Snowy Hydro 2.0 Main Works EPL Sampling: 09-11 January 2022

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 14 January 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.

No discharge was occurring at the time the samples at EPL 41 were collected.
Elevated nitrogen, nitrates, and faecal coliform presence are likely due to the algae blooms in the reservoir which can effect the results.
The EPL variation issued on 14 January includes an increase discharge from 1.66 ML/day to 4.32 ML/day with a flow rate of 50 L/s.

Any exceeding values are likely representative of background conditions after a wet weather event of approximately 25.6 mm of rain between 01-06 January 2021.

The trigger action response plans included in the water management plan have been followed for all analytes with concentrations exceeding the respective water quality values. At this time, no further action is required.

Based on water quality results from upstream of the site, site activity, and supporting evidence the monitoring are a result of the recent bushfire activity in the area and not site works.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 08-11 January 2022 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40
Field											
pH	pH Unit	-	6.5-8	9.43	9.46	6.98	6.62	6.89	6.94	7.06	6.32
Electrical Conductivity	µS/cm	-	20-30	66	64	21.2	20.2	20.2	20.8	18.4	21.9
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	143	157	126.7	188.1	167.7	155.9	184.8	226.9
Temperature	°C	-	No Water Quality Objective Value	26.07	25.95	21.9	20.4	20.4	21.7	20.7	18.2
Dissolved Oxygen	% saturation	-	90-110	102.9	120.6	81.9	81.7	77.7	80.6	75.6	76
Turbidity	NTU	-	1-20	7.89	8.44	2.16	2.67	2.5	2.08	2.86	3.19
Laboratory analytes											
Total suspended solids	mg/L	5	No Water Quality Objective Value	< 5	< 5	< 5	< 5	30	< 5	<5	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	27.00	26.00	7.50	7.40	7.30	7.60	7.2	8.8
Nutrients											
Ammonia as N	µg/L	5	10	<10	<10	-35.00	<10	<10	<10	26.0	<5
Nitrite + Nitrate as N (NOx)	µg/L	2	10	30.0	<10	110.0	<10	<10	28000	30.0	10.0
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	800.0	400.0	470.0	290.0	940.0	1300	110.0	220.0
Nitrogen (Total)	µg/L	10	350	830.0	400.0	470.0	290.0	940.0	29000	140.0	250.0
Reactive Phosphorus	µg/L	1	5	5.0	5.0	7.0	7.0	4.0	7.0	2.0	4.0
Phosphorus (Total)	µg/L	5	10	<10	12.0	<5	<5	<5	<5	6.0	<5
Inorganics											
Cyanide Total	µg/L	4	7	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons											
Oil and Grease	mg/L	5	No Water Quality Objective Value	16	18	22	24	< 5	19	<5	<5
Metals											
Aluminium (dissolved)	µg/L	5	55	10.0	19.0	22.0	48.0	42.0	40.0	25.0	27.0
Arsenic (dissolved)	µg/L	0.2	13	<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
Copper (dissolved)	µg/L	0.5	14	<1	2.0	<1	3.0	<1	1.0	<1	<1
Iron (dissolved)	µg/L	2	300	<50	<50	210.0	190.0	200.0	220.0	190.0	170.0
Lead (dissolved)	µg/L	0.1	3.4	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	0.5	1,900	<5	<5	<5	<5	<5	<5	<5	8.0
Nickel (dissolved)	µg/L	0.5	11	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	0.01	0.05	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	1	8	<5	<5	<5	<5	<5	<5	<5	<5
Biological											
Faecal Coliforms	CFU/100mL	1	10/100^	140	220	-	-	-	-	-	-
Biochemical Oxygen Demand	mg/L	2	1/5^	<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: 08-11 January - 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	7.01	8.22	8.13	8	7.76	7.91	7.92	7.86	7.5	6.8	6.6	6.7	6.7	6.6	5.8	6.2	6.4	6.1
Electrical Conductivity	µS/cm	-	30-350	49	86	77	80	51	79	55	80	80.0	26.7	26.7	21.6	18.7	20.7	15.9	16.4	45.4	46.1
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	220	176	184	178	208	186	183	182	95.0	174.3	169.4	255.0	166.9	317.4	259.3	18.4	277.3	233.3
Temperature	°C	-	No Water Quality Objective Value	15.77	21.01	19.65	17.82	16.61	17.24	19.4	17.42	19.5	18.9	18.9	18.1	17.4	21.1	19.6	19.5	23.0	24.5
Dissolved Oxygen	% saturation	-	90-110	69.3	60.4	60.4	62	67.3	61.8	66	57.5	55.0	79.3	81.3	86.9	89.6	85.1	82.1	80.9	44.5	76.9
Turbidity	NTU	-	2-25	17.8	5.69	7.55	6.11	17.9	6.61	152	5.37	247.0	6.4	5.9	9.6	7.4	4.1	5.9	5.9	4.4	8.3
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	30	9.2	5.4	< 5	27	< 5	18	5.4	74.0	< 5	< 5	< 5	18.0	9.0	5.2	24.0	8.8	12.0
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	20	36	32	33	21	33	23	33	48.0	11.0	11.0	8.3	7.5	7.4	6.2	6.2	16.0	17.0
Nutrients																					
Ammonia as N	µg/L	5	13	<10	<5	<10	21	<10	<10	<10	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrite + Nitrate as N (NOx)	µg/L	10	15	30	70	20	<10	50	30	<10	<10	300.0	<10	7000	<10	<10	20.0	<10	<10	30.0	20.0
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	590	780	530	60	630	770	130	60	280.0	50.0	5200	90.0	70.0	120.0	120.0	110.0	290.0	330.0
Nitrogen (Total)	µg/L	10	250	630	850	550	60	680	800	130	60	580.0	50.0	12000	90.0	70.0	140.0	120.0	110.0	320.0	350.0
Reactive Phosphorus	µg/L	1	15	7	15	60	6	6	6	6	7	11.0	6.0	4	7	9	7	7	7	7	6
Phosphorus (Total)	µg/L	5	20	29	10	7	5	16	<5	11	<5	75.0	<5	<5	<5	<5	31.0	<5	<5	<5	11.0
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	4	7	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	No Water Quality Objective Value	7.8	< 5	18	16	< 5	14	5.6	< 5	14.0	17.0	14.0	17.0	< 5	< 5	5.3	20.0	17.0	18.0
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	97	16	66	27	76	48	110	25	200.0	<5	8.0	16.0	7.0	47.0	30.0	36.0	23.0	23.0
Arsenic (dissolved)	µg/L	1.0	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	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	3	3.0	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50.0	300	130	<50	70	<50	120	<50	120	<50	220.0	<50	<5	70.0	<5	200.0	270.0	270.0	1000.0	910.0
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	7	<5	6	8	<5	<5	<5	170.0	<5	<5	<5	<5	9.0	6.0	6.0	25.0	24.0
Nickel (dissolved)	µg/L	1.0	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<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: 08-11 January 2022 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45
Flow Rate							
Inflow^	**ML/day**			-	-	0.227	0.052
Outflow^	**ML/day**		4.32	-	0.010	-	-
Field							
pH	**pH Unit**	-	6.5-8.5	6.6	-	-	-
Electrical Conductivity	**µS/cm**	-	700	67	-	-	-
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	256	-	-	-
Temperature	**°C**	-	15	25.02	-	-	-
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	95.5	-	-	-
Turbidity	**NTU**	-	<25	0.4	-	-	-
Laboratory analytes							
Total suspended solids	**mg/L**	5	No Water Quality Objective Value	<5	-	-	-
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	3	-	-	-
Nutrients							
Ammonia as N	**µg/L**	5	No Water Quality Objective Value	34	-	-	-
Nitrite + Nitrate as N (NOx)	**µg/L**	2	No Water Quality Objective Value	260	-	-	-
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	10	-	-	-
Nitrogen (Total)	**µg/L**	10	270	270	-	-	-
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	<1	-	-	-
Phosphorus (Total)	**µg/L**	5	30	8	-	-	-
Inorganics							
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	<4	-	-	-
Hydrocarbons							
Oil and Grease	**mg/L**	5	No Water Quality Objective Value	6	-	-	-
Metals							
Aluminium (dissolved)	**µg/L**	5	55	<5	-	-	-
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	<1	-	-	-
Copper (dissolved)	**µg/L**	0.5	14	3	-	-	-
Iron (dissolved)	**µg/L**	2	300	<50	-	-	-
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	-	-	-
Nickel (dissolved)	**µg/L**	0.5	11	<1	-	-	-
Silver (dissolved)	**µg/L**	0.01	0.05	<5	-	-	-
Zinc (dissolved)	**µg/L**	1	8	28	-	-	-
Biological							
Faecal Coliforms	**CFU/100mL**	1	10/100^	700	-	-	-
Biological Oxygen Demand	**mg/L**		5	<5	-	-	-

* 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

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

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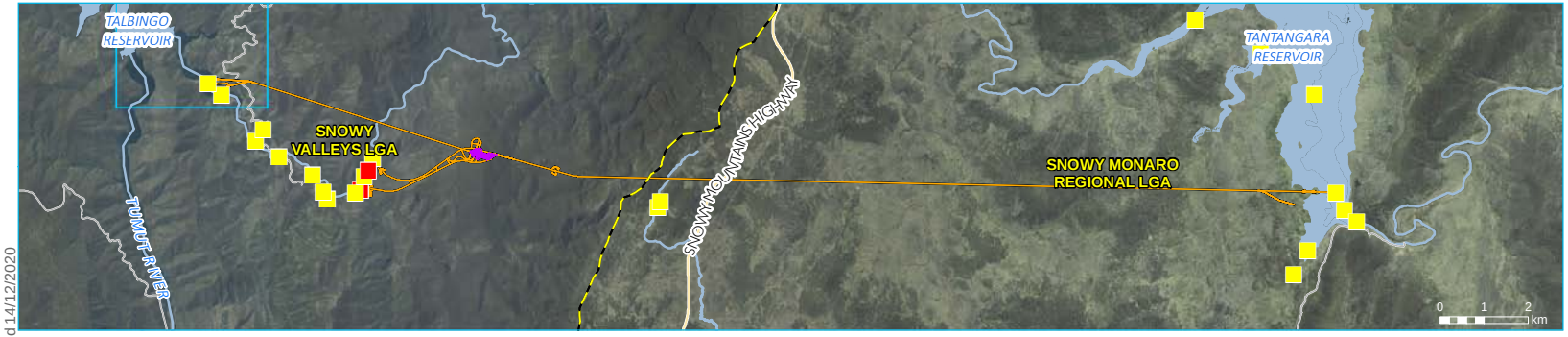

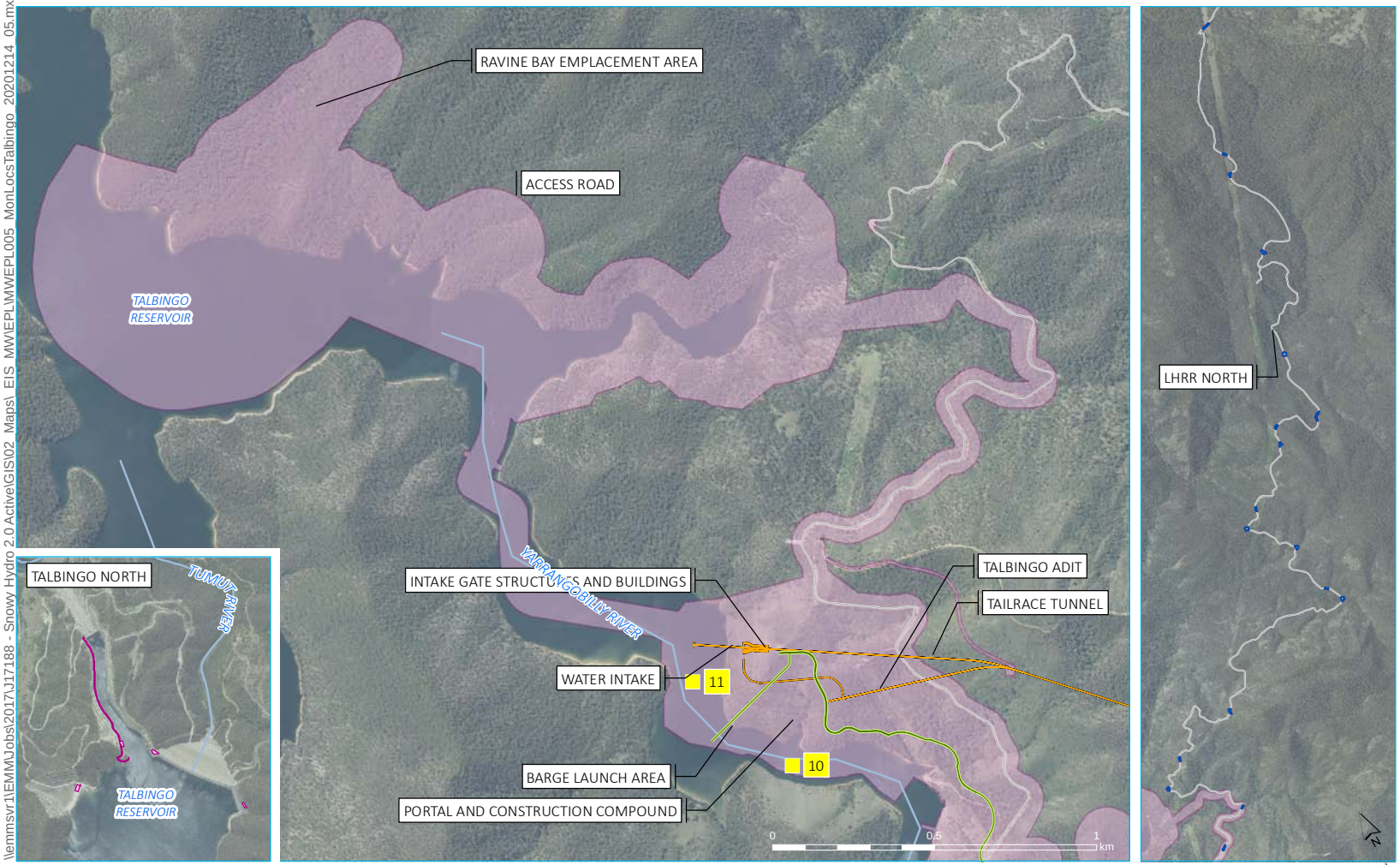

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Licence Premise

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The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Talbingo Reservoir

Snowy 2.0
Main Works
Figure 1

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Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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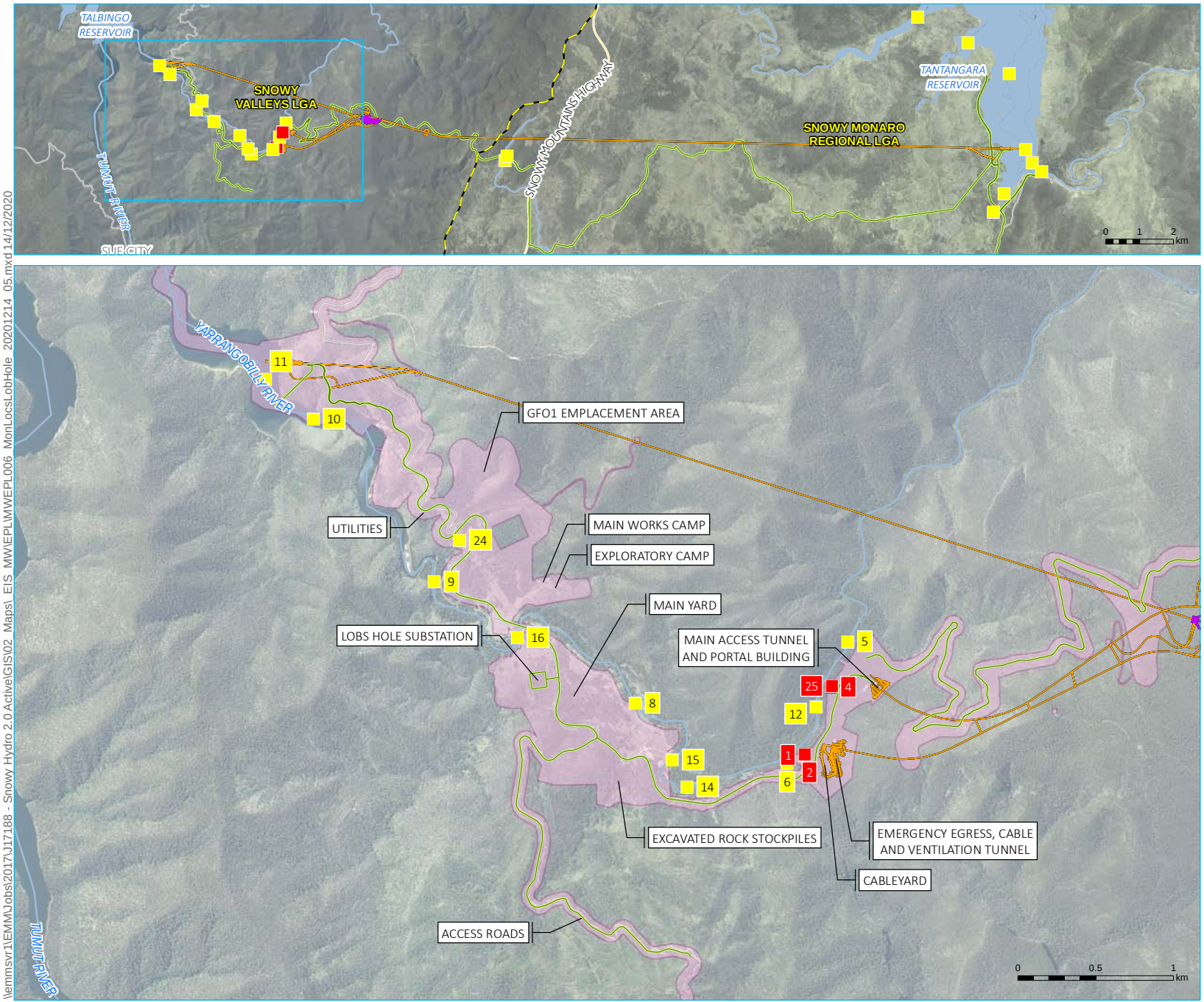

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KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
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- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
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- Utilities
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EPL Premise and monitoring point maps - Lobs Hole

Snowy 2.0
Main Works
Figure 2

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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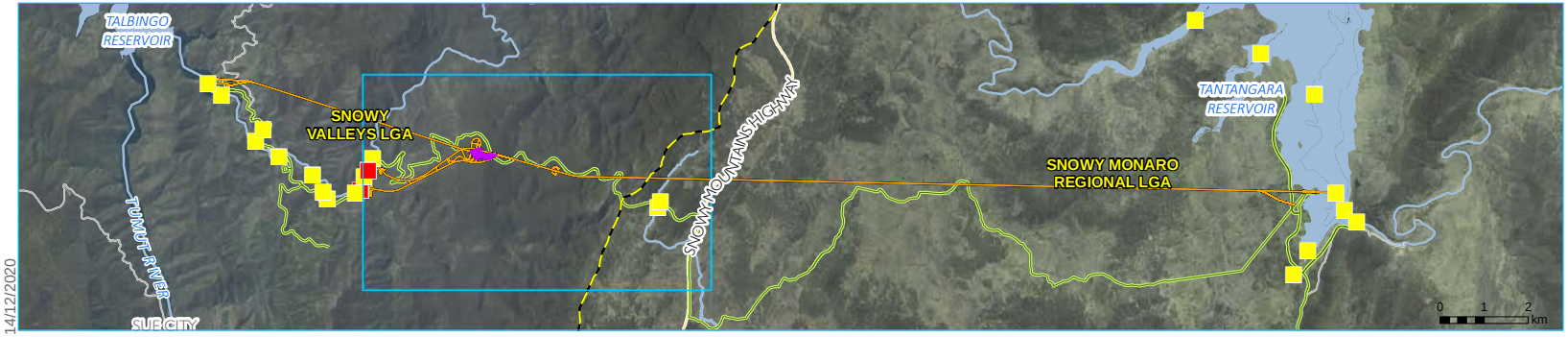

