lead (dissolved)	µg/L	1	1	-	-	Dry	-	5	-	3
Manganese (dissolved)	µg/L	5	1,200	-	-	Dry	-	<5	-	16
Nickel (dissolved)	µg/L	1	8	-	-	Dry	-	2	-	3
Silver (dissolved)	µg/L	5	0.02	-	-	Dry	-	<5	-	<5
Zinc (dissolved)	µg/L	5	2.4	-	-	Dry	-	<5	-	13

* Water Quality Objective values for surface water refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

Snowy Hydro 2.0 Main Works EPL Sampling: 01 - 31 March 2023

Environmental Protection Licence No:	21266
Licensee:	Snowy Hydro Limited
Licensee address:	PO Box 332, Cooma, NSW 2630
Premises:	Snowy 2.0 Pumped Hydro Power Station Talbingo and Tantangara, Kosciuszko National Park and Rock Forest, Kosciuzko NSW 2642
EPA Public Register:	https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=21266&id=21266&option=licence&searchrange=licence&range=POEO%20licence&prp=no&status=Issued

Monthly water sampling and analysis is performed as part of the Snowy 2.0 Approval Conditions, Environmental Protection Licence No 21266 - Variation 5 October 2022, and the approved Water Management Plan to ensure that works are not impacting on nearby receiving waters.

A map showing the location of each of the EPL named sampling points is provided after the results tables.

Oil and Grease: In the March 2023 monitoring round for the Lobs Hole EPL sampling locations only, oil and grease samples were analysed at two separate laboratories that use the same methodology. The primary laboratory which is where samples are usually sent returned results with exceedances in majority of the locations. The secondary laboratory provided results at all Lobs EPL locations as non-detectable concentrations. Following these results, it is likely that the O&G exceedances in the previous months are due to primary laboratory error during analysis. As such, in the following monitoring rounds, further investigation will be conducted by sending samples to both laboratories. The results provided in this report are from the primary laboratory, however pending the following months results, it is likely that the secondary laboratory results will be utilised.

Surface Water Results: Lobs Hole and Marica surface water EPL points showed no exceedances other than Nitrogen in EPL5, EPL8, EPL15, EPL26 and EPL27 and a minor Zinc exceedances at EPL15, EPL26 and EPL27. The nitrogen exceedances also occurr in the upstream locations indicating no influence from project related activities. The Tantangara and Rock Forest surface water EPL monitoring locations displayed minor exceedances for metals that are representative of background conditions and also occurred in the upstream monitoring locations. EPL 24 is located in a gully, at the time of sampling the gully was dry, therefore a sample was not collected.

Reservoir Results: Thermotolerant coliform results at EPL10, EPL11 and EPL51 exceeded the WQO. The coliform analysis includes all coliforms that can survive in thermotolerant conditions, indicating that these results could have been a result of an algal bloom in the reservoir or other other organic origins. EPL41 also didn't display any exceedances for coliforms, indicating the exceedances on the reservoir aren't a result of faecal contamination being discharged. Tantangara reservoir also displayed minor exceedances for nutrients as well as some O&G exceedances. These remain consistent with previous months of monitoring and are also present in the upstream sampling locations. EPL10 and EPL11 on Talbingo Reservoir displayed no other exceedances beyond expected variation.

Discharge Results: EPL41 was discharging to Talbingo Reservoir on the day of sampling with in-situ parameters falling within WQO, apart from a minor temperature exceedance. Nutrient results for Ammonia, Nitrogen and Phosphorus are elevated and these elavated concentrations are currently being investigated. EPL50 results remained mostly within water quality with the exception of a minor phosphorous exceedance and oil and grease. Discharge was not occuring at the time of sampling.

GF01 Results: GF01 sampling locations are monitored on a weekly basis for in-situ parameters. EPL56 exceedances were suspected to be a result of a fault during install process and is therefore, not representative of background conditions. This well has been purged with continual weekly monitoring on in-situ parameters, however will be redrilled and the current well decommissioned. Nutrient exceedances in the groundwater wells are consistent with background conditions and expected concentrations. EPL52, EPL53 and EPL54 were not samples due to not enough water being present and EPL57 was also unable to be sampled as the well had not been completed.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 March 2023 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40	EPL46	EPL51
Field													
pH	pH Unit	-	6.5-8	8.0	8.04	7.7	6.9	7.0	7.9	7.1	7.1	6.7	7.8
Electrical Conductivity	µS/cm	-	20-30	70	63	36.0	23.0	24.0	26.0	23.0	25.0	26.0	24.0
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	133	114	134.0	220.0	212.0	171.0	206.0	212.0	183.0	175.0
Temperature	°C	-	No Water Quality Objective Value	21.39	21.2	16.9	15.34	15.27	16.68	11.62	12.36	14.61	17.3
Dissolved Oxygen	% saturation	-	90-110	108.3	85.7	88.9	86.6	91.6	71.2	91.4	97.8	88.1	68.8
Turbidity	NTU	-	1-20	8.4	54.1	3.6	6.3	4.8	3.2	8.0	5.3	4.5	4.1
Laboratory analytes													
Total suspended solids	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	38	<5	<5	<5	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	34	33	6.4	5.7	5.8	9.8	5.6	6.7	6	5.3
Nutrients													
Ammonia as N	µg/L	5	10	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	730	200	70	80	70	100	100	80	80	160
Nitrogen (Total)	µg/L	10	350	730	230	70	80	70	100	100	80	80	160
Reactive Phosphorus	µg/L	1	5	1	1	<1	2	3	<1	3	3	4	<1
Phosphorus (Total)	µg/L	5	10	11	9	56	18	9	24	11	12	17	<5
Inorganics													
Cyanide Total	µg/L	4	7	<4	<5	9	<4	<4	5	<4	<4	<4	<4
Hydrocarbons													
Oil and Grease	mg/L	5	5	13	<5	24	130	24	22	10	-	15	14
Metals													
Aluminium (dissolved)	µg/L	5	55	11	17	15	29	14	17	26	23	<5	15
Arsenic (dissolved)	µg/L	1	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1	14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50	300	<50	<50	200	200	100	150	280	190	200	200
Lead (dissolved)	µg/L	1	3.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5	1,900	<5	<5	<5	<5	8	<5	25	<5	<5	<5
Nickel (dissolved)	µg/L	1	11	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5	0.05	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biological													
Faecal Coliforms	CFU/100mL	1	10/100^	7300	4800	24	-	-	-	-	-	-	57
Biochemical Oxygen Demand	mg/L	2	1/5^	<5	<5	<5	-	-	-	-	-	-	<5

* Water Quality Objective values for Talbingo and Tantangara Reservoir refer to the default trigger values for physical and chemical stressors in south-east Australia (fresh lakes and reservoirs) for the protection of 95% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