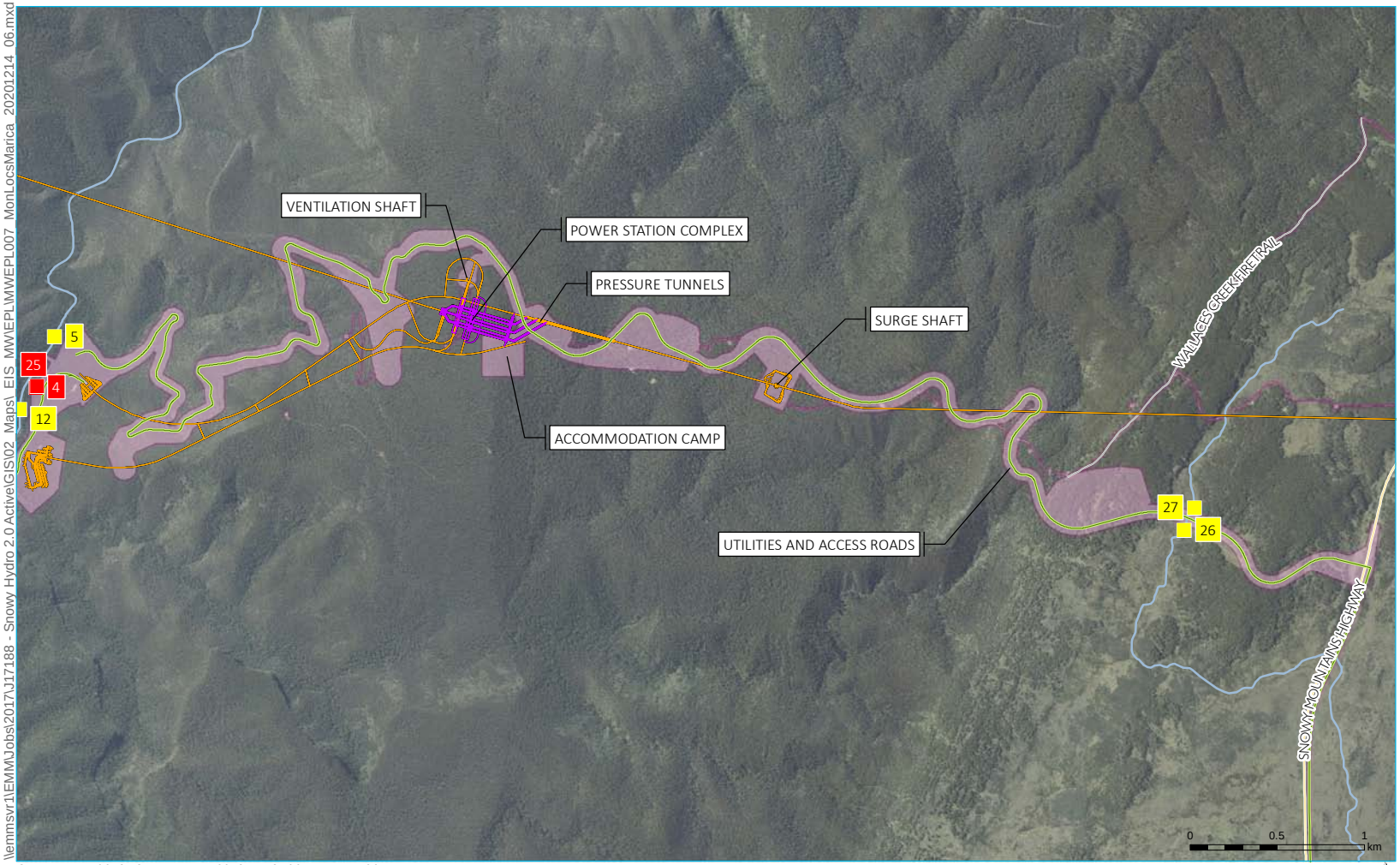

KEY

EPL monitoring point
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Existing environment
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Snowy 2.0 Main Works operational elements
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Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Marica

Snowy 2.0
Main Works
Figure 3

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

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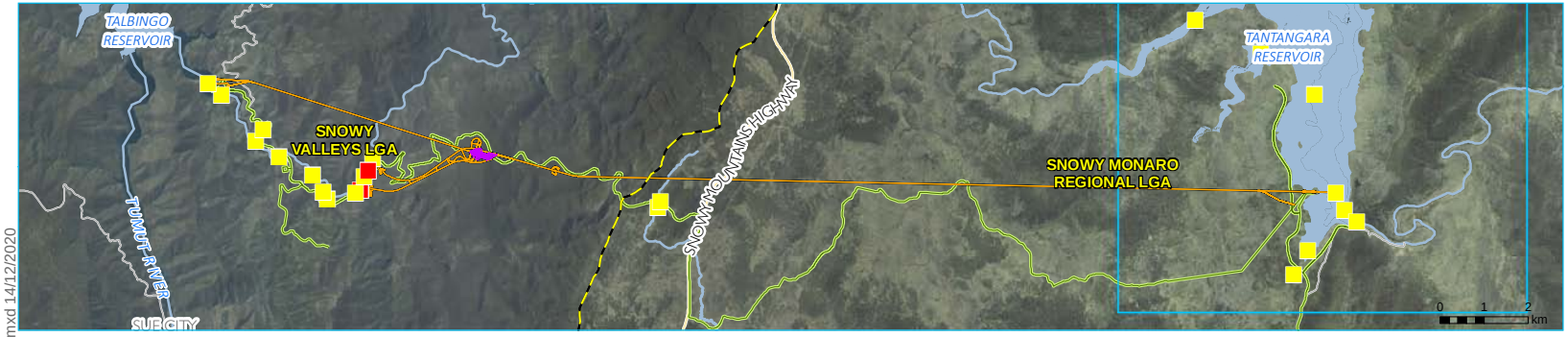

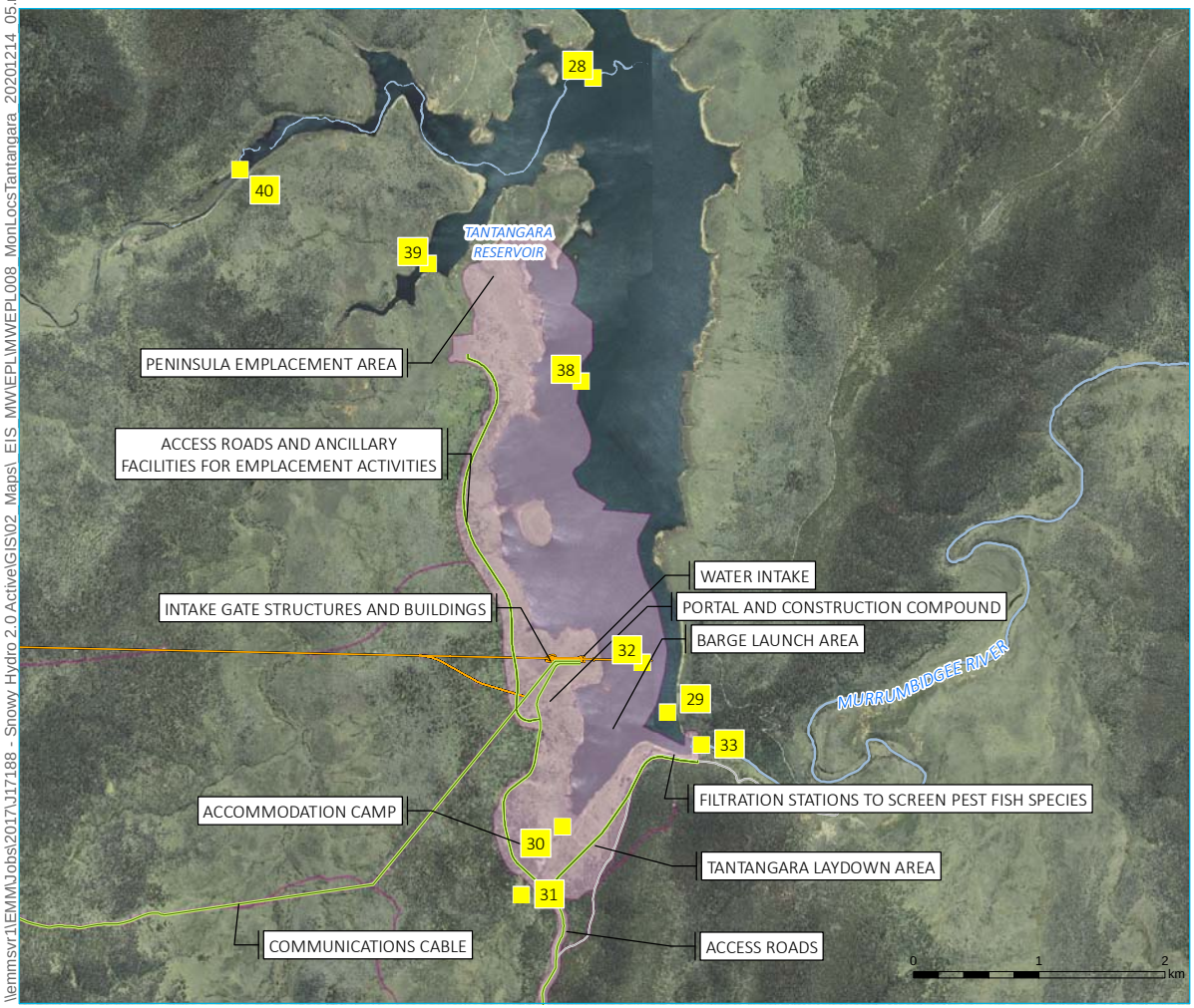

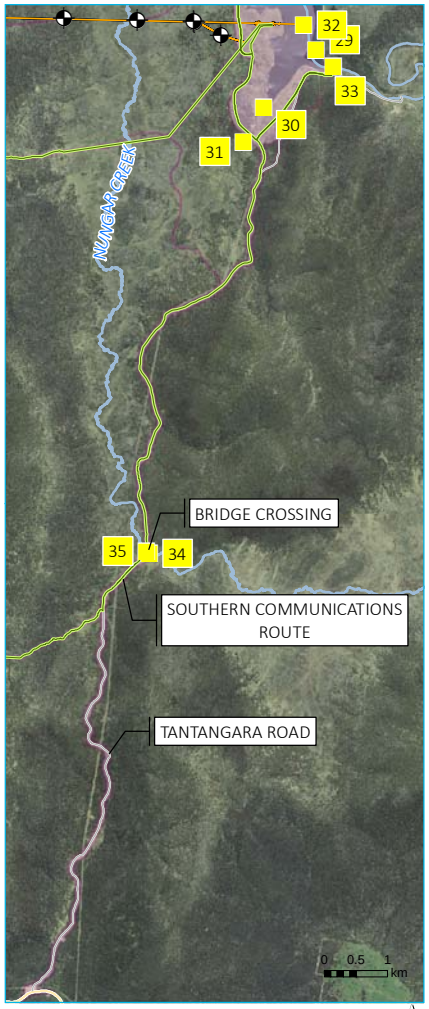

KEY

EPL monitoring point
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The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Tantangara Reservoir

Snowy 2.0
Main Works
Figure 4

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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EMM creating opportunities

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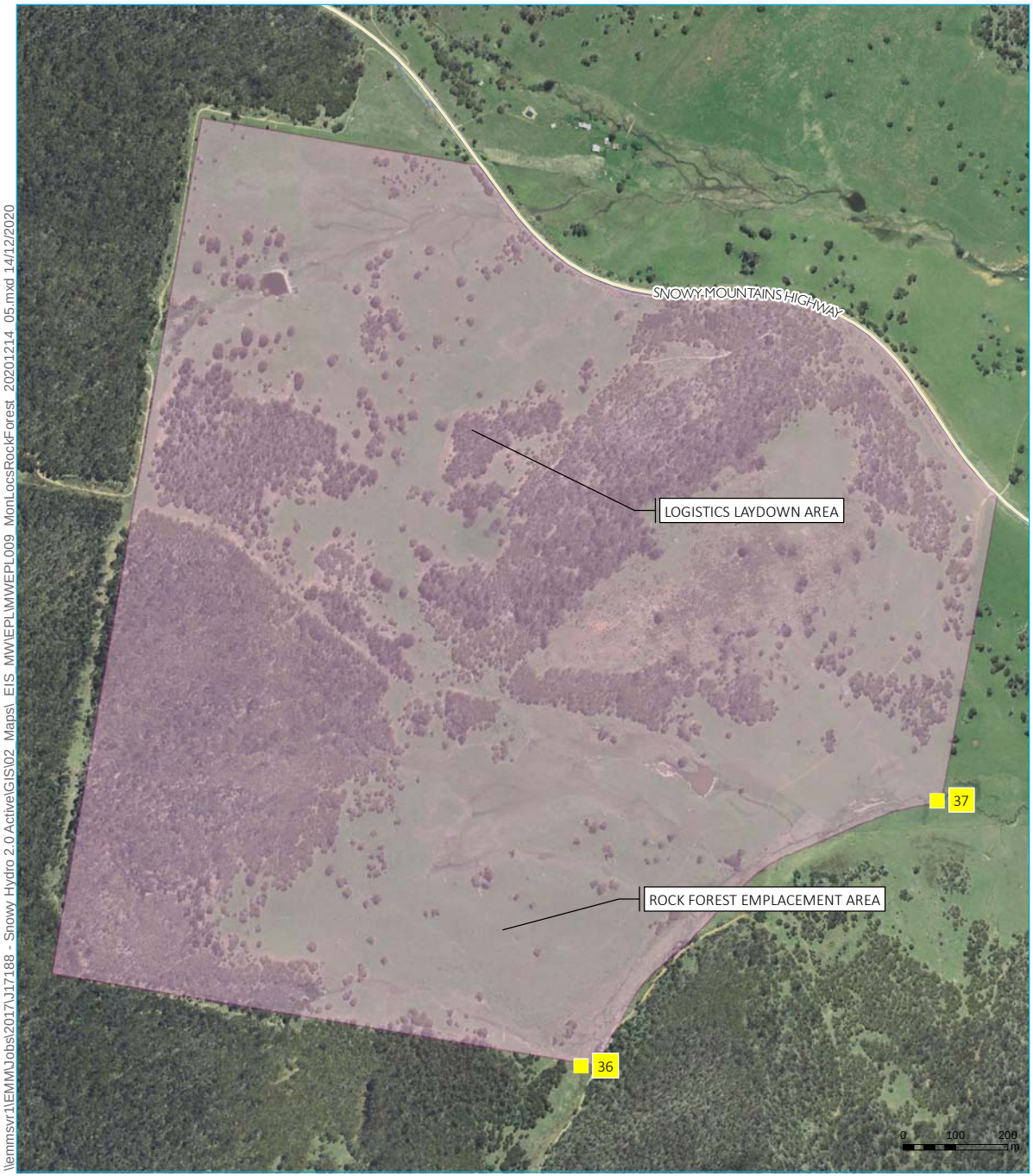

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Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

N

KEY

EPL monitoring point

- Surface water

Existing environment

- Main road
- Local road
- Watercourse

Snowy 2.0 Main Works operational elements

- Tunnels, portals, intakes, shafts
- Utilities
- Licence Premise

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Chris Buscall
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Chris Buscall

15 December 2020 | 08:30 AEDT

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Rock Forest

Snowy 2.0
Main Works
Figure 5

snowy 2.0

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Snowy Hydro 2.0 Main Works EPL Sampling: 01-02 February 2022

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 09 February 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.

The EPL variation issued on 09 February 2022 does not include variations to the routine monthly sampling.

Any exceeding values are likely representative of background conditions after a wet weather event of approximately 83 mm of rain between 29 January and 02 February 2022.

The trigger action response plans included in the water management plan have been followed for all analytes with concentrations exceeding the respective water quality values. At this time, no further action is required.

Based on water quality results from upstream of the site, site activity, and supporting evidence the monitoring are a result of the recent bushfire activity in the area and not site works.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

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Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 08-11 January 2022 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40
Field											
pH	**pH Unit**	-	6.5-8	9.7	9.8	7.4	7.9	8.1	7.7	7.4	7.5
Electrical Conductivity	**µS/cm**	-	20-30	65.0	64.0	24.0	22.0	23.0	23.0	22.0	23.0
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	115	93.0	148	160	160	185	167	152
Temperature	**°C**	-	No Water Quality Objective Value	24.5	24.6	21.3	22.3	22.5	21.5	21.9	18.3
Dissolved Oxygen	**% saturation**	-	90-110	141	135	88.3	97.1	98.5	96.3	94.3	95.3
Turbidity	**NTU**	-	1-20	33.7	29.9	4.9	2.6	3.3	4.1	6.5	7.0
Laboratory analytes											
TSS	**mg/L**	5	No Water Quality Objective Value	16	10	5.4	<5	7.4	<5	14	9.4
Hardness as CaCO3	**mg/L**	1	No Water Quality Objective Value	25.0	25.0	7.5	7.3	7.6	7.7	7.7	8.4
Nutrients											
Ammonia as N	**µg/L**	5	10	53.0	<10	<10	<10	<10	<5	<5	140
Nitrite + Nitrate as N (NOx)	**µg/L**	2	10	<50	<50	<50	<50	<50	<50	<50	<50
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	72.0	63.0	180	170	160	130	190	170
Nitrogen (Total)	**µg/L**	10	350	72.0	63.0	180	170	160	130	190	170
Reactive Phosphorus	**µg/L**	1	5	6.0	6.0	5.0	5.0	6.0	6.0	7.0	5.0
Phosphorus (Total)	**µg/L**	5	10	6.0	10.0	12.0	<5	<5	<5	<5	7.0
Inorganics											
Cyanide Total	**µg/L**	4	7	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons											
Oil and Grease	**mg/L**	5	No Water Quality Objective Value	6.0	11.0	6.8	<5	140	<5	<5	<5
Metals											
Aluminium (dissolved)	**µg/L**	5	55	15.0	<5	<5	<5	<5	<5	<5	<5
Arsenic (dissolved)	**µg/L**	0.2	13	<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
Copper (dissolved)	**µg/L**	0.5	14	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	**µg/L**	2	300	<50	<50	220	210	220	230	280	170
Lead (dissolved)	**µg/L**	0.1	3.4	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	<5	<5	<5	<5	<5	14.0	<5
Nickel (dissolved)	**µg/L**	0.5	11	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	**µg/L**	0.01	0.05	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	**µg/L**	1	8	<5	<5	<5	<5	<5	<5	<5	<5
Biological											
Faecal Coliforms	**CFU/100mL**	1	10/100^	17.0	12.0	-	-	-	-	-	-
Biochemical Oxygen Demand	**mg/L**	2	1/5^	<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: 01-02 February 2022 Groundwater