^ 90th percentile concentration limits / 100 percentile concentration limits

\- Sample not required at this location.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 March 2023 - Surface Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL5	EPL6	EPL8	EPL9	EPL12	EPL14	EPL15	EPL16	EPL24	EPL26	EPL27	EPL30	EPL31	EPL33	EPL34	EPL35	EPL36	EPL37
Field																					
pH	-	-	6.5-8	7.62	7.97	8.19	8.18	7.96	7.99	8.24	8.28	Dry	5.1	5.78	7.16	7.21	7	7.24	7.08	6.49	7.04
Electrical Conductivity	µS/cm	-	30-350	125	150	130	128	125	128	127	129	Dry	33	34	30	25	26	22	21	47	46
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	105	146	139	140	139	138	134	133	Dry	204	276	127	180	207	203	207	112	182
Temperature	°C	-	No Water Quality Objective Value	16.73	15.63	19.77	20.13	16.98	17.56	19.66	20.39	Dry	12.67	12.81	14.98	15.01	12.78	12.58	11.71	11.68	12.61
Dissolved Oxygen	% saturation	-	90-110	123.4	119.8	127.9	122.5	120.5	133.6	132.7	131.9	Dry	95.8	91.3	123.9	122.7	103.2	120.1	111.6	127.1	129.6
Turbidity	NTU	-	2-25	0	0	0	0	0	0	0	0	Dry	0	0	0.6	0	0	2.4	0	23.2	19.6
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	64	77	66	64	64	65	65	66	Dry	16	16	7.3	6	7.8	5	5.3	11	11
Nutrients																					
Ammonia as N	µg/L	5	13	6	<5	5	<5	<5	<5	5	<5	Dry	<5	<5	<5	<5	<5	<5	<5	72	43
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	1,900	210	430	<10	30	90	2,500	90	Dry	550	850	70	50	120	130	110	260	140
Nitrogen (Total)	µg/L	10	250	1,900	210	430	<10	80	90	2,500	90	Dry	550	850	70	50	120	130	110	350	220
Reactive Phosphorus	µg/L	1	15	1	6	2	2	1	2	2	2	Dry	<1	<1	3	3	3	3	3	4	4
Phosphorus (Total)	µg/L	5	20	<5	<5	<5	<5	<5	<5	<5	<5	Dry	<5	<5	9	11	9	12	13	22	23
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	<4	<4	<4	Dry	<4	<4	<4	<4	<4	<4	<4	8	5
Hydrocarbons																					
Oil and Grease	mg/L	5	5	15	22	5	11	22	18	12	16	Dry	19	10	24	23	52	17	19	<5	11
Metals																					
Aluminium (dissolved)	µg/L	5	27	<5	<5	10	8	<5	5	10	6	Dry	10	19	14	14	<5	41	27	41	44
Arsenic (dissolved)	µg/L	1	0.8	<1	<1	<1	<1	<1	<1	<1	<1	Dry	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	1	0.01	<1	<1	<1	<1	<1	<1	<1	<1	Dry	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	Dry	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50	300	<50	<50	<50	<50	<50	<50	<50	<50	Dry	<50	<50	100	70	240	360	420	790	980
Lead (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	Dry	2	1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5	1,200	<5	9	<5	<5	<5	<5	<5	<5	Dry	<5	<5	8	<5	11	6	7	51	22
Nickel (dissolved)	µg/L	1	8	<1	<1	<1	<1	<1	<1	<1	<1	Dry	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5	0.02	<5	<5	<5	<5	<5	<5	<5	<5	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5	2.4	<5	<5	<5	<5	<5	<5	7	<5	Dry	6	6	<5	<5	<5	<5	<5	<5	<5

* Water Quality Objective values for surface water refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 March 2023 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 44	EPL 45	EPL 47	EPL 48	EPL 49	EPL 50
Flow Rate										
Inflow#	**ML/day**	-	-	-	0.47474	0.03868	0.12510	0.05613	0.12939	-
Field										
pH	**pH Unit**	-	6.5-8.5	8.27	-	-	-	-	-	7
Electrical Conductivity	**µS/cm**	-	700 (EPL 41) / 200 (EPL 50)	76	-	-	-	-	-	7
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	90	-	-	-	-	-	195
Temperature	**°C**	-	15	25.75	-	-	-	-	-	17.3
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	57.4	-	-	-	-	-	90.9
Turbidity	**NTU**	-	<25	52.3	-	-	-	-	-	0
Laboratory analytes										
Total suspended solids	**mg/L**	5	5/10	<5	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	<5	-	-	-	-	-	<5
Nutrients										
Ammonia as N	**mg/L**	5	0.2/2^	0.81	-	-	-	-	-	<5
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	1100	-	-	-	-	-	60
Nitrogen (Total)	**mg/L**	10	0.35^	1100	-	-	-	-	-	70
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	3	-	-	-	-	-	3
Phosphorus (Total)	**mg/L**	5	0.1/0.3^	0.11	-	-	-	-	-	6
Inorganics										
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	<4	-	-	-	-	-	6
Hydrocarbons										
Oil and Grease	**mg/L**	5	2/5^	<5	-	-	-	-	-	30
Metals										
Aluminium (dissolved)	**µg/L**	5	55	67	-	-	-	-	-	<5
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-	-	-	<1
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	<1	-	-	-	-	-	<1
Copper (dissolved)	**µg/L**	0.5	14	10	-	-	-	-	-	<1
Iron (dissolved)	**µg/L**	2	300	<50	-	-	-	-	-	<50
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-	-	-	<1
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	-	-	-	-	-	<5
Nickel (dissolved)	**µg/L**	0.5	11	<1	-	-	-	-	-	<1
Silver (dissolved)	**µg/L**	0.01	0.05	<5	-	-	-	-	-	<5
Zinc (dissolved)	**µg/L**	1	8	9	-	-	-	-	-	<5
Biological										
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-	-	-	<1
Biological Oxygen Demand	**mg/L**	5	5	<5	-	-	-	-	-	<5

Note: Treated water was not being discharged to Tantangara Reservoirs at the time of EPL sampling

* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- Samples not required

^ 90 Percentile concentration limit/100 Percentile limit

Inflows to STP and CWTP do not directly correspond to outflow at RO as much of the water is reused on site

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 March 2023 - Surface Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL52	EPL53	EPL54	EPL55	EPL56	EPL57	EPL58
Field										
pH	-	-	6.5-8	Dry	Dry	Dry	7.72	11.75	-	6.2
Electrical Conductivity	µS/cm	-	30-350	Dry	Dry	Dry	190.0	520	-	1170
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	Dry	Dry	Dry	160	4	-	157
Temperature	°C	-	No Water Quality Objective Value	Dry	Dry	Dry	21.14	14.56	-	22.78
Dissolved Oxygen	% saturation	-	90-110	Dry	Dry	Dry	73.5	48.3	-	94.9
Turbidity	NTU	-	2-25	Dry	Dry	Dry	243	259	-	476
Laboratory analytes										
TSS	mg/L	5	No Water Quality Objective Value	Dry	Dry	Dry	25	160	-	390
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	Dry	Dry	Dry	56	150	-	32
Nutrients										
Ammonia as N	µg/L	5	13	Dry	Dry	Dry	<5	190	-	130
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	Dry	Dry	Dry	70	400	-	440
Nitrogen (Total)	µg/L	10	250	Dry	Dry	Dry	3300	790	-	810
Reactive Phosphorus	µg/L	1	15	Dry	Dry	Dry	5	1	-	1
Phosphorus (Total)	µg/L	5	20	Dry	Dry	Dry	99	67	-	29
Inorganics										
Cyanide Total	µg/L	4	4	Dry	Dry	Dry	<4	<4	-	<4
Hydrocarbons										
Oil and Grease	mg/L	5	5	Dry	Dry	Dry	29	13	-	<5
Metals										
Aluminium (dissolved)	µg/L	5	27	Dry	Dry	Dry	6	170	-	<5
Aluminium (total)	µg/L	5	No Water Quality Objective Value	Dry	Dry	Dry	No result	No result	-	No result
Arsenic (dissolved)	µg/L	1	0.8	Dry	Dry	Dry	<1	<1	-	1
Arsenic (total)	µg/L	1	No Water Quality Objective Value	Dry	Dry	Dry	3	1.0	-	6
Chromium (III+VI) (dissolved)	µg/L	1	0.01	Dry	Dry	Dry	<1	130	-	<1
Chromium (III+VI) (total)	µg/L	1	No Water Quality Objective Value	Dry	Dry	Dry	13	370	-	5
Copper (dissolved)	µg/L	1	1	Dry	Dry	Dry	1	11	-	3
Copper (total)	µg/L	1	No Water Quality Objective Value	Dry	Dry	Dry	8	11	-	20
Iron (dissolved)	µg/L	50	300	Dry	Dry	Dry	<50	50	-	<50
Iron (total)	µg/L	50	No Water Quality Objective Value	Dry	Dry	Dry	7500	2700	-	4400
Lead (dissolved)	µg/L	1	1	Dry	Dry	Dry	<1	<1	-	<1
Lead (total)	µg/L	1	No Water Quality Objective Value	Dry	Dry	Dry	22	28	-	39
Manganese (dissolved)	µg/L	5	1,200	Dry	Dry	Dry	5	<5	-	38
Manganese (total)	µg/L	5	No Water Quality Objective Value	Dry	Dry	Dry	150	140	-	190
Nickel (dissolved)	µg/L	1	8	Dry	Dry	Dry	<1	<1	-	3
Nickel (total)	µg/L	1	No Water Quality Objective Value	Dry	Dry	Dry	12	170	-	9
Silver (dissolved)	µg/L	5	0.02	Dry	Dry	Dry	<5	<5	-	<5
Silver (total)	µg/L	5	No Water Quality Objective Value	Dry	Dry	Dry	<5	<5	-	<5
Zinc (dissolved)	µg/L	5	2.4	Dry	Dry	Dry	<5	11	-	12
Zinc (total)	µg/L	5	No Water Quality Objective Value	Dry	Dry	Dry	29	52	-	29

* Water Quality Objective values for surface water refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 March 2023 - Treated Water

Date	EPL 43	EPL 50
	Discharge volume (Megalites)	
1/03/2023	0.56	0.03
2/03/2023	-	0.05
3/03/2023	-	-
4/03/2023	0.03	-
5/03/2023	-	-
6/03/2023	-	-
7/03/2023	0.56	-
8/03/2023	-	-
9/03/2023	-	-
10/03/2023	-	-
11/03/2023	0.04	-
12/03/2023	-	0.33
13/03/2023	-	0.33
14/03/2023	-	-
15/03/2023	0.06	-
16/03/2023	-	-
17/03/2023	-	-
18/03/2023	-	-
19/03/2023	0.11	-
20/03/2023	-	-
21/03/2023	-	0.14
22/03/2023	-	0.05
23/03/2023	-	-
24/03/2023	-	-
25/03/2023	-	0.19
26/03/2023	-	0.78
27/03/2023	-	0.09
28/03/2023	-	0.45
29/03/2023	2.50	0.91
30/03/2023	-	1.17
31/03/2023	-	0.95

- Water not discharged on this day

Snowy Hydro 2.0 Main Works EPL Sampling: 01 - 30 April 2023

Environmental Protection Licence No:	21266
Licensee:	Snowy Hydro Limited
Licensee address:	PO Box 332, Cooma, NSW 2630
Premises:	Snowy 2.0 Pumped Hydro Power Station Talbingo and Tantangara, Kosciuszko National Park and Rock Forest, Kosciuzko NSW 2642
EPA Public Register:	https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=21266&id=21266&option=licence&searchrange=licence&range=POEO%20licence&prp=no&status=Issued

Monthly water sampling and analysis is performed as part of the Snowy 2.0 Approval Conditions, Environmental Protection Licence No 21266 - Variation 5 October 2022, and the approved Water Management Plan to ensure that works are not impacting on nearby receiving waters.

A map showing the location of each of the EPL named sampling points is provided after the results tables.

Oil and Grease: Further to the investigation in the March 2023 monitoring round, Lobs Hole oil and grease samples were sent to the primary laboratory as well as a secondary laboratory to further demonstrate the primary laboratory is producing inaccurate results. It was determined the secondary laboratory results are more accurate following a clean-up step which removes any naturally occurring hydrocarbons, and as such the secondary laboratory will be utilised moving forward for oil and grease. For this months sampling round, reported oil and grease results for all Lobs Hole sampling points are from the secondary laboratory whereas all other results for oil and grease are from the primary laboratory.

Surface Water Results: Exceedances across Lobs Hole, Marica and Tantangara are consistent with upstream exceedances demonstrating water quality levels are not a result of Project construction activities. There was a minor exceedance of phosphorous at EPL 26, and an exceedance of nitrogen at EPL 24, and ammonia at EPL 30. These exceedances are reflective of water quality following a rain event.