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL1 (RMSB6)	EPL2 (RSMB7)	EPL4 (RSMB8)	EPL25 (RSMB9)
Physiochemical							
pH	pH Unit	-	6.5-8	7.76	8.37	7.35	6.95
Electrical Conductivity	µS/cm	-	30-350	568	160	357	229
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	-133	-55.0	-89	-73
Temperature	°C	-	No Water Quality Objective Value	24.7	25.3	20.1	22.9
Dissolved Oxygen	% saturation	-	No Water Quality Objective Value	60.5	24.3	31.5	21.9
Turbidity	NTU	-	No Water Quality Objective Value	55.1	572	850	>1000
Nutrients							
Nitrogen (Total)	µg/L	10	250	300	<200	<200	600
Reactive Phosphorus	µg/L	1	15	<50	<50	<50	<50
Metals							
Aluminium (dissolved)	µg/L	5	27	<5	<5	1300	560
Copper (dissolved)	µg/L	0.5	1	<1	3.0	42.0	6.0
Iron (dissolved)	µg/L	2	300	350	1800	1200	5100
Lead (dissolved)	µg/L	0.1	1	<1	<1	2.0	5.0
Manganese (dissolved)	µg/L	0.5	1,200	150	150	150	1000
Nickel (dissolved)	µg/L	0.5	8	3.0	3.0	6.0	9.0
Silver (dissolved)	µg/L	0.01	0.02	<5	<5	<5	<5
Zinc (dissolved)	µg/L	1	2.4	<5	<5	6.0	16.0

* 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: 01-02 February 2022 - 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	7.5	8.2	8.1	8.1	7.8	8.1	8.1	7.9	7.2	5.9	5.9	6.3	6.1	6.6	6.4	6.4	6.6	6.6
Electrical Conductivity	µS/cm	-	30-350	47.0	56.0	52.0	50.0	48.0	50.0	49.0	50.0	55.0	27.4	11.0	22.4	19.8	39.1	17.2	17.1	23.7	37.0
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	128	104	119	124	162	-92.000	117	96.0	12.0	221	200	201	233	179	200	192	188	194
Temperature	°C	-	No Water Quality Objective Value	17.2	20.6	19.9	20.2	17.1	19.6	19.6	20.0	23.8	14.2	13.8	13.8	13.4	19.4	16.4	16.4	16.7	16.5
Dissolved Oxygen	% saturation	-	90-110	94.3	90.7	91	96.8	99.7	93.7	95	90.4	75.7	85.4	54.4	83.6	82.9	71.7	81.8	83.3	50.3	57.4
Turbidity	NTU	-	2-25	37.2	4.23	17.6	19.7	21.5	17.2	16.9	23.9	168.0	6.0	7.1	9.2	9.3	9.2	6.6	8.3	6.4	7.4
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	32.0	11.0	29.0	30.0	43.0	28.0	31.0	34.0	53.0	9.8	16.0	14.0	18.0	6.4	11.0	9.0	13.0	9.4
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	43	48.0	46.0	45.0	43.0	45.0	44.0	44.0	48.0	13.0	13.0	9.3	11.0	17.0	7.0	7.3	15.0	16.0
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	110.0	<10	<10	<10	300	78.0	110	18.0	<10	<10	<10	<10	42.0	14.0	<10	12.0
Nitrite + Nitrate as N (NOx)	µg/L	10	15	<50	<50	<50	<50	<50	<50	<50	<50	70.0	<50	<50	<50	<50	<50	<50	<50	<50	<50
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	12.0	80.0	100	100	100	90.0	90.0	90.0	90.0	90.0	80.0	90.0	90.0	180	150	170	380	130
Nitrogen (Total)	µg/L	10	250	120	80.0	100	100	100	90.0	90.0	90.0	160	90.0	80.0	90.0	90.0	180	150	170	380	130
Reactive Phosphorus	µg/L	1	15	6.0	6.0	6.0	7.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	4.0	6.0	5.0	6.0	6.0	6.0
Phosphorus (Total)	µg/L	5	20	12.0	<5	12.0	15.0	16.0	11.0	25.0	21.0	78.0	250.0	5.0	7.0	5.0	<5	6.0	13.0	33.0	27.0
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	6.0	<4	<4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	No Water Quality Objective Value	<5	<5	13.0	<5	<5	<5	<5	<5	8.7	<5	<5	<5	<5	11.0	<5	<5	8.5	<5
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	<5	130	95.0	64.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Arsenic (dissolved)	µg/L	1.0	0.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.0	<1
Chromium (III+VI) (dissolved)	µg/L	1.0	0.01	<1	<1	<1	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1.0	1	<1	<1	<1	4.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.0	<1	<1	<1	<1
Iron (dissolved)	µg/L	50.0	300	60.0	<50	70.0	90.0	60.0	70.0	80.0	50.0	80.0	50.0	60.0	70.0	90.0	380	400	450	1300	1400
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	11.0	5.0	8.0	<5	<5	5.0	5.0	280.0	7.0	<5	5.0	8.0	16.0	90.0	9.0	26.0	28.0
Nickel (dissolved)	µg/L	1.0	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.0	<1	<1	<1	1.0
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	21.0	<5	<5	<5	12.0	<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

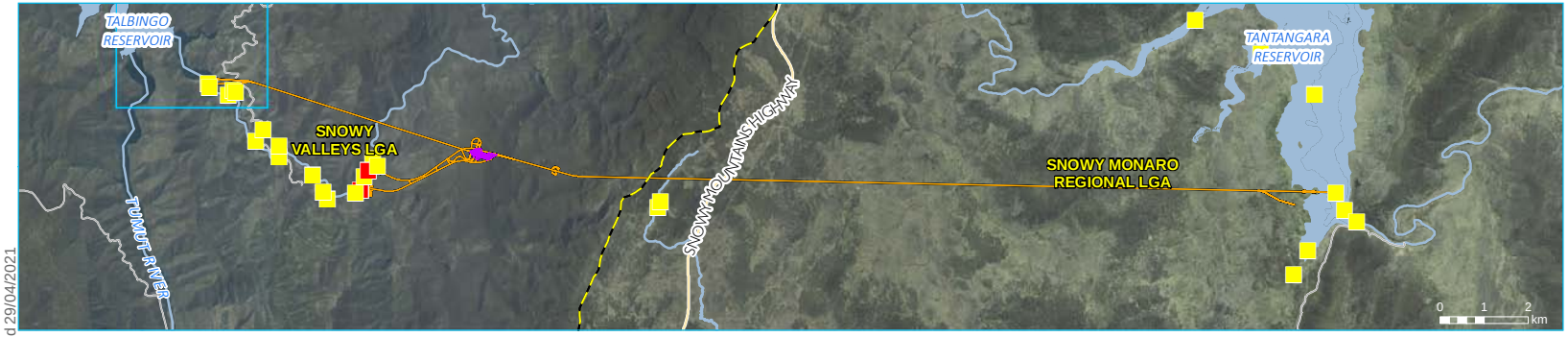
Monthly EPL Sampling: 01-02 February 2022 - Treated Water

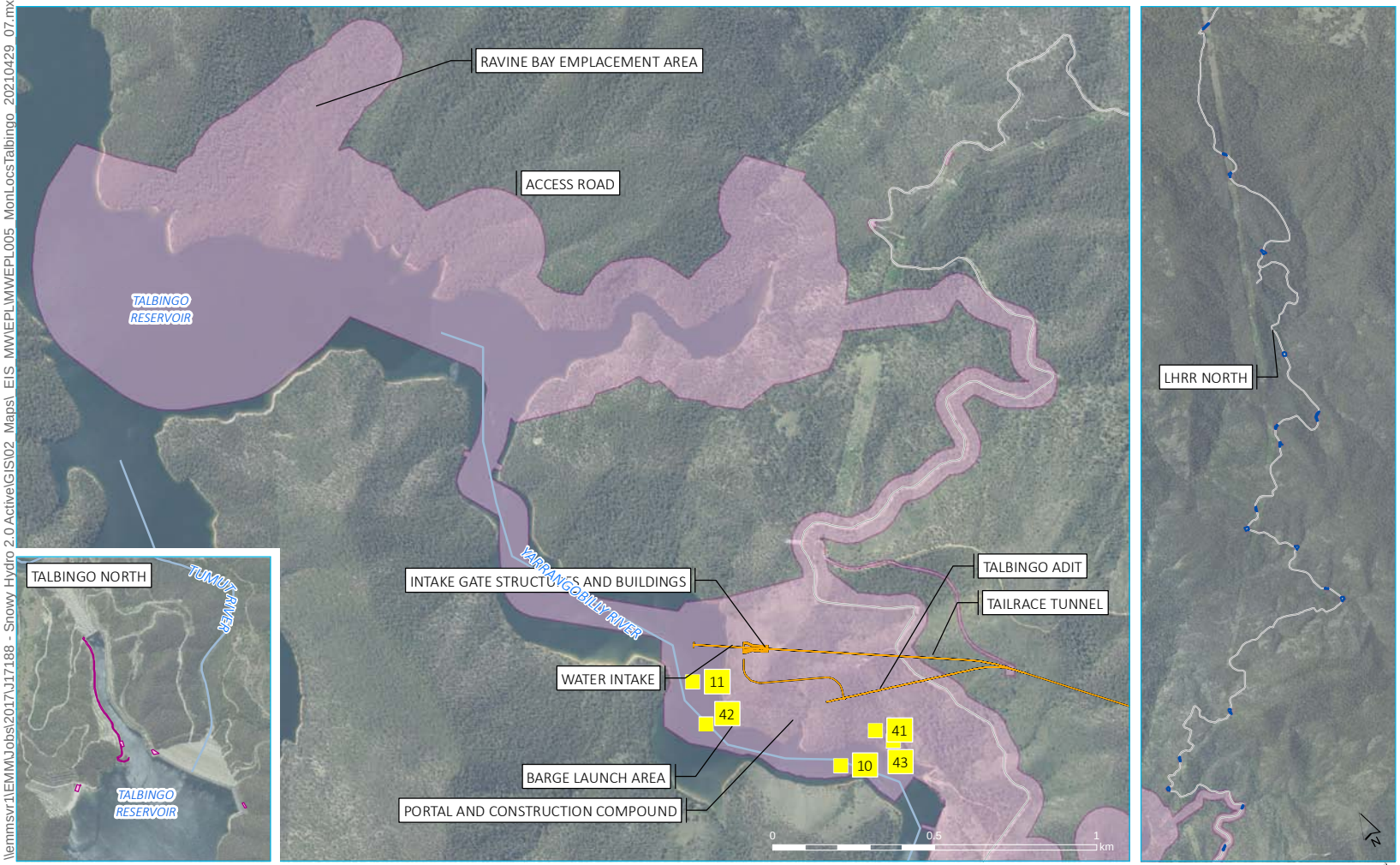
Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45
Flow Rate							
Inflow^	**ML/day**			-	-	0.044	0.822
Outflow^	**ML/day**		4.32	-	0.017	-	-
Field							
pH	**pH Unit**	-	6.5-8.5	6.2	-	-	-
Electrical Conductivity	**µS/cm**	-	700	27.0	-	-	-
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	223	-	-	-
Temperature	**°C**	-	15	24.2	-	-	-
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	87.5	-	-	-
Turbidity	**NTU**	-	<25	1.3	-	-	-
Laboratory analytes							
Total suspended solids	**mg/L**	5	No Water Quality Objective Value	27.0	-	-	-
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	43.0	-	-	-
Nutrients							
Ammonia as N	**µg/L**	5	No Water Quality Objective Value	44.0	-	-	-
Nitrite + Nitrate as N (NOx)	**µg/L**	2	No Water Quality Objective Value	180	-	-	-
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	<10	-	-	-
Nitrogen (Total)	**µg/L**	10	270	110	-	-	-
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	5.0	-	-	-
Phosphorus (Total)	**µg/L**	5	30	<5	-	-	-
Inorganics							
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	<4	-	-	-
Hydrocarbons							
Oil and Grease	**mg/L**	5	No Water Quality Objective Value	<5	-	-	-
Metals							
Aluminium (dissolved)	**µg/L**	5	55	<5	-	-	-
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	<1	-	-	-
Copper (dissolved)	**µg/L**	0.5	14	3.0	-	-	-
Iron (dissolved)	**µg/L**	2	300	<50	-	-	-
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	-	-	-
Nickel (dissolved)	**µg/L**	0.5	11	<1	-	-	-
Silver (dissolved)	**µg/L**	0.01	0.05	<5	-	-	-
Zinc (dissolved)	**µg/L**	1	8	10.0	-	-	-
Biological							
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-
Biological Oxygen Demand	**mg/L**		5	<5	-	-	-

* 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

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





KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Talbingo Reservoir

Snowy 2.0
Main Works
Figure 1

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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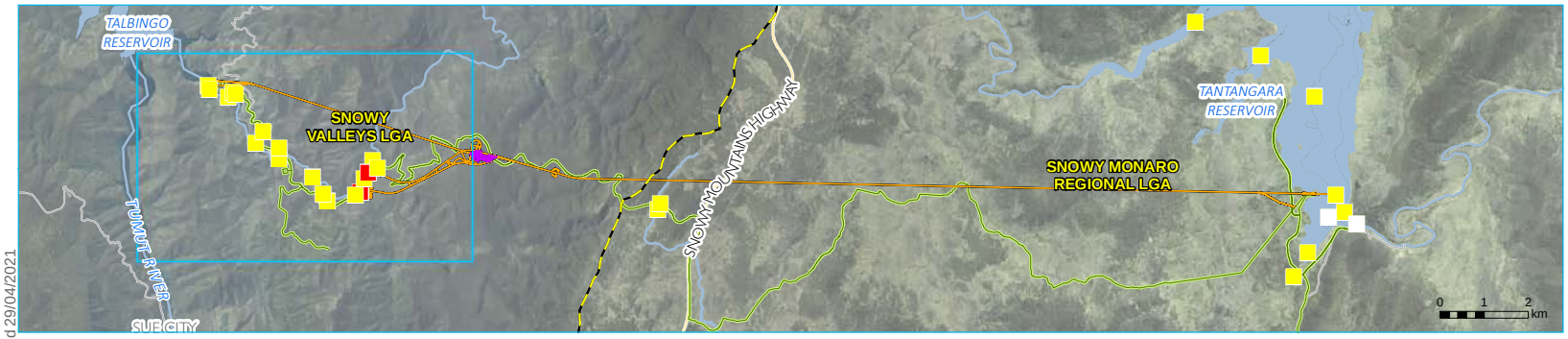

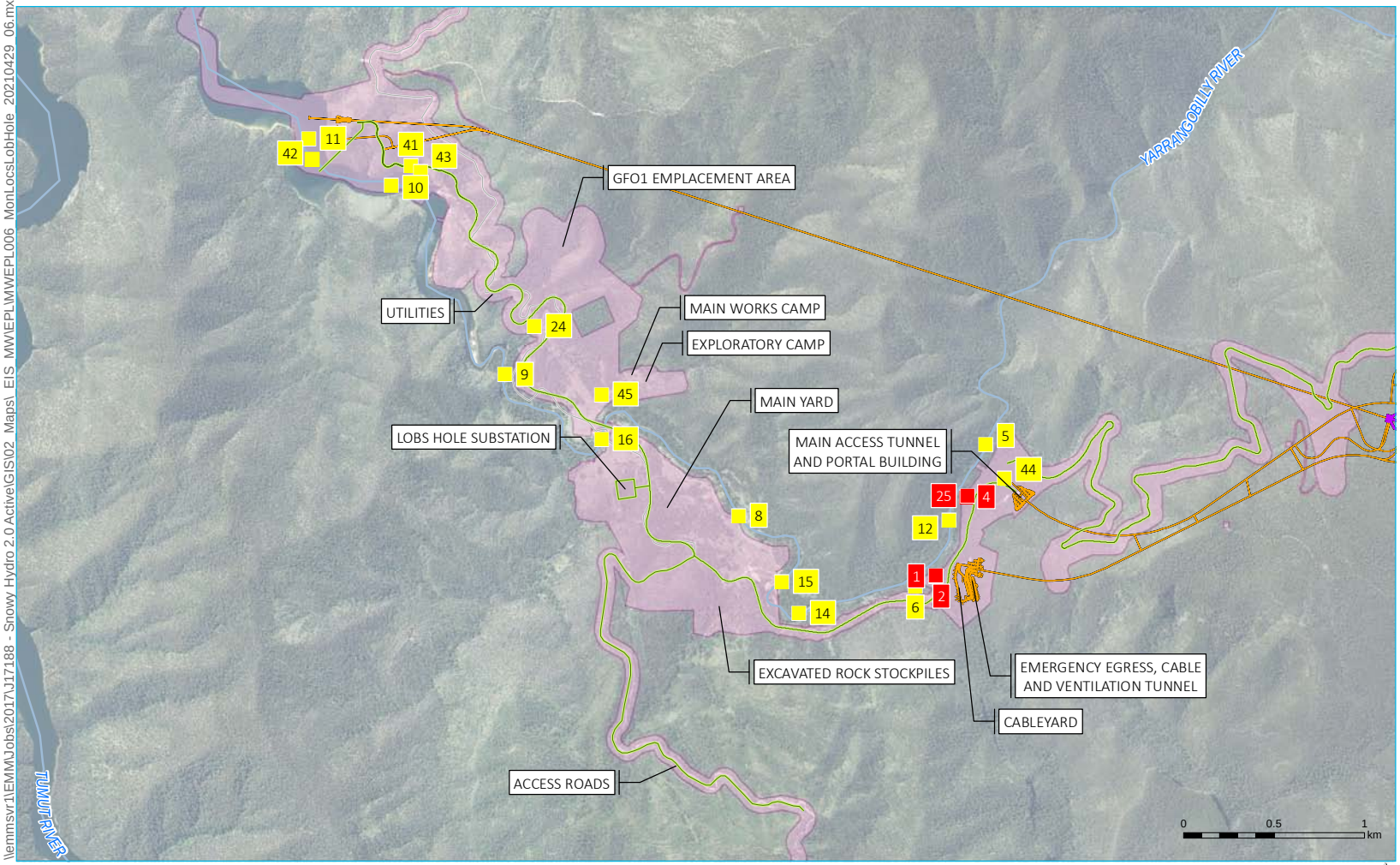

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Lobs Hole

Snowy 2.0
Main Works
Figure 2

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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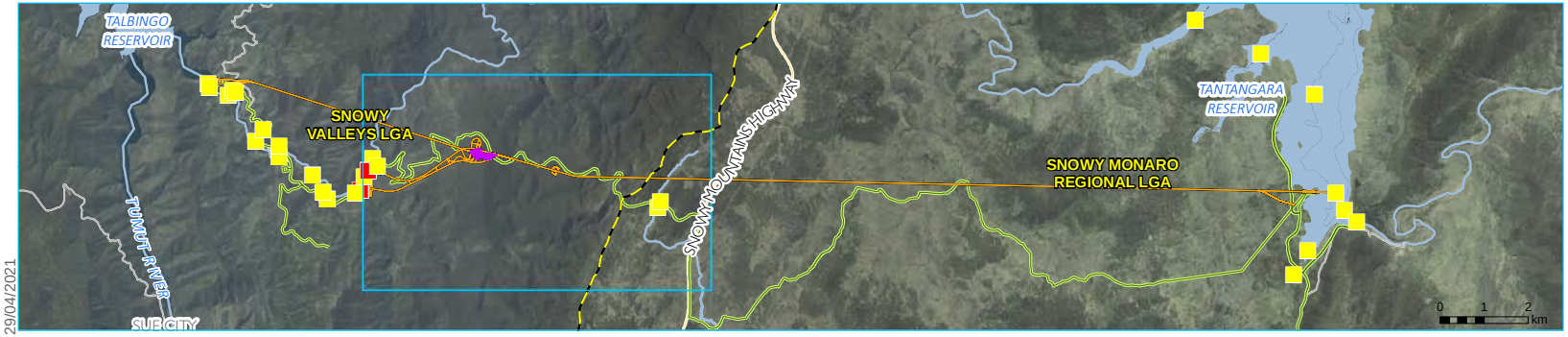