Reservoir Results: During the April period for sampling, the Dissolved Oxygen was outside the WQO the parameters for EPL10, EPL11, EPL28, EPL29, EPL32, EPL38, EPL39 and EPL46 sites. Both Lobs Hole and Tattangara demonstrated DO outside the parameters upstream and downstream which is likely attributed to varying river flows. Total phosphorus was high for EPL10, an upstream sampling point demonstrating exceedances are not related to the project. EPL29, EPL32, EPL38, EPL39, EPL40, EPL46 exceeded phosphorus water quality criteria. EPL 39, EPL 38 and EPL 40 are located upstream of the project construction activities demonstrating exceedances at the downstream EPLs at Tantangara are not related to the Project. EPL 28 exceeded the zinc water qualiy criteria, however EPL 28 is an upstream monitoring location and therefore the exceedance is not project related. Exceedances of faecal coliforms is consistant with upstream results indicating the presence of algal blooms. EPLs were compliant for most other analyte testing.

Discharge Results: At the time of sampling at EPL 50, discharge was not occurring. At the time of sampling EPL 41, discharge was occuring. The results of EPL 41 include exceedances against the EPL of TSS, Ammonia, Nitrogen and Phosphorus. In accordance with the Surface Water Management Plan, the TARP has been triggered. As outlined in the plan, the results are findings from comprehensive water quality monitoring which result in actions being implemented at a later time than insitu sampling due to the delay in recieving laboratory results. Considering this, response actions based on the comprehensive monitoring are being undertaken as soon as reasonable practicable. A greater depth of understanding of water quality impacts and impact mechanisms can be gained from the comprehensive monitoring and this information is being applied to establish specific improvements to the water management system.

GF01 Results: GF01 sampling locations are monitored on a weekly basis for in-situ parameters. EPL56 exceedances were suspected to be a result of a fault during install process and is therefore, not representative of background conditions. This well has been purged with continual weekly monitoring on in-situ parameters, however will be redrilled and the current well decommissioned. The TARP has been triggered for nurtrient exceedances at EPL 52, 55 and 58. EPL53 and EPL54 were not sampled due to the lack of water being present and EPL57 was also unable to be sampled as the well had not been completed.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 30 April 2023 Groundwater

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL1 (RMSB6)	EPL2 (RSMB7)	EPL4 (RSMB9)	EPL25 (RSMB8)	EPL56	EPL57	EPL58
Physiochemical										
pH	pH Unit	-	6.5-8	-	-	-	-	11.48	Not active	6.27
Electrical Conductivity	µS/cm	-	30-350	-	-	-	-	566	Not active	274
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	-	-	-	-	9	Not active	216
Temperature	°C	-	No Water Quality Objective Value	-	-	-	-	16.08	Not active	16.5
Dissolved Oxygen	% saturation	-	No Water Quality Objective Value	-	-	-	-	49.5	Not active	32.9
Turbidity	NTU	-	No Water Quality Objective Value	-	-	-	-	354	Not active	305
Laboratory analytes										
TSS	mg/L	5	No Water Quality Objective Value	-	-	-	-	310	Not active	350
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	-	-	-	-	200	Not active	91
Nutrients										
Ammonia as N	µg/L	5	13	-	-	-	-	250	Not active	61
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	-	-	-	-	640	Not active	1000
Nitrogen (Total)	µg/L	10	250	-	-	-	-	760	Not active	11000
Reactive Phosphorus	µg/L	1	15	-	-	-	-	2	Not active	2
Phosphorus (Total)	µg/L	5	20	-	-	-	-	100	Not active	310
Inorganics										
Cyanide Total	µg/L	4	4	-	-	-	-	<4	Not active	<4
Hydrocarbons										
Oil and Grease	mg/L	5	5	-	-	-	-	<5	Not active	<5
Metals										
Aluminium (dissolved)	µg/L	5	27	-	-	-	-	130	Not active	120
Aluminium (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	3600	Not active	11000
Arsenic (dissolved)	µg/L	1	0.8	-	-	-	-	<1	Not active	<1
Arsenic (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	<1	Not active	9
Chromium (III+VI) (dissolved)	µg/L	1	0.01	-	-	-	-	63	Not active	4.0
Chromium (III+VI) (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	190	Not active	7
Copper (dissolved)	µg/L	1	1	-	-	-	-	2	Not active	35
Copper (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	15	Not active	58
Iron (dissolved)	µg/L	50	300	-	-	-	-	<50	Not active	70
Iron (total)	µg/L	50	No Water Quality Objective Value					3100	Not active	3800
Lead (dissolved)	µg/L	1	1	-	-	-	-	<1	Not active	4
Lead (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	87	Not active	65
Manganese (dissolved)	µg/L	5	1,200	-	-	-	-	<5	Not active	30
Manganese (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	500	Not active	230
Nickel (dissolved)	µg/L	1	8	-	-	-	-	<1	Not active	5
Nickel (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	140	Not active	14
Silver (dissolved)	µg/L	5	0.02	-	-	-	-	<5	Not active	<5
Silver (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	<5	Not active	<5
Zinc (dissolved)	µg/L	5	2.4	-	-	-	-	<5	Not active	22
Zinc (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	<5	Not active	22

* Water Quality Objective values for groundwater refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 30 April 2023 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40	EPL46	EPL51
Field													
pH	pH Unit	-	6.5-8	7.9	7.92	7.4	7.3	7.3	7.4	7.5	7.4	7.3	7.3
Electrical Conductivity	µS/cm	-	20-30	67	69	23.0	29.0	26.0	26.0	24.0	22.0	27.0	34.0
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	270	267	224.0	172.0	201.0	210.0	226.0	234.0	187.0	124.0
Temperature	°C	-	No Water Quality Objective Value	15.83	16	15.43	15.77	16.09	16.27	14.9	14.64	16.04	15.2
Dissolved Oxygen	% saturation	-	90-110	73.9	72.4	84.3	85.2	85.4	88	88.6	97.9	84.2	93.2
Turbidity	NTU	-	1-20	13.3	16.9	6.1	7.7	38.7	7.8	6.5	4.7	20.7	9.2
Laboratory analytes													
Total suspended solids	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3		1	No Water Quality Objective Value	27	26	5.8	7.7	7.8	7.8	7.6	9.2	8	5.8
Nutrients													
Ammonia as N	µg/L	5	10	6	<5	<5	10	<5	<5	<5	<5	6	21
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	110	120	<10	30	30	30	60	60	150	<10
Nitrogen (Total)	µg/L	10	350	0.11	0.12	<10	30	30	30	60	60	150	<10
Reactive Phosphorus	µg/L	1	5	<5	<5	4	3	3	3	3	3	3	4
Phosphorus (Total)	µg/L	5	10	16	<5	8	22	18	21	14	20	28	7
Inorganics													
Cyanide Total	µg/L	4	7	4	<4	<4	<4	<4	<4	<4	<4	<4	5
Hydrocarbons													
Oil and Grease	mg/L	5	5	<5	<5	27	<5	<5	50	<5	9.2	<5	<5
Metals													
Aluminium (dissolved)	µg/L	5	55	16	14	6	40	47	47	42	43	48	42
Arsenic (dissolved)	µg/L	1	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	1	1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1	14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50	300	<50	<50	220	310	310	280	210	210	310	340
Lead (dissolved)	µg/L	1	3.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5	1,900	<5	<5	260	<5	<5	<5	<5	<5	<5	690
Nickel (dissolved)	µg/L	1	11	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5	0.05	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5	8	<5	<5	150	<5	<5	<5	<5	<5	<5	<5
Biological													
Faecal Coliforms	CFU/100mL	1	10/100^	462	277	49	-	-	-	-	-	-	40
Biochemical Oxygen Demand	mg/L	2	1/5^	<5	<5	<5	-	-	-	-	-	-	<5