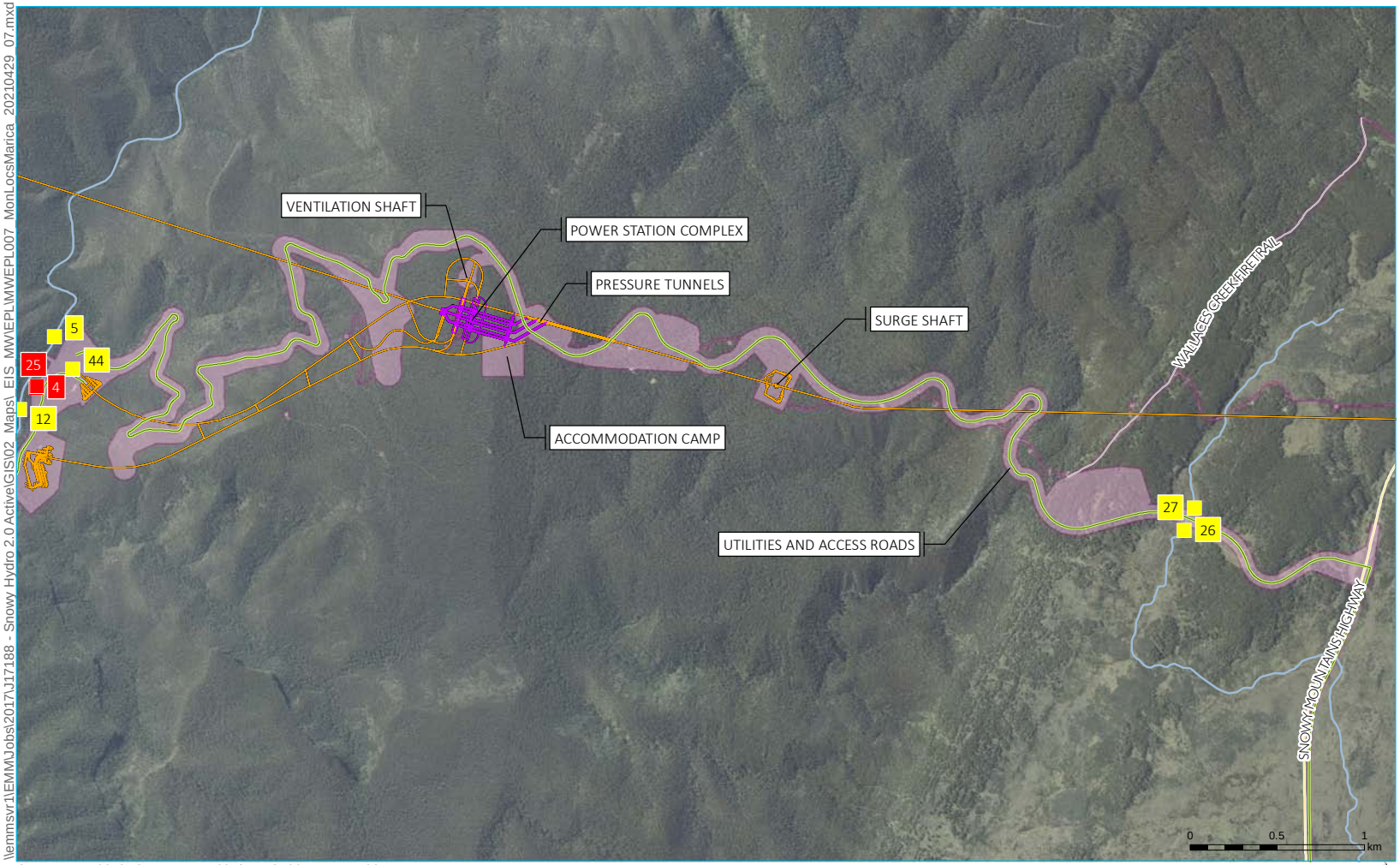

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Marica

Snowy 2.0
Main Works
Figure 3

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

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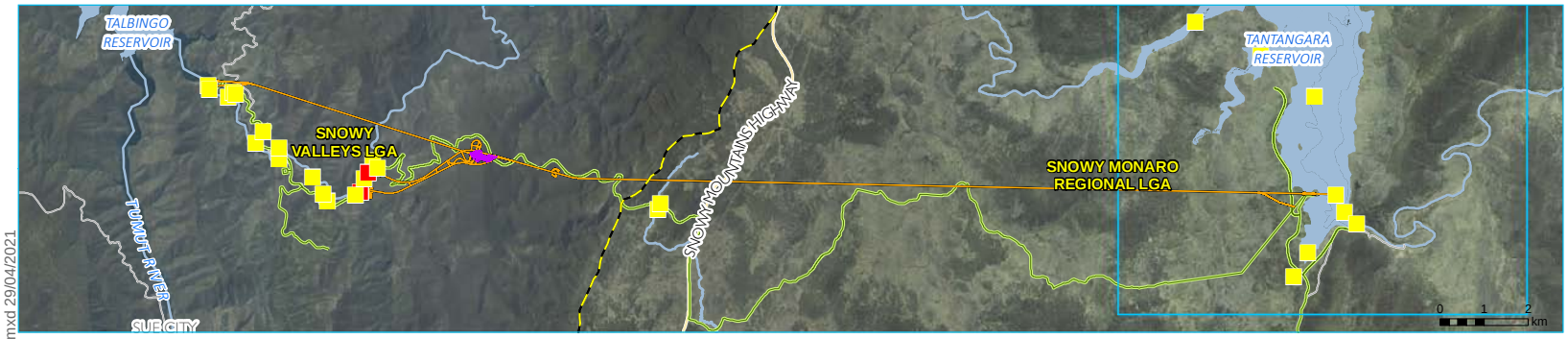

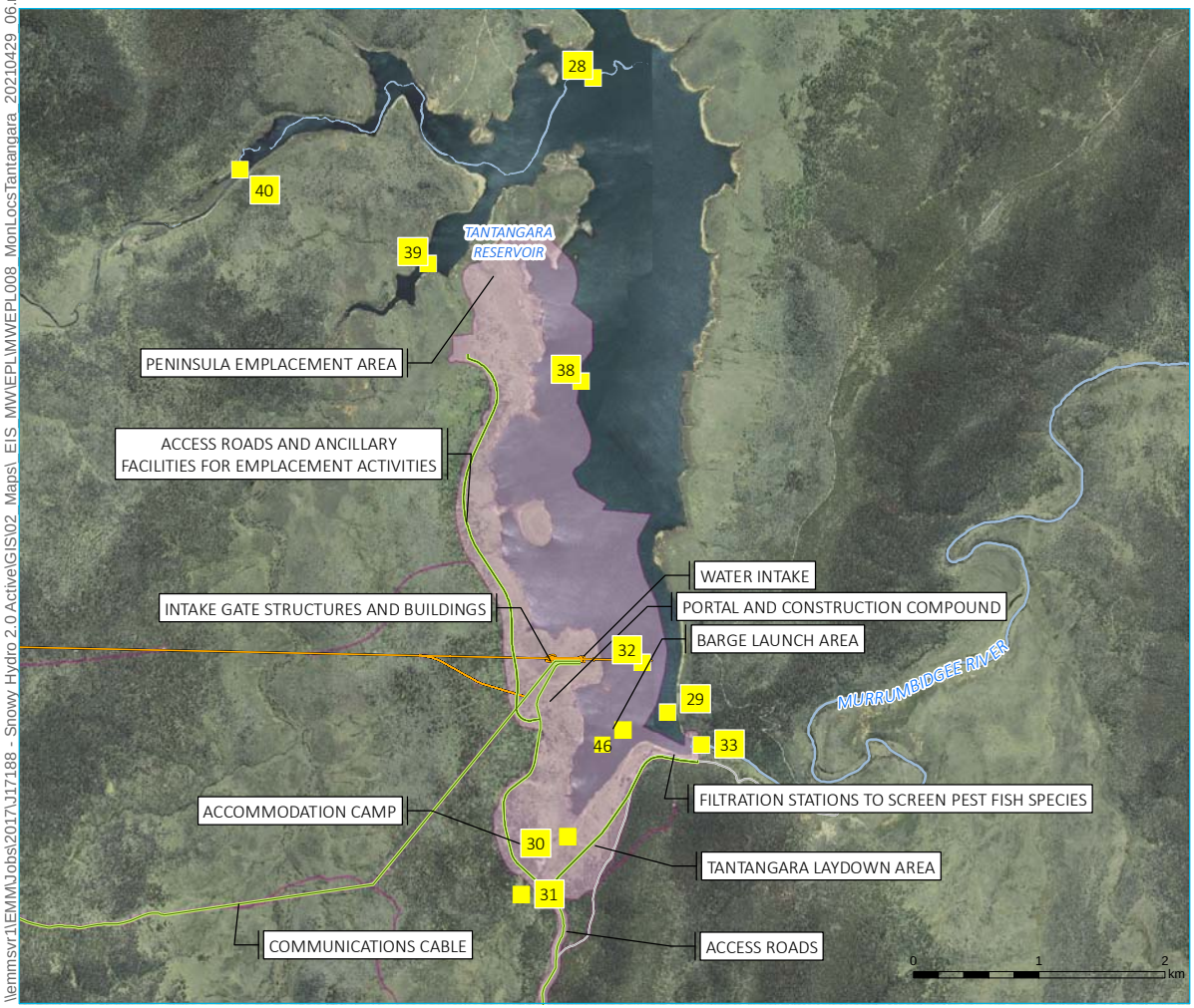

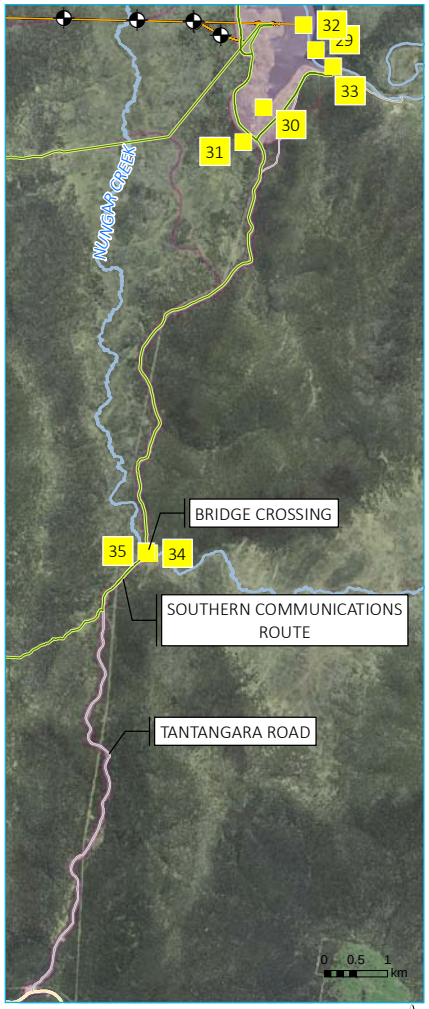

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Tantangara Reservoir

Snowy 2.0
Main Works
Figure 4

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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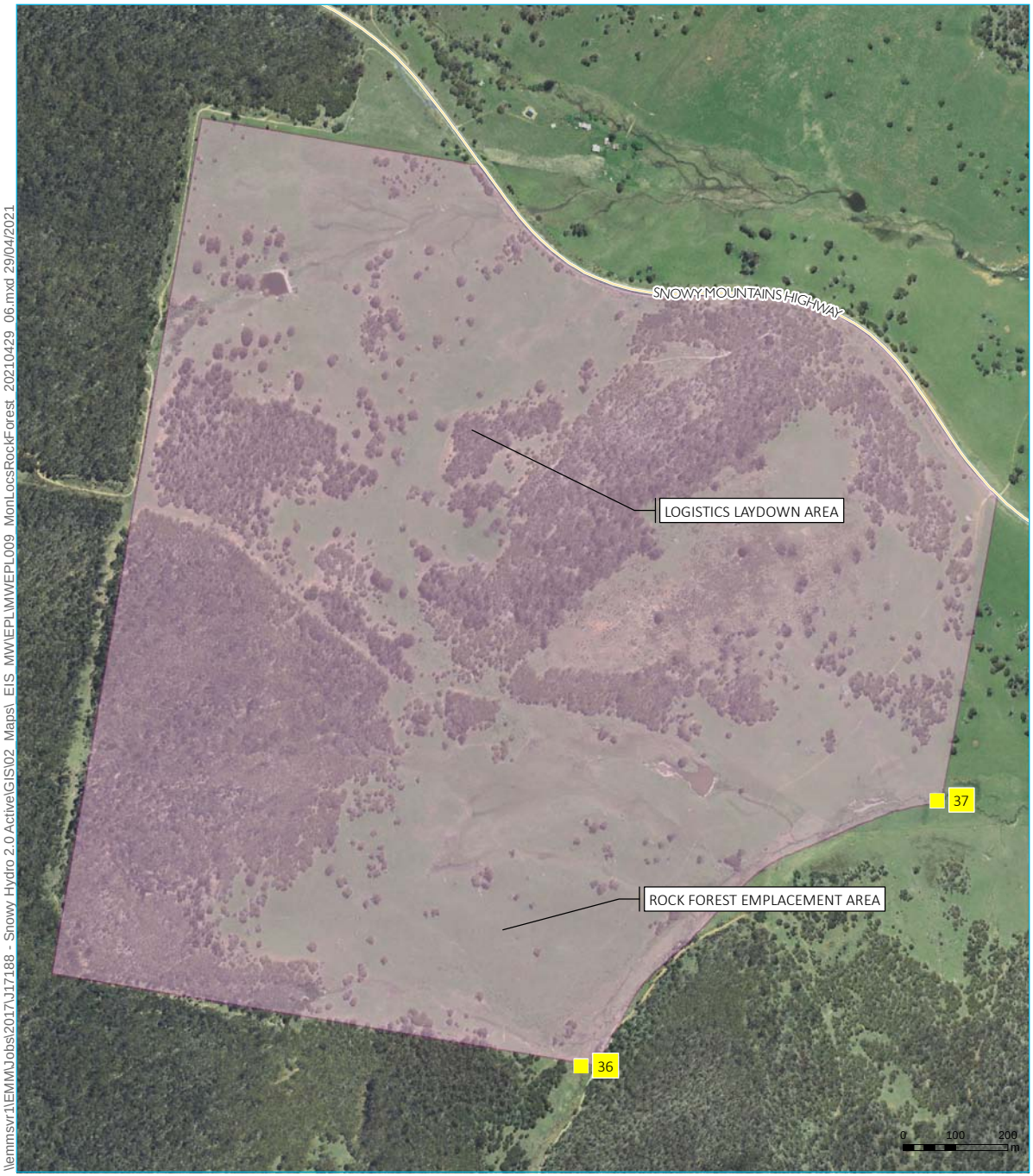

KEY

EPL monitoring point

- Surface water

Existing environment

- Main road
- Local road
- Watercourse

Snowy 2.0 Main Works operational elements

- Tunnels, portals, intakes, shafts
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Rock Forest

Snowy 2.0
Main Works
Figure 5

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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Snowy Hydro 2.0 Main Works EPL Sampling: 04 - 09 March 2022

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 09 February 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.

No discharge was occuring at the time the samples at EPL 41 were collected.
Due to an issue with sample delivery, the majority of analyses were unable to be performed.

Any exceeding values are likely representative of background conditions after a wet weather event of approximately 22.2 mm of rain between 06 - 09 March 2022 in Lobs Hole and 50.6mm of rain between 01 - 09 March 2022.
Elevated nitrogen, nitrates, and faecal coliform presence are likely due to the algae blooms in the reservoir which can effect the results.

The trigger action response plans included in the water management plan have been followed for all analytes with concentrations exceeding the respective water quality