* Water Quality Objective values for Talbingo and Tantangara Reservoir refer to the default trigger values for physical and chemical stressors in south-east Australia (fresh lakes and reservoirs) for the protection of 95% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

^ 90th percentile concentration limits / 100 percentile concentration limits

\- Sample not required at this location.

Snowy Hydro 2.0 Main Works
Monthly EPL Sampling: 01 - 30 April 2023 - Surface Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL5	EPL6	EPL8	EPL9	EPL12	EPL14	EPL15	EPL16	EPL24	EPL26	EPL27	EPL30	EPL31	EPL33	EPL34	EPL35	EPL36	EPL37	EPL52	EPL53	EPL54	EPL55
Field																									
pH	-	-	6.5-8	8.07	8.29	8.3	8.2	7.93	8.14	8.14	8.13	7.01	7.3	7.46	7.35	7.21	6.96	7.27	7.21	7.07	7.34	9.06	Dry	Dry	8.03
Electrical Conductivity	µS/cm	-	30-350	81	116	133	84	75	80	82	85	156	30	30	54	0	37	18	17	43	44	559	Dry	Dry	243
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	85	199	192	198	148	201	198	202	109	177	148	138	191	171	169	160	210	220	134	Dry	Dry	162
Temperature	°C	-	No Water Quality Objective Value	13.74	12.53	13.28	13.31	12.49	12.24	11.9	13.16	14.11	11.6	11.49	9.03	8.78	10.71	10.33	10.45	10.45	12.6	17.9	Dry	Dry	16.95
Dissolved Oxygen	% saturation	-	90-110	94.3	89.1	87.7	82.6	77.9	76.1	90.6	69.7	78.5	100	104.4	116.3	118.1	78	109.8	109.6	96.7	102	85.4	Dry	Dry	68.2
Turbidity	NTU	-	2-25	12.6	6.3	11.9	6.5	13.5	6.3	7.3	10.4	100	0	4.2	8.8	7.8	10.7	6	7.2	16.8	16.3	80.3	Dry	Dry	205
Laboratory analytes																									
Total suspended solids	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	5	<14	<5	<5	8	<5	<5	<5	<5	<5	<5	<5	6.2	8	<5	Dry	Dry	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	32	51	36	36	32	35	33	34	31	<35	<35	<35	<35	<35	<35	<35	<35	<35	180	Dry	Dry	86
Nutrients																									
Ammonia as N	µg/L	5	13	12	<5	<5	<5	<5	<5	11	10	<5	<5	160	33	<5	6	<5	<5	<5	<5	22	Dry	Dry	11
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	80	<10	140	120	150	100	110	70	750	< 10	< 10	< 10	< 10	80	20	10	180	100	6000	Dry	Dry	600
Nitrogen (Total)	µg/L	10	250	80	<10	140	120	150	100	110	70	1300	<10	<10	<10	<10	80	20	10	260	260	24000	Dry	Dry	5400
Reactive Phosphorus	µg/L	1	15	20	3	3	2	3	3	3	3	3	5	6	6	4	4	3	3	6	5	3	Dry	Dry	3
Phosphorus (Total)	µg/L	5	20	14	29	18	9	13	30	30	16	17	38	12	18	180	18	19	10	37	32	17	Dry	Dry	15
Inorganics																									
Cyanide Total	µg/L	4	4	<4	<4	<5	<4	<4	<4	<4	<5	<5	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	Dry	Dry	<4
Hydrocarbons																									
Oil and Grease	mg/L	5	5	<2	<2	<2	2	2	3	<2	3	3	<5	150	7.4	<5	<5	<5	9.9	34	<5	<5	Dry	Dry	<5
Metals																									
Aluminium (dissolved)	µg/L	5	27	100	8	92	120	83	100	81	69	0.11	<5	<5	12	140	30	18	18	30	43	30	Dry	Dry	9
Aluminium (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	Dry	Dry	<50
Arsenic (dissolved)	µg/L	1	0.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Dry	Dry	<1
Arsenic (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	Dry	Dry	<1
Chromium (III+VI) (dissolved)	µg/L	1	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	3	1	<1	2	1	3	2	3	29	Dry	Dry	1
Chromium (III+VI) (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	Dry	Dry	<1
Copper (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	3	1	<1	2	1	3	2	3	8	Dry	Dry	<1
Copper (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	Dry	Dry	<1
Iron (dissolved)	µg/L	50	300	90	<50	70	90	80	80	70	60	140	<50	<50	<50	<50	450	140	150	610	530	<50	Dry	Dry	<50
Iron (total)	µg/L	50	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	Dry	Dry	50
Lead (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Dry	Dry	<1
Lead (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	Dry	Dry	<1
Manganese (dissolved)	µg/L	5	1,200	<5	6	<5	<5	<5	<5	<5	<5	130	<5	<5	<5	<5	28	5	<5	<5	<5	<5	Dry	Dry	88
Manganese (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	Dry	Dry	10
Nickel (dissolved)	µg/L	1	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Dry	Dry	2
Nickel (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	Dry	Dry	<1
Silver (dissolved)	µg/L	5	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	Dry	Dry	<5
Silver (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	Dry	Dry	<5
Zinc (dissolved)	µg/L	5	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	Dry	Dry	9
Zinc (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	Dry	Dry	<5

* Water Quality Objective values for surface water refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

\- Samples not required

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 30 April 2023 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45	EPL 47	EPL 48	EPL 49	EPL 50
Flow Rate											
Inflow[#]	ML/day (average)	-	-	-	-	0.000	0.047	0.129	0.056	0.123	-
Field											
pH	pH Unit	-	6.5-8.5	7.76	-	-	-	-	-	-	5.2
Electrical Conductivity	µS/cm	-	700 (EPL 41) / 200 (EPL 50)	547	-	-	-	-	-	-	210
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	335	-	-	-	-	-	-	231
Temperature	°C	-	15	15.78	-	-	-	-	-	-	16.9
Dissolved Oxygen	%	-	No Water Quality Objective Value	69.9	-	-	-	-	-	-	114.3
Turbidity	NTU	-	<25	15.1	-	-	-	-	-	-	5
Laboratory analytes											
Total suspended solids	mg/L	5	5/10	18	-	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	30	-	-	-	-	-	-	8.3
Nutrients											
Ammonia as N	µg/L	5	200/2000^	8	-	-	-	-	-	-	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	1000	-	-	-	-	-	-	<10
Nitrogen (Total)	µg/L	10	350	2600	-	-	-	-	-	-	400
Reactive Phosphorus	µg/L	1	No Water Quality Objective Value	3	-	-	-	-	-	-	3
Phosphorus (Total)	µg/L	5	100/300^	210	-	-	-	-	-	-	12
Inorganics											
Cyanide Total	µg/L	4	No Water Quality Objective Value	5	-	-	-	-	-	-	4
Hydrocarbons											
Oil and Grease	mg/L	5	2/5^	<2	-	-	-	-	-	-	7.6
Metals											
Aluminium (dissolved)	µg/L	5	55	100	-	-	-	-	-	-	5
Arsenic (dissolved)	µg/L	0.2	13	100	-	-	-	-	-	-	5
Chromium (III+VI) (dissolved)	µg/L	0.2	1	1.2	-	-	-	-	-	-	2
Copper (dissolved)	µg/L	0.5	14	1	-	-	-	-	-	-	2
Iron (dissolved)	µg/L	2	300	<50	-	-	-	-	-	-	<50
Lead (dissolved)	µg/L	0.1	3.4	<1	-	-	-	-	-	-	<1
Manganese (dissolved)	µg/L	0.5	1,900	<5	-	-	-	-	-	-	<5
Nickel (dissolved)	µg/L	0.5	11	<1	-	-	-	-	-	-	<1
Silver (dissolved)	µg/L	0.01	0.05	<5	-	-	-	-	-	-	<5
Zinc (dissolved)	µg/L	1	8	18	-	-	-	-	-	-	8
Biological											
Faecal Coliforms	CFU/100mL	1	10/100^	<1	-	-	-	-	-	-	<1
Biological Oxygen Demand	mg/L	5	5	<5	-	-	-	-	-	-	<5

Note: Treated water was not being discharged at Tantangara Reservoirs at the time of EPL sampling

* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- Samples not required

^ 90 Percentile concentration limit/100 Percentile limit

[#] Inflows to STP and CWTP do not directly correspond to outflow at RO as much of the water is reused on site

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 30 April 2023 - Treated Water

Date	EPL 43	EPL 50
	Discharge volume (Megalites)	
1/04/2023	0.80	0.21
2/04/2023	0.57	-
3/04/2023	-	-
4/04/2023	-	-
5/04/2023	-	0.57
6/04/2023	-	-
7/04/2023	0.95	0.57
8/04/2023	0.48	0.91
9/04/2023	0.69	-
10/04/2023	0.37	0.50
11/04/2023	-	-
12/04/2023	0.68	0.60
13/04/2023	-	0.07
14/04/2023	0.29	0.18
15/04/2023	0.18	0.07
16/04/2023	0.25	-
17/04/2023	0.22	0.09
18/04/2023	0.04	0.20
19/04/2023	-	0.42
20/04/2023	-	-
21/04/2023	-	-
22/04/2023	-	0.13
23/04/2023	0.37	-
24/04/2023	-	-
25/04/2023	-	0.25
26/04/2023	-	0.19
27/04/2023	0.24	0.06
28/04/2023	-	-
29/04/2023	-	-
30/04/2023	0.36	-

- Water not discharged on this day

Snowy Hydro 2.0 Main Works EPL Sampling: 01 - 31st May 2023

Environmental Protection Licence No:	21266
Licensee:	Snowy Hydro Limited
Licensee address:	PO Box 332, Cooma, NSW 2630
Premises:	Snowy 2.0 Pumped Hydro Power Station Talbingo and Tantangara, Kosciuszko National Park and Rock Forest, Kosciuzko NSW 2642
EPA Public Register:	https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=21266&id=21266&option=licence&searchrange=licence&range=POEO%20licence&prp=no&status=Issued

Monthly water sampling and analysis is performed as part of the Snowy 2.0 Approval Conditions, Environmental Protection Licence No 21266 - Variation 5 October 2022, and the approved Water Management Plan to ensure that works are not impacting on nearby receiving waters.

A map showing the location of each of the EPL named sampling points is provided after the results tables.

Groundwater Results: Exceedances of electrical conductivity and nitrogens are consistent with historical data. Two locations, EPL 2 and 25, reported exceedances in Iron which are consistent with historical data trends. Copper levels at EPL 2 and EPL 4 recorded marginal exceedances. Other analytes were within the WQO range. Due to an issue with the laboratory, EPL 4 nitrogen is currently unavailable, this report will be updated once testing is complete.
Surface Water Results: There were exceedances of Dissolved Oxygen, Turbidity, Nitrogen and Ammonia likely due to heavy rainfall as the exceedances are reflected in the upstream and downstream EPL sampling locations. Aluminum was above WQO range for most EPLS, including upstream and downstream. Most analyte readings were within the WQO range. There was an exceedance of Iron at EPL 26, this is being investigated.
Reservoir Results: BOD and Coliform exceedance at EPL 28 is reflective of upstream conditions. Exceedance of Coliforms at EPL 51 is consistent with exceedances upstream results indicating the presence of algal blooms. Minor exceedances of Electrical Conductivity and turbidity are reflected upstream and downstream. Dissolved Oxygen variations are mostly consistent upstream and downstream. All other analytes were within the WQO range.
Discharge Results: At the time of sampling at EPL 41 and EPL 50 were discharging. EPL 50 was within the licence limits and WQO. EPL 41 exceeded the licence limit for Ammonia and Nitrogen and the WQO for Aluminium and Chromium. In accordance with the Surface Water Management Plan, the TARP has been triggered. As outlined in the plan, the results are findings from comprehensive water quality monitoring which result in actions being implemented at a later time than insitu sampling due to the delay in recieving laboratory results. Considering this, response actions based on the comprehensive monitoring are being undertaken as soon as reasonable practicable. A greater depth of understanding of water quality impacts and impact mechanisms can be gained from the comprehensive monitoring and this information is being applied to establish specific improvements to the water management system.
GF01 Results: GF01 sampling locations are monitored on a weekly basis for in-situ parameters. EPL56 exceedances were suspected to be a result of a fault during install process and is therefore, not representative of background conditions. This well has been purged with continual weekly monitoring on in-situ parameters, however will be redrilled and the current well decommissioned. The TARP has been triggered for nurtrient exceedances at EPL 52, 55 and 58. EPL53 and EPL54 were not sampled due to the lack of water being present and EPL57 was also unable to be sampled as the well had not been completed.