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 04 - 09 March 2022 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40
Field											
pH	**pH Unit**	-	6.5-8	7.06	6.8	6.78	6.55	6.79	6.93	7.19	6.64
Electrical Conductivity	**µS/cm**	-	20-30	67	61	21.7	21.7	21.6	21.8	18.3	25
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	171	171	136.2	159.6	143.8	143.4	158.6	149
Temperature	**°C**	-	No Water Quality Objective Value	17.57	18.23	18	17.5	17.7	18.2	15.9	16.2
Dissolved Oxygen	**% saturation**	-	90-110	97.3	81.8	78.5	67.2	75.1	81.9	80.1	78
Turbidity	**NTU**	-	1-20	7.01	6.66	6.25	5.26	4.21	4.32	6.8	6.25
Laboratory analytes											
Total suspended solids	**mg/L**	5	No Water Quality Objective Value	18	22	<5	-	<5	<5	10	5.0
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	41	40	8.7	-	9.2	9.3	8.1	11
Nutrients											
Ammonia as N	**µg/L**	5	10	<5	<5	<5	<10	<5	<5	<5	<5
Nitrite + Nitrate as N (NOx)	**µg/L**	2	10	<10	20	20	<50	250	40	210	30
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	120	110	230	-	460	230	340	390
Nitrogen (Total)	**µg/L**	10	350	130	130	240	-	710	260	450	430
Reactive Phosphorus	**µg/L**	1	5	4	3	3	-	2	2	3	3
Phosphorus (Total)	**µg/L**	5	10	22	21	31	-	20	14	12	12
Inorganics											
Cyanide Total	**µg/L**	4	7	9	8	9	-	7	5	4	4
Hydrocarbons											
Oil and Grease	**mg/L**	5	No Water Quality Objective Value	<5	<5	<5	-	<5	8	<5	<5
Metals											
Aluminium (dissolved)	**µg/L**	5	55	59	48	28	-	21	51	35	21
Arsenic (dissolved)	**µg/L**	0.2	13	<1	<1	<1	-	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	<1	<1	<1	-	<1	<1	<1	<1
Copper (dissolved)	**µg/L**	0.5	14	<1	<1	2	-	<1	7	2	1
Iron (dissolved)	**µg/L**	2	300	0	80	240	-	220	420	320	200
Lead (dissolved)	**µg/L**	0.1	3.4	<1	<1	<1	-	<1	<1	<1	<1
Manganese (dissolved)	**µg/L**	0.5	1,900	33	6	6	-	13	5	11	10
Nickel (dissolved)	**µg/L**	0.5	11	<1	<1	<1	-	<1	<1	<1	<1
Silver (dissolved)	**µg/L**	0.01	0.05	<5	<5	<5	-	<5	<5	<5	<5
Zinc (dissolved)	**µg/L**	1	8	<5	<5	16	-	<5	20	6	<5
Biological											
Faecal Coliforms	**CFU/100mL**	1	10/100^	280	136	-	-	-	-	-	-
Biochemical Oxygen Demand	**mg/L**	2	1/5^	<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: 04 - 09 March - 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	7.99	8.34	8.15	8	8.06	7.94	7.95	7.99	7.1	7.6	7.8	6.8	6.7	6.8	7.0	7.0	6.9	7.0
Electrical Conductivity	µS/cm	-	30-350	50	76	59	64	51	37	37	51	107	30.9	30.2	24.3	20.6	36.0	16.7	16.6	41.2	42.7
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	124	118	127	127	137	123	112	108	62.0	14.0	20.4	181.6	181.2	208.4	49.3	47.5	76.4	95.9
Temperature	°C	-	No Water Quality Objective Value	15.8	19.45	19.91	17.94	16.71	18.58	18.25	15.94	19.5	13.6	13.5	15.8	15.7	18.0	16.0	16.0	16.9	16.8
Dissolved Oxygen	% saturation	-	90-110	96.6	87.3	93.3	95	95.3	94.8	95.1	101	56.1	83.6	88.0	86.2	86.9	94.2	84.0	86.2	60.7	62.2
Turbidity	NTU	-	2-25	7.48	2.34	6.01	4.62	7.11	26.1	40.6	8.36	32.6	5.2	5.6	19.4	12.6	9.3	7.3	7.4	10.6	10.7
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	9.2	<5	<5	<5	15	52	62	16	58	8.0	5.2	20	17	15	5.8	5.8	7.8	18.0
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	40	52	43	43	39	32	34	41	54	17.0	15.0	10	8.6	22	8.0	7.1	19.0	18.0
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5	<5	19	<5	<5	<5	<5
Nitrite + Nitrate as N (NOx)	µg/L	10	15	20	10	80	20	10	10	70	20	90	50	60	<10	<10	<10	20	130	4	5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	80	50	140	180	70	90	830	160	100	40	190	80	80	140	260	110	300	180
Nitrogen (Total)	µg/L	10	250	100	60	220	200	80	10	890	180	180	50	250	80	80	140	280	240	460	310
Reactive Phosphorus	µg/L	1	15	4	10	5	4	5	4	3	5	3	4	4	3	5	5	3	2	6	7
Phosphorus (Total)	µg/L	5	20	33	120	26	<5	25	98	70	28	59	17	32	29	29	22	13	32	15	16
Inorganics																					
Cyanide Total	µg/L	4	4	8	9	8	<4	9	8	<4	7	9	8	8	9	7	5	5	4	4	5
Hydrocarbons																					
Oil and Grease	mg/L	5	No Water Quality Objective Value	<5	<5	<5	11	<5	5.5	<5	<5	<5	<5	<5	<5	<5	<5	14	<5	23	<5
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	120	30	110	58	120	130	89	120	100	<5	7	28	26	6	28	39	32	78
Arsenic (dissolved)	µg/L	1.0	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	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1
Copper (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	1	2	2	2
Iron (dissolved)	µg/L	50.0	300	120	<50	110	70	120	170	140	140	230	70.0	<50	100	60	350	450	320	94	1200
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	15	6	<5	<5	6	7	<5	1.1	11.0	<5	6	<5	120	7	7	41	48
Nickel (dissolved)	µg/L	1.0	8	<1	<1	<1	<1	<1	<1	<1	<1	3.0	<1	<1	<1	<1	<1	<1	<1	1	2
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	8	<5	<5	6	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: 04 - 09 March 2022 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45
Flow Rate							
Inflow^	**ML/day**			-	-	0.822	0.044
Outflow^	**ML/day**		4.32	-	0.014	-	-
Field							
pH	**pH Unit**	-	6.5-8.5	7.35	-	-	-
Electrical Conductivity	**µS/cm**	-	700	0	-	-	-
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	172	-	-	-
Temperature	**°C**	-	15	21.66	-	-	-
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	90.5	-	-	-
Turbidity	**NTU**	-	<25	0.71	-	-	-
Laboratory analytes							
Total suspended solids	**mg/L**	5	No Water Quality Objective Value	<5	-	-	-
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	<1	-	-	-
Nutrients							
Ammonia as N	**µg/L**	5	No Water Quality Objective Value	<5	-	-	-
Nitrite + Nitrate as N (NOx)	**µg/L**	2	No Water Quality Objective Value	40	-	-	-
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	2	-	-	-
Nitrogen (Total)	**µg/L**	10	270	240	-	-	-
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	4	-	-	-
Phosphorus (Total)	**µg/L**	5	30	8	-	-	-
Inorganics							
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	4	-	-	-
Hydrocarbons							
Oil and Grease	**mg/L**	5	No Water Quality Objective Value	<5	-	-	-
Metals							
Aluminium (dissolved)	**µg/L**	5	55	<5	-	-	-
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	<1	-	-	-
Copper (dissolved)	**µg/L**	0.5	14	4	-	-	-
Iron (dissolved)	**µg/L**	2	300	<50	-	-	-
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	-	-	-
Nickel (dissolved)	**µg/L**	0.5	11	<1	-	-	-
Silver (dissolved)	**µg/L**	0.01	0.05	<5	-	-	-
Zinc (dissolved)	**µg/L**	1	8	27	-	-	-
Biological							
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-
Biological Oxygen Demand	**mg/L**		5	<5	-	-	-

* 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

^ 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: 04 - 07 April 2022

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 09 February 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.

No discharge was occuring at the time the samples at EPL 41 were collected.
Any exceeding values are likely representative of background conditions after approximately 25.4 mm of rain between 01-07 April 2022 at Tantangara and 15.4mm of rain between 01 - 07 April 2022 at Lobs Hole.
Given the amount of rainfall, it is noted that it is unusal for EPL 24 to be dry, however there was no water flow at this location in April 2022.

The trigger action response plans included in the water management plan have been followed for all analytes with concentrations exceeding the respective water quality values. At this time, no further action is required.

Based on water quality results from upstream of the site, site activity, and supporting evidence the monitoring are a result of the recent bushfire activity in the area and not site works.

In situ water sampling results for EPL10, 11, 21, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37 are unavailable due to a malfunction in the monitoring software used.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 04 - 07 April 2022 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40
Field											
pH	pH Unit	-	6.5-8	-	-	8.64	-	-	8.48	7.2	9.81
Electrical Conductivity	µS/cm	-	20-30	-	-	19.8	-	-	20	15.5	21
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	-	-	218.1	-	-	259	92.4	142.5
Temperature	°C	-	No Water Quality Objective Value	-	-	13.3	-	-	13.9	12.6	12.5
Dissolved Oxygen	% saturation	-	90-110	-	-	89.7	-	-	87.9	88.3	87
Turbidity	NTU	-	1-20	-	-	4.41	-	-	7.02	9.71	6.08
Laboratory analytes											
Total suspended solids	mg/L	5	No Water Quality Objective Value	25.0	23.0	8.2	8.4	8.1	8.5	7.6	6.7
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	< 5	< 5	< 5	< 5	< 5	< 5	54	5.4
Nutrients											
Ammonia as N	µg/L	5	10	28.0	19.0	<10	<10	<10	<10	<10	<10
Nitrite + Nitrate as N (NOx)	µg/L	2	10	40.0	40.0	<10	10.0	20.0	10.0	<10	20.0
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	50.0	40.0	30.0	<10	<10	10.0	20.0	<10
Nitrogen (Total)	µg/L	10	350	90.0	80.0	30.0	10.0	20.0	20.0	20.0	20.0
Reactive Phosphorus	µg/L	1	5	1.0	1.0	1.0	1.0	1.0	1.0	4.0	1.0
Phosphorus (Total)	µg/L	5	10	14.0	<5	19.0	25.0	34.0	14.0	50.0	8.0
Inorganics											
Cyanide Total	µg/L	4	7	4	5	4	4	4	<4	<4	<4
Hydrocarbons											
Oil and Grease	mg/L	5	No Water Quality Objective Value	< 5	< 5	< 5	< 5	< 5	< 5	54	5
Metals											
Aluminium (dissolved)	µg/L	5	55	11.0	8.0	24.0	22.0	16.0	14.0	16.0	16.0
Arsenic (dissolved)	µg/L	0.2	13	<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
Copper (dissolved)	µg/L	0.5	14	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	2	300	<50	<50	230	260	250	270	170	140
Lead (dissolved)	µg/L	0.1	3.4	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	0.5	1,900	<5	<5	22.0	28.0	29.0	29.0	19.0	15.0
Nickel (dissolved)	µg/L	0.5	11	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	0.01	0.05	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	1	8	<5	<5	<5	<5	<5	<5	<5	<5
Biological											
Faecal Coliforms	CFU/100mL	1	10/100^	2	1	-	-	-	-	-	-
Biochemical Oxygen Demand	mg/L	2	1/5^	<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: 04 - 07 April 2022 - 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	7.78	8.31	8.15	6.84	8.00	8.34	8.23	8.19	Dry	-	-	-	-	-	-	-	-	-
Electrical Conductivity	µS/cm	-	30-350	84.0	103.0	89.0	111	84.0	86.0	86.0	87.0	Dry	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	158	166	174	215	169	167	171	177	Dry	-	-	-	-	-	-	-	-	-
Temperature	°C	-	No Water Quality Objective Value	13.3	13.6	14.1	12.4	13.3	14.0	14.2	14.2	Dry	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	% saturation	-	90-110	97.7	90.3	90.8	98.4	96.8	97.0	85.5	89.0	Dry	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	2-25	4.73	1.94	4.22	3.17	4.31	-	3.68	3.49	Dry	-	-	-	-	-	-	-	-	-
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	5	< 5	< 5	< 5	5.4	< 5	< 5	< 5	Dry	29.0	29.0	36.0	< 5	9.40	9.80	9.20	9.20	12.0
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	47.0	58.0	49.0	37.0	45.0	48.0	49.0	46.0	Dry	17.0	18.0	9.90	8.50	8.80	5.40	5.70	11.0	12.0
Nutrients																					
Ammonia as N	µg/L	5	13	<10	<10	<10	<10	<10	<10	<10	<10	Dry	<10	<10	<5	<5	<5	<5	<5	<10	<10
Nitrite + Nitrate as N (NOx)	µg/L	10	15	<10	<10	0	<10	30	<10	10	<10	Dry	1500	1000	10.0	10.0	20.0	40.0	10.0	18000	200
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	<10	<10	20.0	10.0	60.0	30.0	30.0	20.0	Dry	80.0	200	190	290	180	160	490	3000	1900
Nitrogen (Total)	µg/L	10	250	<10	<10	60.0	10.0	90.0	30.0	40.0	20.0	Dry	2300	1000	100	320	190	240	500	21000	21000
Reactive Phosphorus	µg/L	1	15	2.00	6.00	2.00	2.00	1.00	2.00	1.00	2.00	Dry	1.00	2.00	68.0	5.00	6.00	17.0	5.00	3.00	4.00
Phosphorus (Total)	µg/L	5	20	10.0	24.0	13.0	13.0	<5	9.0	<5	7.00	Dry	100	100	3.00	3.00	3.00	3.00	3.00	26.0	29.0
Inorganics																					
Cyanide Total	µg/L	4	4	4	4	4	4	4	4	<4	4	Dry	<4	<4	<4	<4	<4	<4	9	4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	No Water Quality Objective Value	27	15	12	9	12	< 5	< 5	13	Dry	< 5	12	26	16	< 5	< 5	32	< 5	7.9
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	12.0	<5	17.0	10.0	14.0	12.0	10.0	11.0	Dry	19.0	16.0	21.0	13.0	30.0	47.0	46.0	28.0	23.0
Arsenic (dissolved)	µg/L	1.0	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	0.01	<1	<1	<1	<1	<1	<1	<1	2	Dry	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	Dry	<1	<1	<1	<1	<1	2.0	<1	<1	1.0
Iron (dissolved)	µg/L	50.0	300	<50	<50	<50	<50	<50	<50	<50	70	Dry	100	100	<50	<50	230	160	170	700	600
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	Dry	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	14	<5	<5	<5	<5	<5	<5	Dry	12.0	12.0	<5	<5	20.0	6.0	<5	20.0	22.0
Nickel (dissolved)	µg/L	1.0	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	0.02	<5	<5	<5	<5	<5	<5	<5	<5	Dry	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	8.00	<5	<5	<5	<5	Dry	<5	<5	<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: 04 - 07 April 2022 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45
Flow Rate							
Inflow^	**ML/day**			-	-	0.822	0.044
Outflow^	**ML/day**		4.32	-	0.008	-	-
Field							
pH	**pH Unit**	-	6.5-8.5	-	-	-	-
Electrical Conductivity	**µS/cm**	-	700	-	-	-	-
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	-	-	-	-
Temperature	**°C**	-	15	-	-	-	-
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	-	-	-	-
Turbidity	**NTU**	-	<25	-	-	-	-
Laboratory analytes							
Total suspended solids	**mg/L**	5	No Water Quality Objective Value	< 5	-	-	-
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	< 1	-	-	-
Nutrients							
Ammonia as N	**µg/L**	5	No Water Quality Objective Value	<10	-	-	-
Nitrite + Nitrate as N (NOx)	**µg/L**	2	No Water Quality Objective Value	400	-	-	-
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	10	-	-	-
Nitrogen (Total)	**µg/L**	10	270	390	-	-	-
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	<1	-	-	-
Phosphorus (Total)	**µg/L**	5	30	14	-	-	-
Inorganics							
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	4	-	-	-
Hydrocarbons							
Oil and Grease	**mg/L**	5	No Water Quality Objective Value	26	-	-	-
Metals							
Aluminium (dissolved)	**µg/L**	5	55	<5	-	-	-
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	<1	-	-	-
Copper (dissolved)	**µg/L**	0.5	14	3	-	-	-
Iron (dissolved)	**µg/L**	2	300	<50	-	-	-
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	-	-	-
Nickel (dissolved)	**µg/L**	0.5	11	<1	-	-	-
Silver (dissolved)	**µg/L**	0.01	0.05	<5	-	-	-
Zinc (dissolved)	**µg/L**	1	8	9	-	-	-
Biological							
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-
Biological Oxygen Demand	**mg/L**		5	<5	-	-	-

* 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

^ 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: 04 - 05 May 2022

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 13 May 2022, and the approved Water Management Plan to ensure that works are not impacting on nearby receiving waters.

Amendments to the EPL included:
- updates to reflect the approval of scheduled works;
- additional monitoring points 46-51; and
- approval to discharge treated water to Tantangara Reservoir at a rate of 50 L/s;

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

EPL sampling was complete for Reservoir and Surface water samples prior to receiving the amended EPL. The additional monitoring locations will be sampled in June 2022.
No discharge was occuring at the time the samples at EPL 41 were collected.

Any exceeding values are likely representative of background conditions after a wet weather event of approximately 17.8mm of rain between 04 - 05 May 2022 at Tantangara.

The trigger action response plans included in the water management plan have been followed for all analytes with concentrations exceeding the respective water quality values. At this time, no further action is required.

Water sampling results for EPL26, 27, 36 and 37 are unavailable due to laboratory processing issues.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

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Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 04 - 05 May 2022 - Talbingo and Tantangara Reservoir

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL10	EPL11	EPL28	EPL29	EPL32	EPL38	EPL39	EPL40
Field											
pH	**pH Unit**	-	6.5-8	7.99	8.5	6.5	6.5	6.64	6.57	7.95	7.12
Electrical Conductivity	**µS/cm**	-	20-30	43.9	42.3	18.3	19.4	19.5	19.2	13.2	16.5
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	198.8	143.9	225.9	238.6	231.6	232.5	137.1	207.7
Temperature	**°C**	-	No Water Quality Objective Value	15.3	15.3	11	12.7	12.7	12.3	7.9	7.9
Dissolved Oxygen	**% saturation**	-	90-110	86.7	90.1	87.9	84.7	83.1	86.1	93.2	95.9
Turbidity	**NTU**	-	1-20	1.57	1.64	4.44	4.78	3.31	3.95	9.89	3.59
Laboratory analytes											
Total suspended solids	**mg/L**	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	23	20	8.1	8.1	10	7.8	6.1	7.7
Nutrients											
Ammonia as N	**µg/L**	5	10	12	<5	<5	<5	<5	<5	<5	<5
Nitrite + Nitrate as N (NOx)	**µg/L**	2	10	4200	1500	10	50	<10	<10	40	10
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	900	600	280	350	230	180	300	450
Nitrogen (Total)	**µg/L**	10	350	5100	2100	290	400	230	190	340	460
Reactive Phosphorus	**µg/L**	1	5	2	10	1	3	2	5	1	1
Phosphorus (Total)	**µg/L**	5	10	<5	<5	13	17	3100	<5	<5	<5
Inorganics											
Cyanide Total	**µg/L**	4	7	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons											
Oil and Grease	**mg/L**	5	No Water Quality Objective Value	<5	18	<5	<5	<5	<5	63	5.5
Metals											
Aluminium (dissolved)	**µg/L**	5	55	63	59	41	29	13	18	21	10
Arsenic (dissolved)	**µg/L**	0.2	13	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	8	6	1	2	<1	<1	<1	<1
Copper (dissolved)	**µg/L**	0.5	14	1	4	2	2	2	3	1	<1
Iron (dissolved)	**µg/L**	2	300	60	50	130	160	140	150	100	70
Lead (dissolved)	**µg/L**	0.1	3.4	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	**µg/L**	0.5	1,900	6	6	<5	<5	<5	<5	7	<5
Nickel (dissolved)	**µg/L**	0.5	11	5	4	<1	2	<1	<1	<1	<1
Silver (dissolved)	**µg/L**	0.01	0.05	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	**µg/L**	1	8	8	10	<5	<5	11	12	13	<5
Biological											
Faecal Coliforms	**CFU/100mL**	1	10/100^	2	1	-	-	-	-	-	-
Biochemical Oxygen Demand	**mg/L**	2	1/5^	<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: 25 May 2022 Groundwater

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL1 (RMSB6)	EPL2 (RSMB7)	EPL4 (RSMB8)	EPL25 (RSMB9)
Physiochemical							
pH	pH Unit	-	6.5-8	7.11	6.59	7.37	6.12
Electrical Conductivity	µS/cm	-	30-350	1200	449	1490	445
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	-72	17.0	-103	34
Temperature	°C	-	No Water Quality Objective Value	16.4	16.4	16.1	16.8
Dissolved Oxygen	% saturation	-	No Water Quality Objective Value	87.2	82.3	81.7	81.4
Turbidity	NTU	-	No Water Quality Objective Value	27.3	54	0	860
Nutrients							
Nitrogen (Total)	µg/L	10	250	200	<200	300	300
Reactive Phosphorus	µg/L	1	15	<50	<50	<50	<50
Metals							
Aluminium (dissolved)	µg/L	5	27	12	<5	<5	38
Copper (dissolved)	µg/L	0.5	1	3	17	<1	<1
Iron (dissolved)	µg/L	2	300	420	1400	1000	3600
Lead (dissolved)	µg/L	0.1	1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	0.5	1,200	190	180	460	1200
Nickel (dissolved)	µg/L	0.5	8	22.0	6.0	20.0	7.0
Silver (dissolved)	µg/L	0.01	0.02	<5	<5	<5	<5
Zinc (dissolved)	µg/L	1	2.4	6	25	<5	<5