Snowy Hydro 2.0 Main Works
Monthly EPL Sampling: May 2023 Groundwater

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL1 (RMSB6)	EPL2 (RSMB7)	EPL4 (RSMB9)	EPL25 (RSMB8)	EPL56	EPL57	EPL58
Physiochemical										
pH	pH Unit	-	6.5-8	7.81	6.72	7.44	6.54	7.33	Not active	6.07
Electrical Conductivity	µS/cm	-	30-350	1117	420	640	516	285	Not active	346
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	-109	12	193	36	226	Not active	208
Temperature	°C	-	No Water Quality Objective Value	14.08	13.52	13.98	13.06	13.91	Not active	14.41
Dissolved Oxygen	% saturation	-	No Water Quality Objective Value	97.8	66.7	99.8	72.2	42.8	Not active	25
Turbidity	NTU	-	No Water Quality Objective Value	129	390	0	0	0	Not active	895
Laboratory analytes										
TSS	mg/L	5	No Water Quality Objective Value	-	-	-	-	3,470	Not active	260
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	-	-	-	-	125	Not active	108
Nutrients										
Ammonia as N	µg/L	5	13	-	-	-	-	20	Not active	20
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	-	-	-	-	2,100	Not active	1,500
Nitrogen (Total)	µg/L	10	250	1,200	800	-	600	2,900	Not active	10,200
Reactive Phosphorus	µg/L	1	15	<10	<10	<10	<10	130	Not active	50
Phosphorus (Total)	µg/L	5	20	-	-	-	-	2.23	Not active	20
Inorganics										
Cyanide Total	µg/L	4	4	-	-	-	-	<4	Not active	<4
Hydrocarbons										
Oil and Grease	mg/L	5	5	-	-	-	-		Not active	<5
Metals										
Aluminium (dissolved)	µg/L	5	27	20	10	20	<10	10	Not active	<10
Aluminium (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	22800	Not active	180
Arsenic (dissolved)	µg/L	1	0.8	-	-	-	-	<1	Not active	<1
Arsenic (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	8	Not active	<1
Chromium (III+VI) (dissolved)	µg/L	1	0.01	-	-	-	-	2	Not active	3
Chromium (III+VI) (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	62	Not active	4
Copper (dissolved)	µg/L	1	1	4	3	11	<1	14	Not active	14
Copper (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	522	Not active	81
Iron (dissolved)	µg/L	50	300	240	3,020	<50	4,340	<50	Not active	<50
Iron (total)	µg/L	50	No Water Quality Objective Value	-	-	-	-	37900	Not active	450
Lead (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	Not active	2
Lead (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	313	Not active	9
Manganese (dissolved)	µg/L	5	1,200	145	208	200	1,110	108	Not active	28
Manganese (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	15300	Not active	38
Nickel (dissolved)	µg/L	1	8	7	<1	2	10	1	Not active	2
Nickel (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	82	Not active	3
Silver (dissolved)	µg/L	5	0.02	<1	<1	<1	<1	<1	Not active	<1
Silver (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	<1	Not active	<1
Zinc (dissolved)	µg/L	5	2.4	<5	<5	<5	<5	<5	Not active	10
Zinc (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	317	Not active	14

* Water Quality Objective values for groundwater refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) for the protection of 99% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31st May 2023 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40	EPL51
Field												
pH	pH Unit	-	6.5-8	7.64	7.91	7.3	7.5	7.4	7.32	8.67	7.61	7.5
Electrical Conductivity	µS/cm	-	20-30	48	54	20	27	25	20	43	21	26
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	199	147	257	261	291	257	163	235	267
Temperature	°C	-	No Water Quality Objective Value	14.21	13.49	7.07	8.24	7.86	7.07	7.45	7.65	8.01
Dissolved Oxygen	% saturation	-	90-110	89.9	114.8	75.1	71.2	63	75.1	135.8	107	73.1
Turbidity	NTU	-	1-20	0	0	18.6	4.5	0	18.6	23.5	67.7	0
Laboratory analytes												
Total suspended solids	mg/L	5	No Water Quality Objective Value	<5	<5	18	<5	<5	<5	<5	16	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	22	22	2	7	2	2	<1	<1	2
Nutrients												
Ammonia as N	µg/L	5	10	<10	<10	<10	<10	<10	30	30	50	<10
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	100	<100	200	200	200	100	<100	200	200
Nitrogen (Total)	µg/L	10	350	100	<100	200	200	200	200	200	200	200
Reactive Phosphorus	µg/L	1	5	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phosphorus (Total)	µg/L	5	10	<10	<10	0.02	0.01	<0.01	0.01	0.01	0.02	<0.01
Inorganics												
Cyanide Total	µg/L	4	7	<4	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons												
Oil and Grease	mg/L	5	5	<1	<1	<1	<1	<1	<1	<1	<1	<1
Metals												
Aluminium (dissolved)	µg/L	5	55	30	20	20	30	50	40	30	50	40
Arsenic (dissolved)	µg/L	0.2	13	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	0.2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	0.5	14	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	2	300	50	70	<50	100	120	100	60	60	110
Lead (dissolved)	µg/L	0.1	3.4	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	0.5	1,900	6	6	7	2	4	3	5	7	<1
Nickel (dissolved)	µg/L	0.5	11	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	0.01	0.05	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (dissolved)	µg/L	1	8	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biological												
Faecal Coliforms	CFU/100mL	1	10/100^	2	<1	60	-	-	-	-	-	14
Biochemical Oxygen Demand	mg/L	2	1/5^	<2	<2	13	-	-	-	-	-	<2

* Water Quality Objective values for Talbingo and Tantangara Reservoir refer to the default trigger values for physical and chemical stressors in south-east Australia (fresh lakes and reservoirs) for the protection of 95% of aquatic species ANZECC / ARMCANZ (2000), they are not pollutant limits imposed by EPL 21266.