* 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: 04 - 05 May 2022 - 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	8.02	7.89	8.06	7.99	8.08	7.98	8.10	7.97	7.44	7.20	6.23	6.80	6.78	6.66	6.51	5.55	6.38	7.46
Electrical Conductivity	µS/cm	-	30-350	62.0	70.0	68.0	65.0	65.0	65.0	65.0	65.0	135.0	22.5	21.1	20.7	18.4	19.5	10.9	10.9	26.9	27.8
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	110	170	156	183	145	172	167	169	153	252	268	236	240	228	246	236	232	208
Temperature	°C	-	No Water Quality Objective Value	9.15	9.39	9.46	9.55	9.16	9.30	9.51	9.36	12.08	6.40	6.50	9.00	9.00	12.70	8.90	9.00	9.00	9.30
Dissolved Oxygen	% saturation	-	90-110	120	110	113	113	114	115	111	111	119	77.6	87.8	88.6	91.3	89.1	89.9	91.2	86.4	94.3
Turbidity	NTU	-	2-25	4.33	22.4	4.17	6.10	3.76	6.51	4.55	3.65	275	5.35	2.92	63.5	33.4	4.76	9.48	7.87	5.59	8.62
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	<5	<5	<5	5.0	<5	<5	<5	<5	110	-	-	52	49	<5	<5	5	-	-
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	46	47	44	37	40	42	39	44	61	-	-	9.7	12	7.7	5.5	5.5	-	-
Nutrients																					
Ammonia as N	µg/L	5	13	<5	57.0	<5	<5	<5	<5	<5	<5	<5	-	-	<5	<5	9.00	<5	<5	-	-
Nitrite + Nitrate as N (NOx)	µg/L	10	15	1.0	1.00	<1	<1	1.0	<1	<1	<1	31.0	-	-	6.00	<1	<1	2.00	260	-	-
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	4.00	4.00	6.00	5.00	4.00	4.00	5.00	5.00	180	-	-	520	190	20.0	280	190	-	-
Nitrogen (Total)	µg/L	10	250	50.0	50.0	70.0	60.0	50.0	50.0	60.0	50.0	490	-	-	580	190	210	300	450	-	-
Reactive Phosphorus	µg/L	1	15	3.00	9.00	3.00	3.00	3.00	3.00	3.00	3.00	7.00	-	-	5.00	10.0	1.00	1.00	2.00	-	-
Phosphorus (Total)	µg/L	5	20	<5	<5	<5	<5	<5	34.0	12.0	11.0	85.0	-	-	69.0	24.0	13.0	10.0	8.00	-	-
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	-	-	<4	<4	<4	<4	<4	-	-
Hydrocarbons																					
Oil and Grease	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	11	8	6	<5	33	-	-	<5	<5	8	15	<5	-	-
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	170	49.0	73.0	110	70.0	49.0	37.0	36.0	120	-	-	31.0	22.0	19.0	24.0	20.0	-	-
Arsenic (dissolved)	µg/L	1.0	0.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<1	<1	-	-
Chromium (III+VI) (dissolved)	µg/L	1.0	0.01	35.0	18.0	14.0	14.0	6.00	4.00	2.00	2.00	3.00	-	-	<1	<1	<1	<1	<1	-	-
Copper (dissolved)	µg/L	1.0	1	<1	<1	<1	1.00	1.00	<1	1.00	<1	1.00	-	-	<1	2.00	4.00	<1	1.00	-	-
Iron (dissolved)	µg/L	50.0	300	170	110	90.0	100	60.0	50.0	<50	<50	130	-	-	70.0	80.0	160	100	110	-	-
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	1.0	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<1	<1	-	-
Manganese (dissolved)	µg/L	5.0	1,200	5.00	14.0	5.00	6.00	<5	<5	<5	<5	550	-	-	6.00	7.00	<5	<5	5.00	-	-
Nickel (dissolved)	µg/L	1.0	8	23.0	13.0	10.0	9.00	4.00	3.00	2.00	1.00	3.00	-	-	<1	<1	<1	<1	<1	-	-
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<5	-	-
Zinc (dissolved)	µg/L	5.0	2.4	8.00	8.00	<5	<5	10.0	<5	<5	<5	<5	-	-	<5	5.00	14.0	<5	8.00	-	-

* 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: 05 May 2022 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45
Flow Rate							
Inflow^	**ML/day**			-	-	0.669	0.044
Outflow^	**ML/day**		4.32	0.280	0.008	-	-
Field							
pH	**pH Unit**	-	6.5-8.5	11.9	-	-	-
Electrical Conductivity	**µS/cm**	-	700	82.2	-	-	-
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	44.0	-	-	-
Temperature	**°C**	-	15	16.2	-	-	-
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	78.1	-	-	-
Turbidity	**NTU**	-	<25	1.00	-	-	-
Laboratory analytes							
Total suspended solids	**mg/L**	5	No Water Quality Objective Value	<5	-	-	-
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	2.30	-	-	-
Nutrients							
Ammonia as N	**µg/L**	5	No Water Quality Objective Value	420	-	-	-
Nitrite + Nitrate as N (NOx)	**µg/L**	2	No Water Quality Objective Value	150	-	-	-
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	1600	-	-	-
Nitrogen (Total)	**µg/L**	10	270	1700	-	-	-
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	83.0	-	-	-
Phosphorus (Total)	**µg/L**	5	30	26.0	-	-	-
Inorganics							
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	<4	-	-	-
Hydrocarbons							
Oil and Grease	**mg/L**	5	No Water Quality Objective Value	11	-	-	-
Metals							
Aluminium (dissolved)	**µg/L**	5	55	40.0	-	-	-
Arsenic (dissolved)	**µg/L**	0.2	13	<1	-	-	-
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	2.00	-	-	-
Copper (dissolved)	**µg/L**	0.5	14	<1	-	-	-
Iron (dissolved)	**µg/L**	2	300	<50	-	-	-
Lead (dissolved)	**µg/L**	0.1	3.4	2.00	-	-	-
Manganese (dissolved)	**µg/L**	0.5	1,900	<5	-	-	-
Nickel (dissolved)	**µg/L**	0.5	11	<1	-	-	-
Silver (dissolved)	**µg/L**	0.01	0.05	<5	-	-	-
Zinc (dissolved)	**µg/L**	1	8	24.0	-	-	-
Biological							
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-
Biological Oxygen Demand	**mg/L**		5	<5	-	-	-

* 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

^ 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: 03-30 June 2022

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 13 May 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.

No discharge was occuring at the time the samples at EPL 41 or EPL50 were collected.
No BOD or faecal coliform samples were collected in June 2022.
Elevated nitrogen, nitrates, and phosphorus presence are likely due to the recent rain events.

Any exceeding values are likely representative of background conditions after a wet weather event of approximately 151 mm of rain between 1- 13 June 2022 at Lobs Hole, 118 mm of rain between 1 - 13 June 2022 at Tantangara, and 50 mm of rain between 1 - 7 June at Marica.

The trigger action response plans included in the water management plan have been followed for all analytes with concentrations exceeding the respective water quality values. At this time, no further action is required.

Based on water quality results from upstream of the site, and a review of site activity and weather, exceedances are not related to the site works.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works
Monthly EPL Sampling: 03-30 June 2022 - 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	6.18	6.26	6.8	6.14	6.07	5.9	5.92	5.96	-
Electrical Conductivity	µS/cm	-	20-30	31	30	11.4	14.4	14	12.3	9.6	11.7	-
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	263	242	240.9	263.5	266	277.6	260.2	264.2	-
Temperature	°C	-	No Water Quality Objective Value	9.98	10.02	5.1	5.1	4.8	4.3	4.8	5.1	-
Dissolved Oxygen	% saturation	-	90-110	78.3	83.8	108.7	89.3	88	87.8	89.8	86.4	-
Turbidity	NTU	-	1-20	-	-	3.49	4.03	3.52	4.57	3.09	2.89	-
Laboratory analytes												
Total suspended solids	mg/L	5	No Water Quality Objective Value	13	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	11.00	11.00	7.5	8.5	9.1	8.0	5.4	8.0	6.7
Nutrients												
Ammonia as N	µg/L	5	10	31.0	<5	<5	<5	<5	<5	<5	<5	16.0
Nitrite + Nitrate as N (NOx)	µg/L	2	10	60.0	80.0	<10	20.0	20.0	10	<10	<10	20.0
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	140	130	120	140	120	120	120	90	90.0
Nitrogen (Total)	µg/L	10	350	200	200	130	160	140	130	120	100	100
Reactive Phosphorus	µg/L	1	5	7.0	5.0	3.0	<1	<1	<1	<1	<1	7.0
Phosphorus (Total)	µg/L	5	10	13.0	<5	12.0	7.0	<5	39.0	9.0	17.0	8.0
Inorganics												
Cyanide Total	µg/L	4	7	<4	<4	5.00	4.00	5.00	<4	<4	<4	<4
Hydrocarbons												
Oil and Grease	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	<5
Metals												
Aluminium (dissolved)	µg/L	5	55	28.0	25.0	27	22	25	25	17	15	92.0
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	4.0	9.0	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	2	300	<50	<50	<50	80	80	60	<50	<50	<50
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	<5	<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^	-	-	-	-	-	-	-	-	-
Biochemical Oxygen Demand	mg/L	2	1/5^	-	-	-	-	-	-	-	-	-

* 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: 03-30 June 2022 - 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	5.99	6.14	6.96	7.48	6.03	6.97	6.96	6.93	7.1	6.5	6.5	7.9	7.2	7.5	7.2	7.5	6.3	6.0
Electrical Conductivity	µS/cm	-	30-350	52	50	62	61	55	74	54	56	74.0	17.3	17.3	17.2	14.3	16.3	8.1	8.2	21.4	22.3
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	196	232	209	241	210	192	197	213	165.0	230.3	220.2	185.0	190.0	182.7	199.8	189.4	243.4	247.1
Temperature	°C	-	No Water Quality Objective Value	7.24	8.48	7.62	4.69	6.96	7.69	7.54	7.63	10.6	5.5	5.7	6.4	5.2	7.3	2.1	2.1	5.0	6.1
Dissolved Oxygen	% saturation	-	90-110	88.5	87.7	84.8	109.9	84.4	85.1	84.6	85	82.9	84.5	83.3	85.2	91.7	91.1	90.9	124.0	88.2	101.4
Turbidity	NTU	-	2-25	-	24.3	5.7	5	-	6.5	5.6	6.3	103.0	3.2	1.1	12.3	7.0	2.7	3.0	3.4	3.7	8.7
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	21	32	29	6.1	21	15	33	14	7.6	<5	<5	10.0	8.5	<5	<5	<5	<5	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	23	22	29	27	23	35	23	24	35	9.3	10	6.0	7.2	9.0	<5	<5	12	10
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	<5	<5	<5	7	<5	<5	<5	10.0	<5	<5	<5	<5	<5	13.0	<5	<5
Nitrite + Nitrate as N (NOx)	µg/L	10	15	40.0	20.0	60.0	60.0	120	50.0	50.0	60.0	90.0	60.0	<10	20.0	<10	<10	<10	10.0	40.0	30.0
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	450	10.0	390	210	100	580	460	430	380	<10	40.0	160	170	510	390	400	130	200
Nitrogen (Total)	µg/L	10	250	460	80.0	450	270	220	630	520	490	460	60.0	40.0	180	170	510	390	400	170	210
Reactive Phosphorus	µg/L	1	15	8.0	14.0	9.0	5.0	8.0	12.0	10.0	10.0	15.0	3.0	3.0	2.0	5.0	1.0	1.0	1.0	4.0	4.0
Phosphorus (Total)	µg/L	5	20	41.0	<5	11.0	15.0	16.0	20.0	28.0	9.0	37.0	6.0	19.0	10.0	7.0	6.0	8.0	5.0	18.0	46.0
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	4.0	<4	7.0	<4	<4	<4	<4	<4	<4	<4	<4	<4	4.0
Hydrocarbons																					
Oil and Grease	mg/L	5	No Water Quality Objective Value	<5	<5	<5	14.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	7.9	<5	<5	<5	5.7
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	58.0	36.0	25.0	19.0	110	28.0	44.0	45.0	57.0	25.0	5.0	22.0	12.0	15.0	21.0	20.0	32.0	32.0
Arsenic (dissolved)	µg/L	1.0	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	0.01	<1	<1	<1	<1	<1	<1	<1	<1	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	12.0	<1	<1	2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50.0	300	7.0	<50	50.0	<50	100	70.0	60.0	60.0	70.0	<50	<50	70.0	<50	120	60.0	60.0	160	160
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	<5	<5	<5	<5	<5	<5	<5	17.0	<5	<5	<5	<5	7.0	<5	<5	<5	<5
Nickel (dissolved)	µg/L	1.0	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<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: 03-30 June 2022 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45	EPL 46	EPL 47	EPL 48	EPL 49	EPL 50
Flow Rate												
Inflow#	ML/day			-	-	1.00	0.05	-	0.07	-	0	-
Outflow#	ML/day		4.32 (EPL 43 / 50)	-	0.070	-	-	-	-	-	-	0.10
Field												
pH	pH Unit	-	6.5-8.5	7.63	-	-	-	-	-	-	-	7.55
Electrical Conductivity	µS/cm	-	700 (EPL 41) / 200 (EPL 50)	38.8	-	-	-	-	-	-	-	342.9
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	223	-	-	-	-	-	-	-	232.2
Temperature	°C	-	15	15.69	-	-	-	-	-	-	-	4
Dissolved Oxygen	% saturation	-	No Water Quality Objective Value	101.1	-	-	-	-	-	-	-	132.2
Turbidity	NTU	-	<25	0.89	-	-	-	-	-	-	-	1.25
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	6.6	-	-	-	-	-	-	-	200
Nutrients												
Ammonia as N	mg/L	5	0.2/2^	<5	-	-	-	-	-	-	-	0.85
Nitrite + Nitrate as N (NOx)	µg/L	2	No Water Quality Objective Value	470	-	-	-	-	-	-	-	4900
Kjeldahl Nitrogen Total	mg/L	10	No Water Quality Objective Value	1.7	-	-	-	-	-	-	-	4.6
Nitrogen (Total)	µg/L	10	0.35	2100	-	-	-	-	-	-	-	9500
Reactive Phosphorus	µg/L	1	No Water Quality Objective Value	2	-	-	-	-	-	-	-	-
Phosphorus (Total)	mg/L	5	0.1/0.3^	0.074	-	-	-	-	-	-	-	0.24
Inorganics												
Cyanide Total	µg/L	4	No Water Quality Objective Value	10	-	-	-	-	-	-	-	6
Hydrocarbons												
Oil and Grease	mg/L	5	2/5^	<5	-	-	-	-	-	-	-	<5
Metals												
Aluminium (dissolved)	µg/L	5	55	250	-	-	-	-	-	-	-	29
Arsenic (dissolved)	µg/L	0.2	13	<1	-	-	-	-	-	-	-	2
Chromium (III+VI) (dissolved)	µg/L	0.2	1	73	-	-	-	-	-	-	-	180
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	39	-	-	-	-	-	-	-	22
Biological												
Faecal Coliforms	CFU/100mL	1	10/100^	-	-	-	-	-	-	-	-	-
Biological Oxygen Demand	mg/L		5	-	-	-	-	-	-	-	-	-

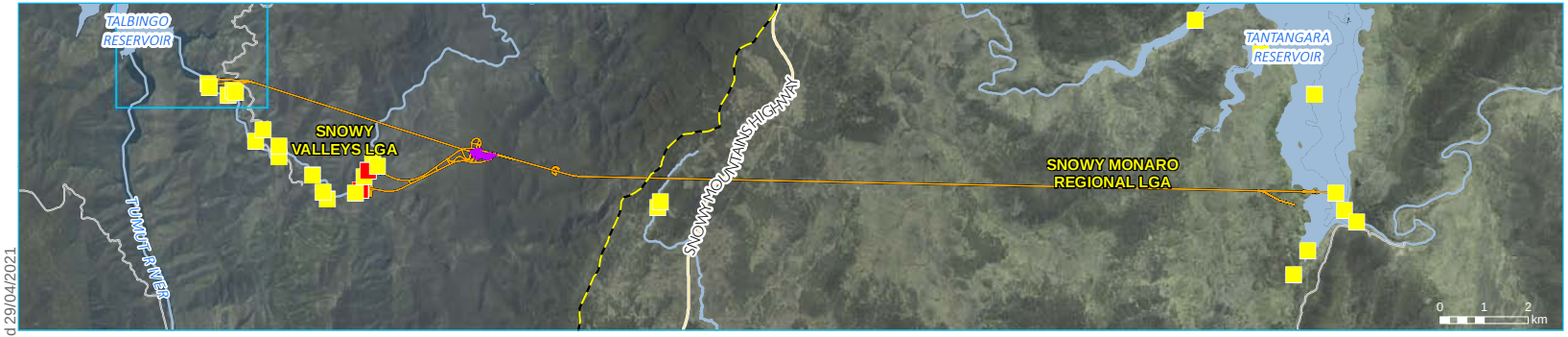
Note: Treated water was not being discharged at Talbingo or Tantangara Reservoirs at the time of EPL sampling

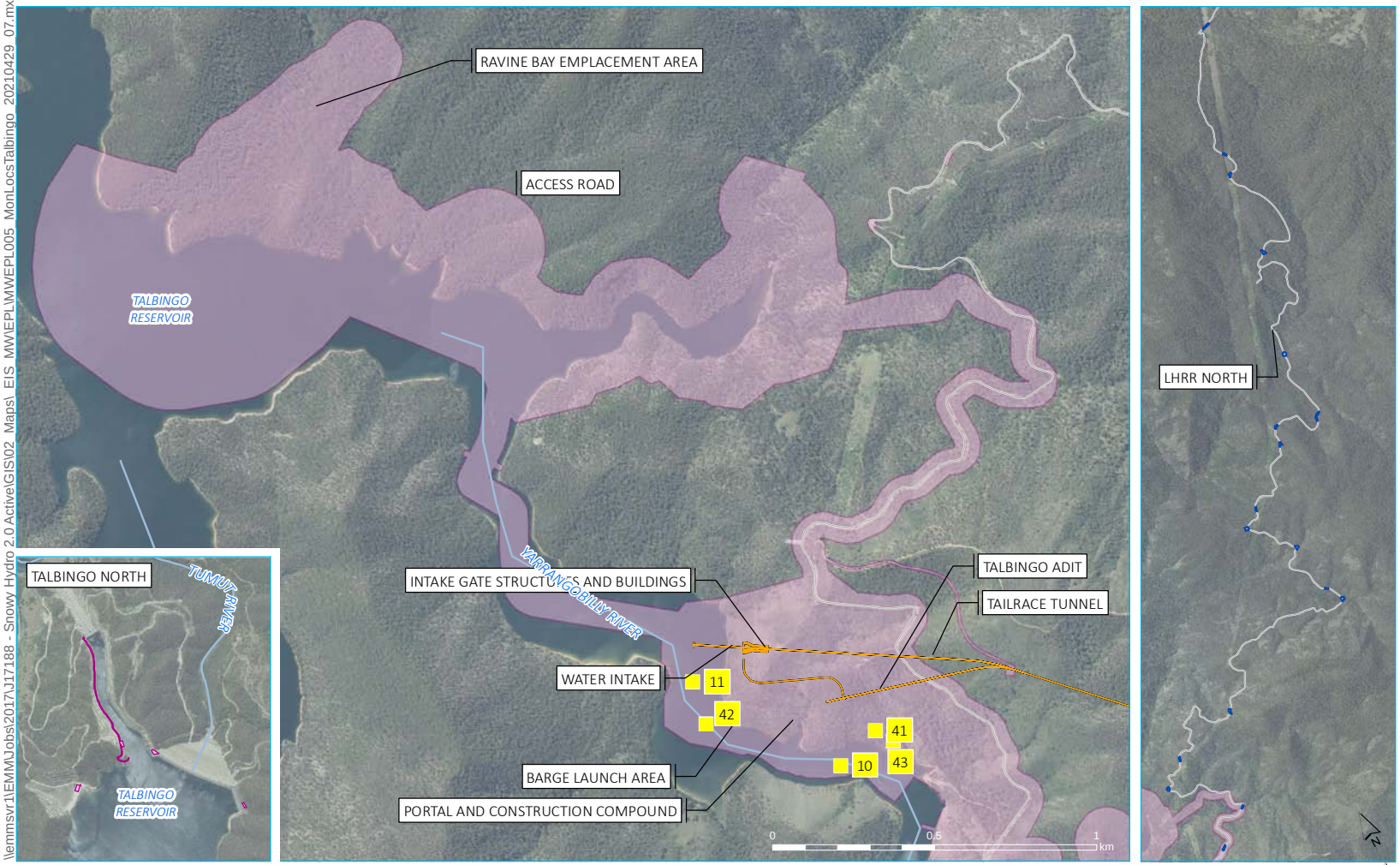
* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- 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





KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Talbingo Reservoir

Snowy 2.0
Main Works
Figure 1

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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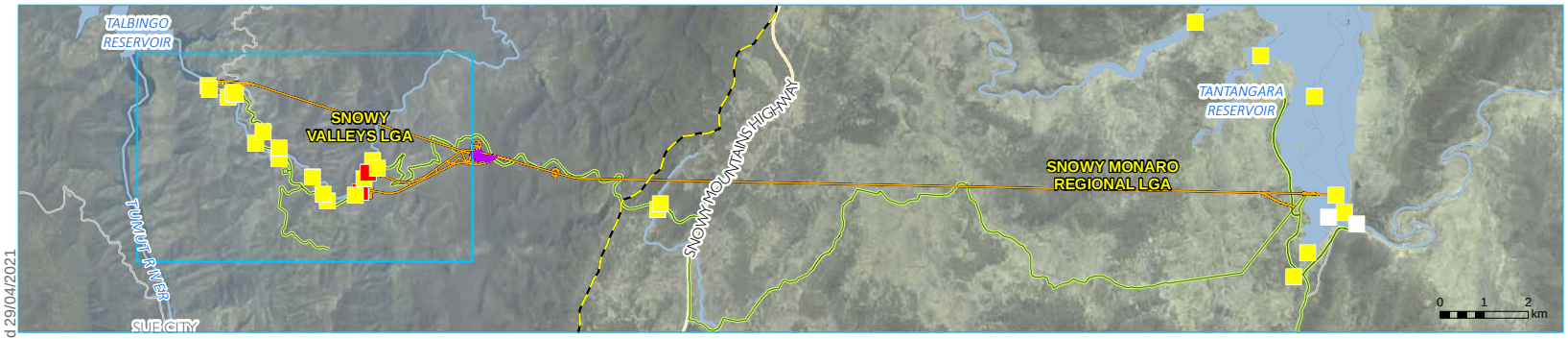

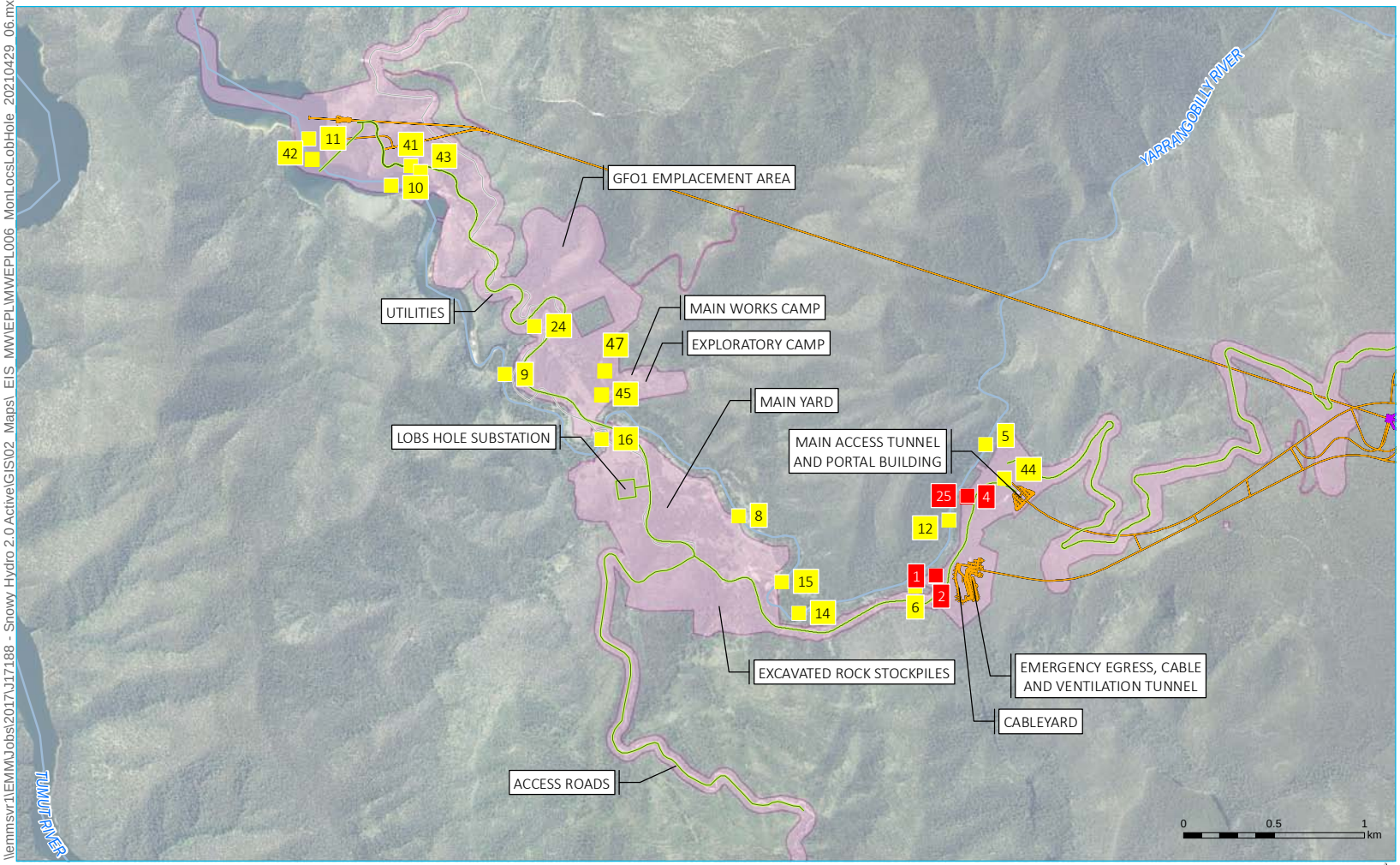

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
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Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
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EPL Premise and monitoring point maps - Lobs Hole

Snowy 2.0
Main Works
Figure 2

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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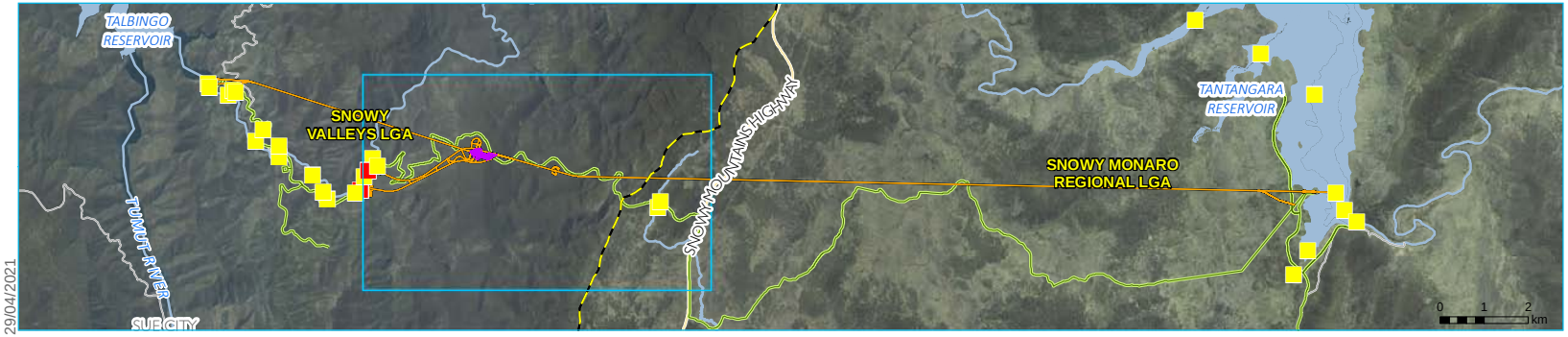

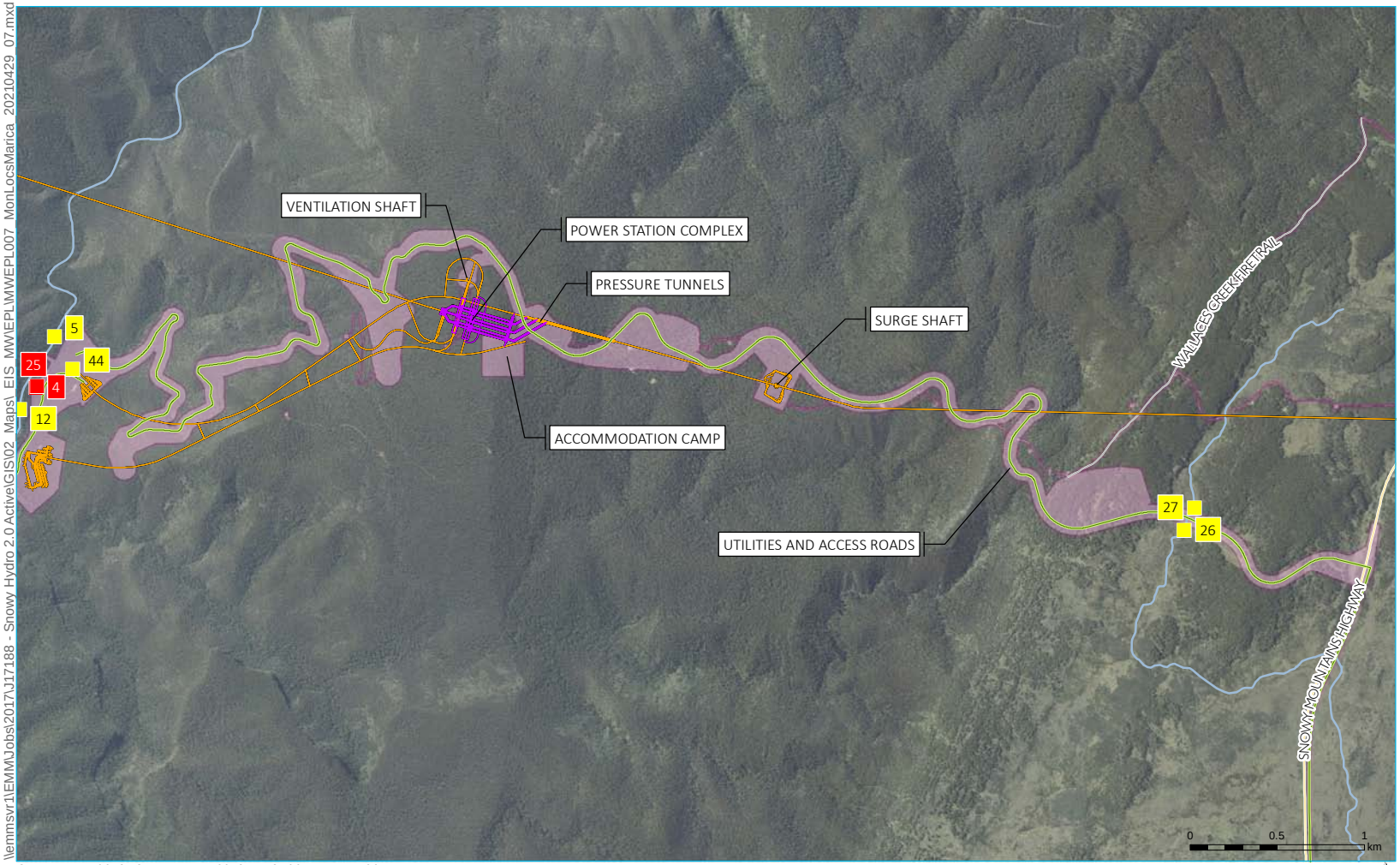

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Marica

Snowy 2.0
Main Works
Figure 3

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

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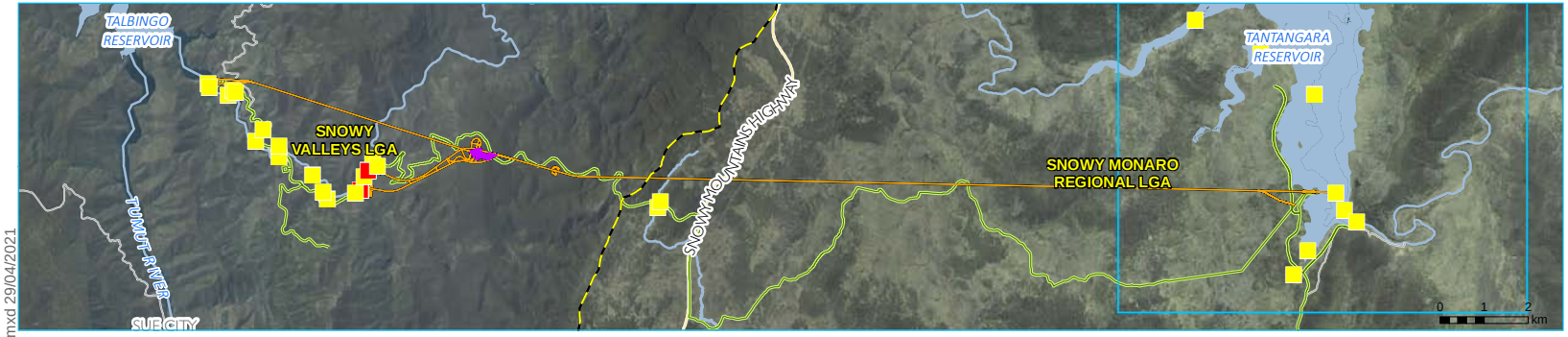