** Algal blooms can present as feacal coliforms - green tinge noted in Talbingo Resevroir water at time of sampling.

^ 90th percentile concentration limits / 100 percentile concentration limits

\- Sample not required at this location.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31st May 2023 - Surface Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL5	EPL6	EPL8	EPL9	EPL12	EPL14	EPL15	EPL16	EPL24	EPL26	EPL27	EPL30	EPL31	EPL33	EPL34	EPL35	EPL36	EPL37
Field																					
pH	-	-	6.5-8	6.60	6.83	7.72	7.51	6.69	6.82	6.86	7.6	6.81	6.86	7.47	8.05	7.61	8.47	7.87	8.32	7.14	7.22
Electrical Conductivity	µS/cm	-	30-350	57	63	59	52	95	51	50	53	87	16	14	33	26	25	29	15	43	45
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	-18	225	230	237	208	241	252	198	210	267	249	263	283	272	266	245	273	283
Temperature	°C	-	No Water Quality Objective Value	8.24	7.26	10.66	10.84	7.84	7.75	8.33	11.25	12.72	5.71	5.85	7.21	7.06	10.75	10.55	7.64	9.39	9.82
Dissolved Oxygen	% saturation	-	90-110	66.5	75.6	86.7	64.6	70	71.1	75.8	67.5	62.8	87.7	91.7	110.6	92.6	124	107.6	158.2	75.3	103.2
Turbidity	NTU	-	2-25	38.7	37.8	14.4	20.4	37.2	34.3	33.3	14.8	80.7	5.8	6.6	10	7.5	5.9	9.8	9.9	61.5	48.4
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	9	7	8	7	<5	<5	<5	6	13	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	22	31	26	24	36	41	41	24	30	9	9	7	7	5	<1	<1	11	11
Nutrients																					
Ammonia as N	µg/L	5	13	40	30	30	70	160	20	100	30	50	10	10	<10	<10	<10	<10	<10	<10	30
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	500	<100	200	400	100	<100	300	300	500	<100	<100	100	100	100	<100	100	100	300
Nitrogen (Total)	µg/L	10	250	500	<100	200	400	300	<100	100	300	1,300	600	<100	100	100	100	<100	100	200	500
Reactive Phosphorus	µg/L	1	15	<10	<10	<10	<10	<10	<100	100	300	<10	<10	10	<10	<10	<10	<10	<10	<10	<10
Phosphorus (Total)	µg/L	5	20	20	20	20	10	<10	10	10	20	20	<10	<10	20	20	<10	<10	<10	20	20
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	5	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5
Metals																					
Aluminium (dissolved)	µg/L	5	27	80	<10	170	160	30	30	30	120	70	<10	<10	40	60	60	30	30	150	60
Aluminium (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (dissolved)	µg/L	1	0.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Arsenic (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (III+VI) (dissolved)	µg/L	1	0.01	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	<1	<1	<1	<1	2	<1	<1	<1
Copper (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (dissolved)	µg/L	50	300	100	<50	120	130	<50	<1	<1	2	60	4,340	<50	60	110	140	2	<1	<1	<1
Iron (total)	µg/L	50	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead (total)	µg/L	1	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (dissolved)	µg/L	5	1,200	3	<1	3	5	<1	<1	<1	<1	29	2	2	4	6	4	6	3	81	18
Manganese (total)	µg/L	5	No Water Quality Objective Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31st May 2023 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45	EPL 47	EPL 48	EPL 49	EPL 50
Flow Rate											
Inflow#	**ML/day**	-	-	-	-	0.00	0.12013	0.07510	0.12837	0.22823	-
Outflow#	**ML/day**	-	4.32 (EPL 43 / 50)	-	0.021	-	-	-	-	-	-
Field											
pH	**pH Unit**	-	6.5-8.5	8.23	-	-	-	-	-	-	7.69
Electrical Conductivity	**µS/cm**	-	700 (EPL 41) / 200 (EPL 50)	380	-	-	-	-	-	-	129
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	403	-	-	-	-	-	-	180
Temperature	**°C**	-	15	13.11	-	-	-	-	-	-	12.55
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	116.2	-	-	-	-	-	-	93.8
Turbidity	**NTU**	-	<25	0	-	-	-	-	-	-	5.4
Laboratory analytes											
Total suspended solids	**mg/L**	5	5/10	<5	-	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	22	-	-	-	-	-	-	<1
Nutrients											
Ammonia as N	**µg/L**	5	200/2000^	440	-	-	-	-	-	-	<10
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	<10	-	-	-	-	-	-	100
Nitrogen (Total)	**µg/L**	10	350/-^	2,800	-	-	-	-	-	-	300
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	<10	-	-	-	-	-	-	<10
Phosphorus (Total)	**µg/L**	5	100/300^	20	-	-	-	-	-	-	10
Inorganics											
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	<4	-	-	-	-	-	-	<4
Hydrocarbons											
Oil and Grease	**mg/L**	5	2/5^	<1	-	-	-	-	-	-	<1
Metals											
Aluminium (dissolved)	**µg/L**	5	55	260	-	-	-	-	-	-	<10
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-	-	-	-	<1
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	15	-	-	-	-	-	-	<1
Copper (dissolved)	**µg/L**	0.5	14	<1	-	-	-	-	-	-	<1
Iron (dissolved)	**µg/L**	2	300	<50	-	-	-	-	-	-	<1
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-	-	-	-	<50
Manganese (dissolved)	**µg/L**	0.5	1,900	<1	-	-	-	-	-	-	<1
Nickel (dissolved)	**µg/L**	0.5	11	<1	-	-	-	-	-	-	<1
Silver (dissolved)	**µg/L**	0.01	0.05	<1	-	-	-	-	-	-	<1
Zinc (dissolved)	**µg/L**	1	8	<5	-	-	-	-	-	-	<1
Biological											
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-	-	-	-	<1
Biological Oxygen Demand	**mg/L**	<5	5	<2	-	-	-	-	-	-	<5

Note: Treated water was not being discharged at Tantangara Reservoirs at the time of EPL sampling.
There is no 100th percentile limit for Nitrogen (Total).

* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- Samples not required

^ 90 Percentile concentration limit/100 Percentile limit

Inflows to STP and CWTP do not directly correspond to outflow at RO as much of the water is reused on site

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 May 2023 - Treated Water

Date	EPL 41	EPL 50
	Discharge volume (Megalites)	
1/05/2023	0.24	1.16
2/05/2023	0.29	-
3/05/2023	0.27	0.23
4/05/2023	-	0.57
5/05/2023	-	0.32
6/05/2023	0.43	0.59
7/05/2023	0.23	-
8/05/2023	-	-
9/05/2023	0.09	-
10/05/2023	-	0.75
11/05/2023	-	-
12/05/2023	-	-
13/05/2023	0.10	-
14/05/2023	-	-
15/05/2023	-	-
16/05/2023	-	-
17/05/2023	0.68	0.19
18/05/2023	-	-
19/05/2023	-	-
20/05/2023	-	-
21/05/2023	-	-
22/05/2023	0.39	0.19
23/05/2023	0.51	0.45
24/05/2023	-	-
25/05/2023	0.51	-
26/05/2023	0.35	0.10
27/05/2023	0.45	0.19
28/05/2023	-	-
29/05/2023	0.49	-
30/05/2023	1.00	-
31/05/2023	-	0.03

- Water not discharged on this day