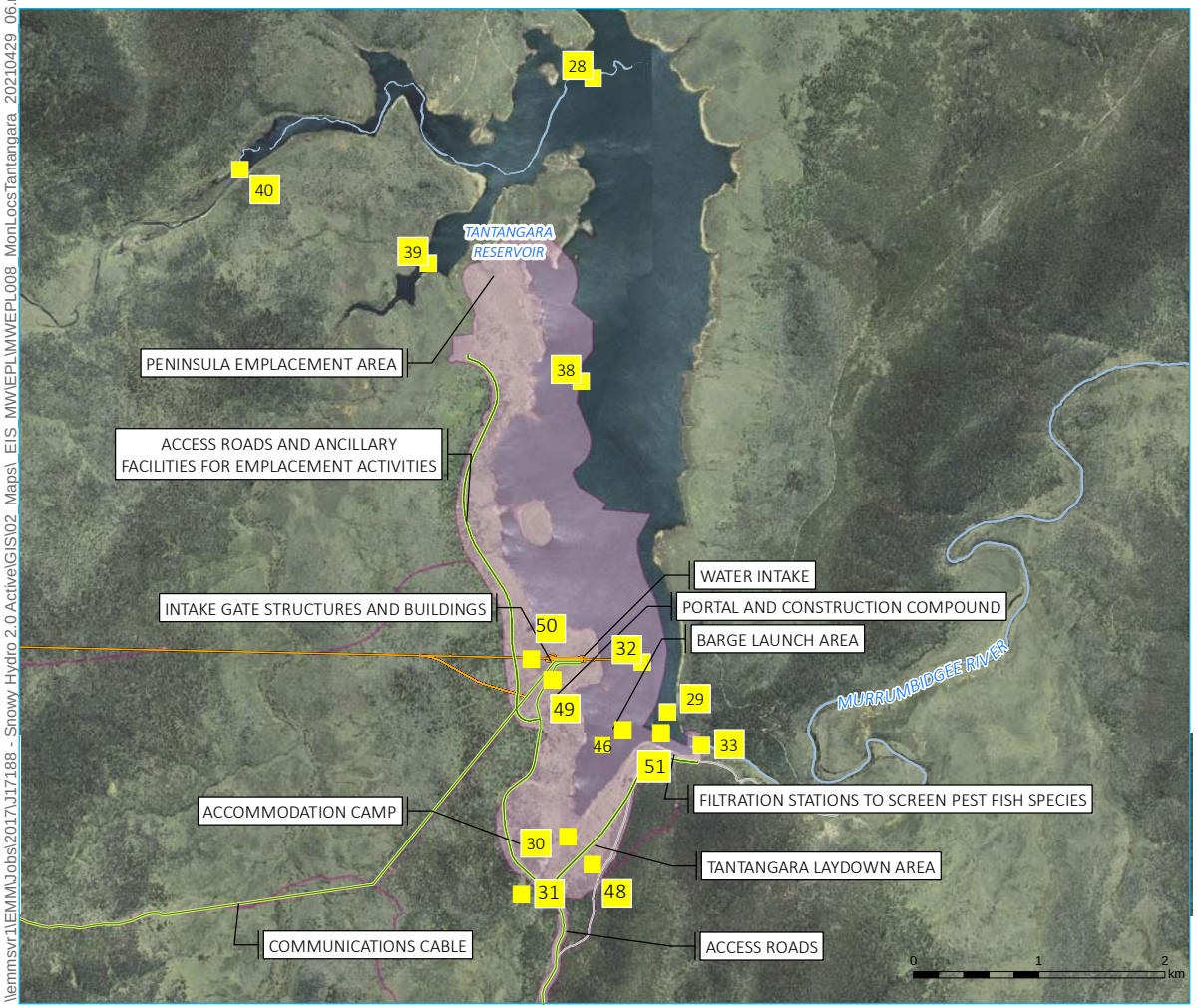

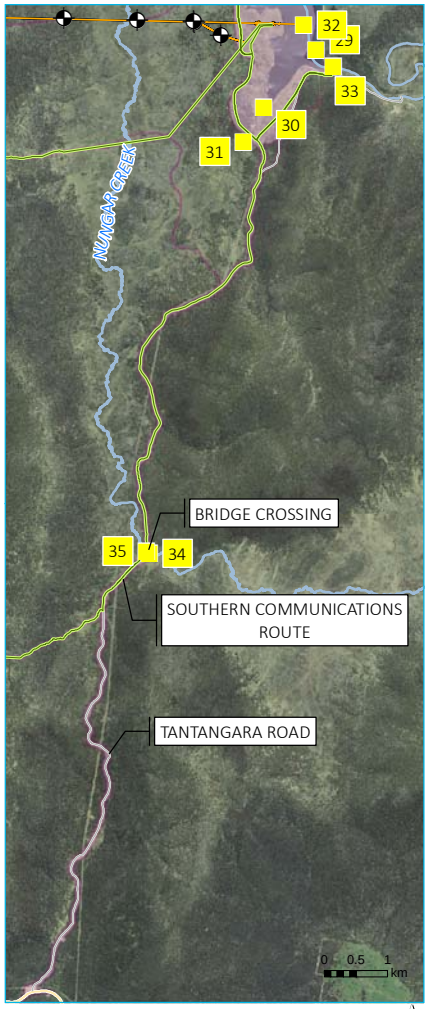

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Tantangara Reservoir

Snowy 2.0
Main Works
Figure 4

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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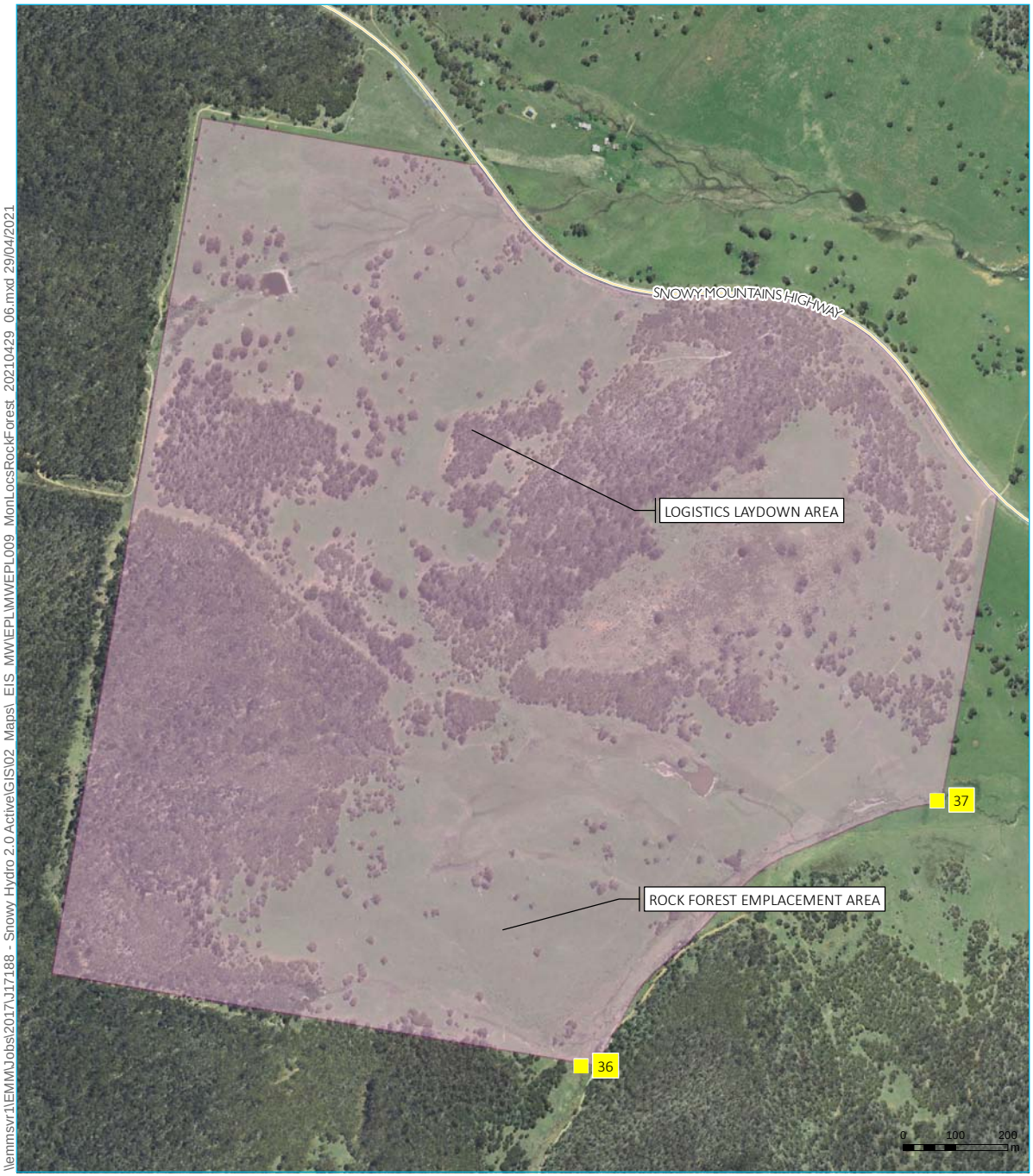

KEY

EPL monitoring point

- Surface water

Existing environment

- Main road
- Local road
- Watercourse

Snowy 2.0 Main Works operational elements

- Tunnels, portals, intakes, shafts
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Rock Forest

Snowy 2.0
Main Works
Figure 5

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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Snowy Hydro 2.0 Main Works EPL Sampling: 02 - 11 July 2022

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 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.

No BOD samples and limited feacal coliform samples were collected in July 2022.
Exceedance of oil and grease at EPL 31 is upstream of the project at Kellys Plain Creek.
Exceedances at Rock Forest, Lobs Hole, Marica and Tantangara are consistent upstream and downstream of the project, with the exception of EPL 24.

The trigger action response plans included in the water management plan have been followed for all analytes with concentrations exceeding the respective water quality values. At this time, no further action is required.

Based on water quality results from upstream of the site, and a review of site activity, exceedances are not related to the site works.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works
Monthly EPL Sampling: 02 - 11 July 2022 - 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	7.35	7.38	7.74	6.39	6.42	6.52	7.24	7.09	8.09
Electrical Conductivity	µS/cm	-	20-30	32.6	35.1	10.90	11.90	11.90	11.90	9.9	9.8	12.8
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	159	100	168.80	291	293.90	306.00	268.7	267.3	227.1
Temperature	°C	-	No Water Quality Objective Value	9.4	9.4	4.70	4.90	4.90	4.80	4.6	4.6	5
Dissolved Oxygen	% saturation	-	90-110	91.3	91.3	81.60	81.50	88.70	85.50	105.3	93	72.9
Turbidity	NTU	-	1-20	2	3	4.10	4.71	4.70	8.84	5.43	5.7	8.06
Laboratory analytes												
Total suspended solids	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	13	13	6.5	6.4	6.5	6.3	5.1	4.9	6.6
Nutrients												
Ammonia as N	µg/L	5	10	<5	<5	38	<5	<5	<5	<5	10	<5
Nitrite + Nitrate as N (NOx)	µg/L	2	10	50	50	20	50	70	20	50	310	20
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	10	30	190	120	280	150	440	300	50
Nitrogen (Total)	µg/L	10	350	60	80	210	170	350	170	490	610	60
Reactive Phosphorus	µg/L	1	5	7	1	3	2	7	4	1	2	1
Phosphorus (Total)	µg/L	5	10	7	<5	<5	<5	<5	<5	<5	<5	19
Inorganics												
Cyanide Total	µg/L	4	7	<4	<4	<4	<4	<4	<4	<4	<4	5
Hydrocarbons												
Oil and Grease	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	27
Metals												
Aluminium (dissolved)	µg/L	5	55	<5	6	22	24	26	24	10	9	150
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	<50	<50	<50	<50	<50	<50	<50	<50
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	<5	<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^	26	1	-	-	-	-	-	-	-
Biochemical Oxygen Demand	mg/L	2	1/5^	-	-	-	-	-	-	-	-	-

* 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: 02 - 11 July 2022 - 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	6.9	6.4	6.94	6.66	6.69	6.92	6.68	6.7	6.6	6.5	6.4	7.9	7.2	7.5	7.2	7.0	7.3	7.4
Electrical Conductivity	µS/cm	-	30-350	62.0	61.0	69.0	65.0	64.0	64.0	62.0	64.0	72.0	12.9	13.0	12.7	13.0	12.1	7.9	8.8	17.9	22.5
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	148	205	213	177	159	190	208	201.0	123.0	282.9	279.5	236.8	238.2	249.6	263.4	266.6	261.2	201.7
Temperature	°C	-	No Water Quality Objective Value	7.08	7.33	8.03	8.07	6.87	7.62	7.62	8.1	10.0	6.2	6.1	5.8	5.8	5.1	4.0	3.9	1.8	2.9
Dissolved Oxygen	% saturation	-	90-110	104.8	117.5	104.4	106.6	108	108.5	105.1	104.4	94.9	80.7	78.3	82.9	81.8	78.7	79.8	116.1	96.8	102.8
Turbidity	NTU	-	2-25	0	6.5	0	5	0	0	0	5.0	33.0	20.4	6.5	9.0	10.7	4.4	7.9	8.1	13.2	7.3
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	13	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	27	27	30	28	28	29	28	30	33	8.4	8.8	6.5	6.4	6.3	4.3	4.6	11	11
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nitrite + Nitrate as N (NOx)	µg/L	10	15	<10	<10	<10	<10	<10	<10	<10	<10	90	20	110	20	60	30	<10	<10	290	60
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	<10	40	40	40	20	<10	<10	<10	30	50	70	40	30	90	50	50	180	390
Nitrogen (Total)	µg/L	10	250	10	40.0	50	40	30	20	20	<0.01	130	70.0	180.0	60	90	110	50	60	470	450
Reactive Phosphorus	µg/L	1	15	3	10	4	4	3	4	4	4	7	3	<1	1	1	<1	<1	1	4	4
Phosphorus (Total)	µg/L	5	20	<5	<5	<5	<5	<5	18	10	10	<5	17	16	8	13	9	<5	<5	19	14
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	5	4	<4	<4	4	4	<4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	70	<5	<5	<5	<5	<5
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	41	11	26	25	25	29	40	23	25	35	31	14	150	110	120	73	150	170
Arsenic (dissolved)	µg/L	1.0	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	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	5.0	3.0	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50.0	300	<50	<50	<50	<50	<50	<50	<50	<50	50	50	<50	<50	<50	70	<50	<50	340	360
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	<5	<5	<5	<5	<5	<5	<5	47	<5	<5	<5	<5	5	<5	<5	<5	9
Nickel (dissolved)	µg/L	1.0	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6	<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: 02 - 11 July 2022 - Treated Water

Analyte	Unit	Limit of Reporting	Water Quality Objective Value*	EPL 41	EPL 43	EPL 44	EPL 45	EPL 46	EPL 47	EPL 48	EPL 49	EPL 50
Flow Rate												
Inflow#	ML/day			-	-	0.55	0.02	-	0.03	-	0.21	-
Outflow#	ML/day		4.32 (EPL 43 / 50)	-	0.030	-	-	-	-	-	-	0.00
Field												
pH	pH Unit	-	6.5-8.5	7.61	-	-	-	6.41	-	-	-	7.28
Electrical Conductivity	µS/cm	-	700 (EPL 41) / 200 (EPL 50)	93.6	-	-	-	11.9	-	-	-	337.4
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	249	-	-	-	297.2	-	-	-	231
Temperature	°C	-	15	12.06	-	-	-	4.9	-	-	-	3.7
Dissolved Oxygen	% saturation	-	No Water Quality Objective Value	84.5	-	-	-	93.3	-	-	-	67.7
Turbidity	NTU	-	<25	1	-	-	-	6.14	-	-	-	0.96
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	58	-	-	-	-	-	-	-	200
Nutrients												
Ammonia as N	mg/L	5	0.2/2^	0.54	-	-	-	-	-	-	-	0.88
Nitrite + Nitrate as N (NOx)	µg/L	2	No Water Quality Objective Value	310	-	-	-	-	-	-	-	20
Kjeldahl Nitrogen Total	mg/L	10	No Water Quality Objective Value	0.01	-	-	-	-	-	-	-	0.06
Nitrogen (Total)	µg/L	10	350	320	-	-	-	-	-	-	-	80
Reactive Phosphorus	µg/L	1	No Water Quality Objective Value	21	-	-	-	-	-	-	-	160
Phosphorus (Total)	mg/L	5	0.1/0.3^	0.075	-	-	-	-	-	-	-	260
Inorganics												
Cyanide Total	µg/L	4	No Water Quality Objective Value	22	-	-	-	-	-	-	-	6
Hydrocarbons												
Oil and Grease	mg/L	5	2/5^	<5	-	-	-	-	-	-	-	<5
Metals												
Aluminium (dissolved)	µg/L	5	55	390	-	-	-	-	-	-	-	29
Arsenic (dissolved)	µg/L	0.2	13	<1	-	-	-	-	-	-	-	2
Chromium (III+VI) (dissolved)	µg/L	0.2	1	280	-	-	-	-	-	-	-	180
Copper (dissolved)	µg/L	0.5	14	76	-	-	-	-	-	-	-	1
Iron (dissolved)	µg/L	2	300	<50	-	-	-	-	-	-	-	<50
Lead (dissolved)	µg/L	0.1	3.4	3	-	-	-	-	-	-	-	<1
Manganese (dissolved)	µg/L	0.5	1,900	<5	-	-	-	-	-	-	-	<5
Nickel (dissolved)	µg/L	0.5	11	2	-	-	-	-	-	-	-	<1
Silver (dissolved)	µg/L	0.01	0.05	<5	-	-	-	-	-	-	-	<5
Zinc (dissolved)	µg/L	1	8	250	-	-	-	-	-	-	-	22
Biological												
Faecal Coliforms	CFU/100mL	1	10/100^	19	-	-	-	-	-	-	-	-
Biological Oxygen Demand	mg/L		5	-	-	-	-	-	-	-	-	-

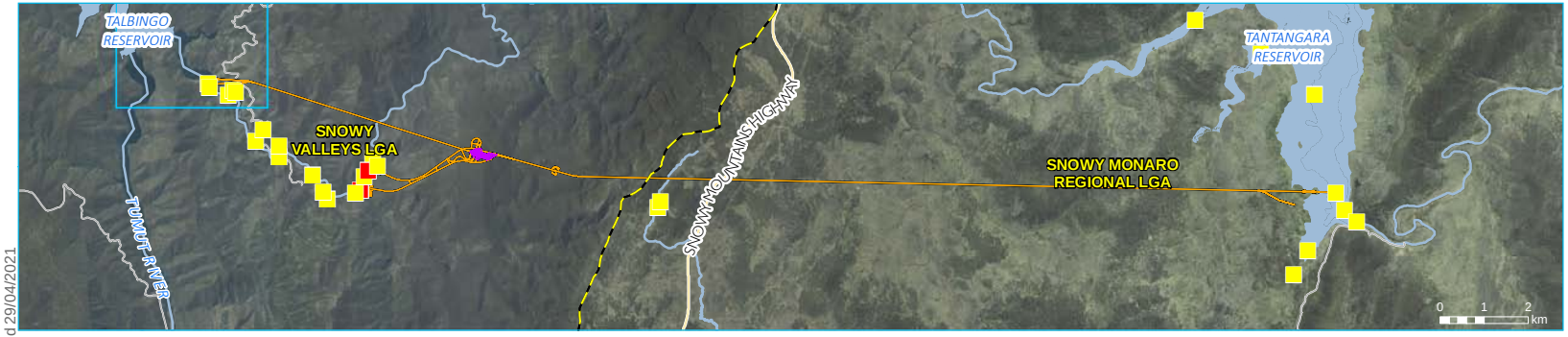
Note: Treated water was not being discharged at Talbingo or Tantangara Reservoirs at the time of EPL sampling

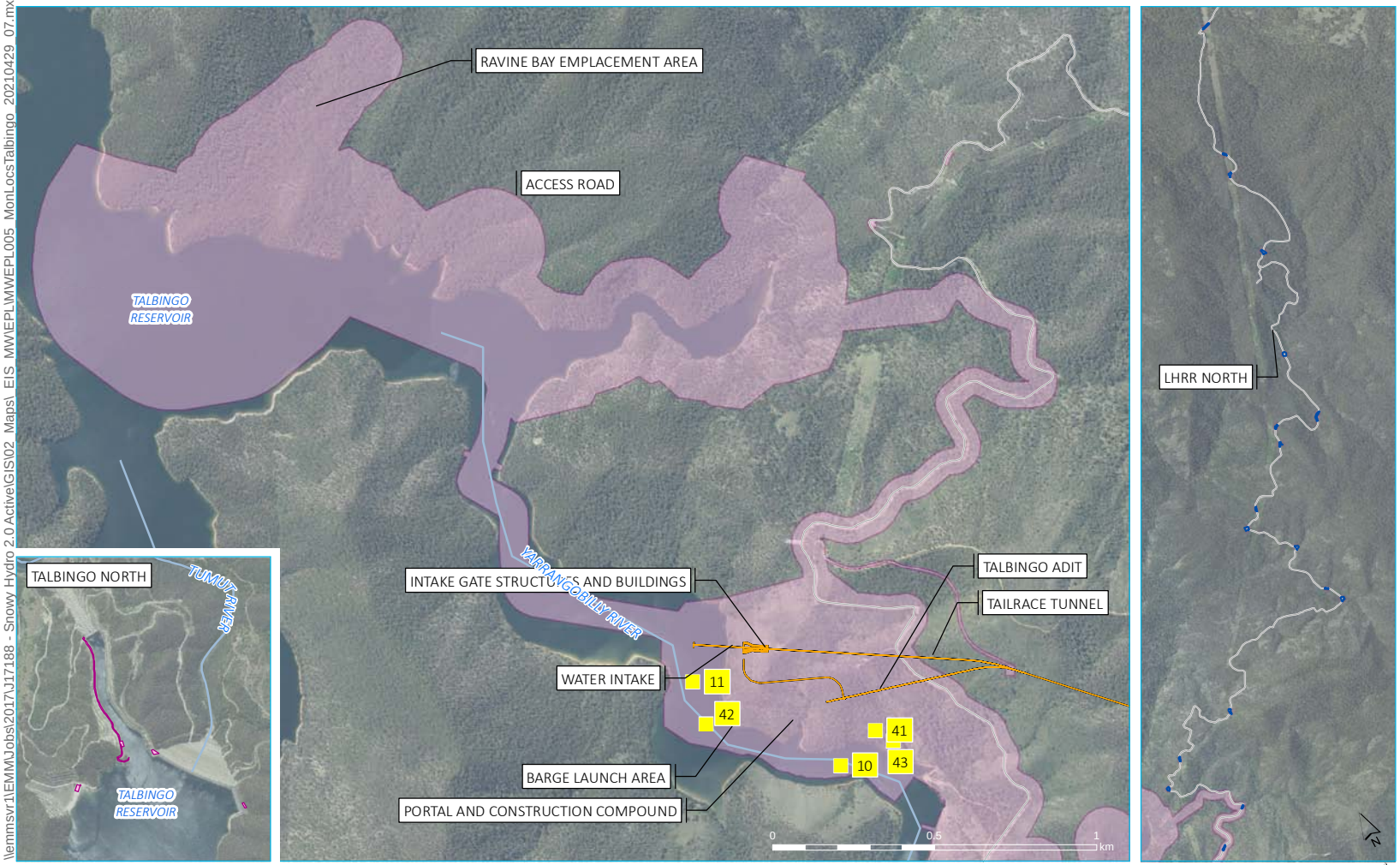
* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- 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





KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Talbingo Reservoir

Snowy 2.0
Main Works
Figure 1

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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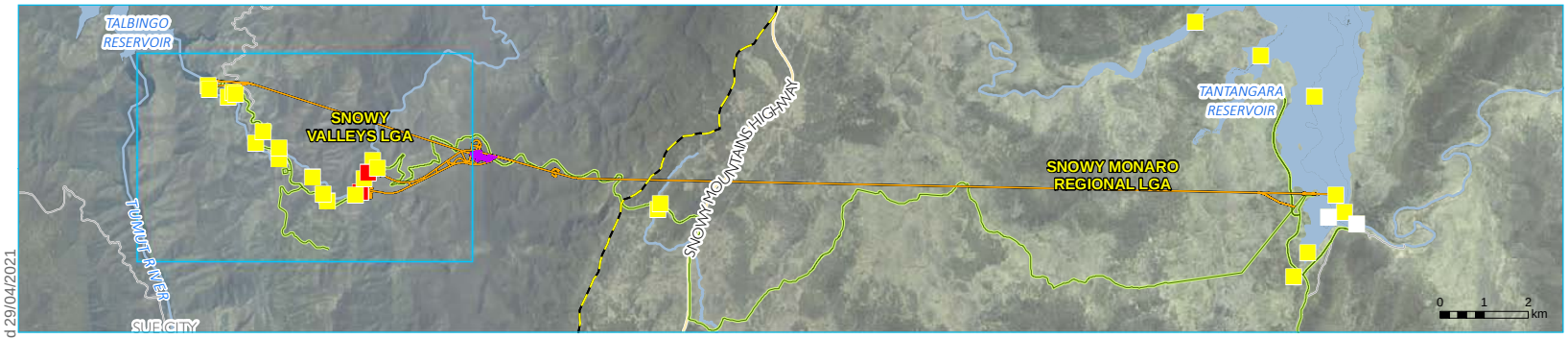

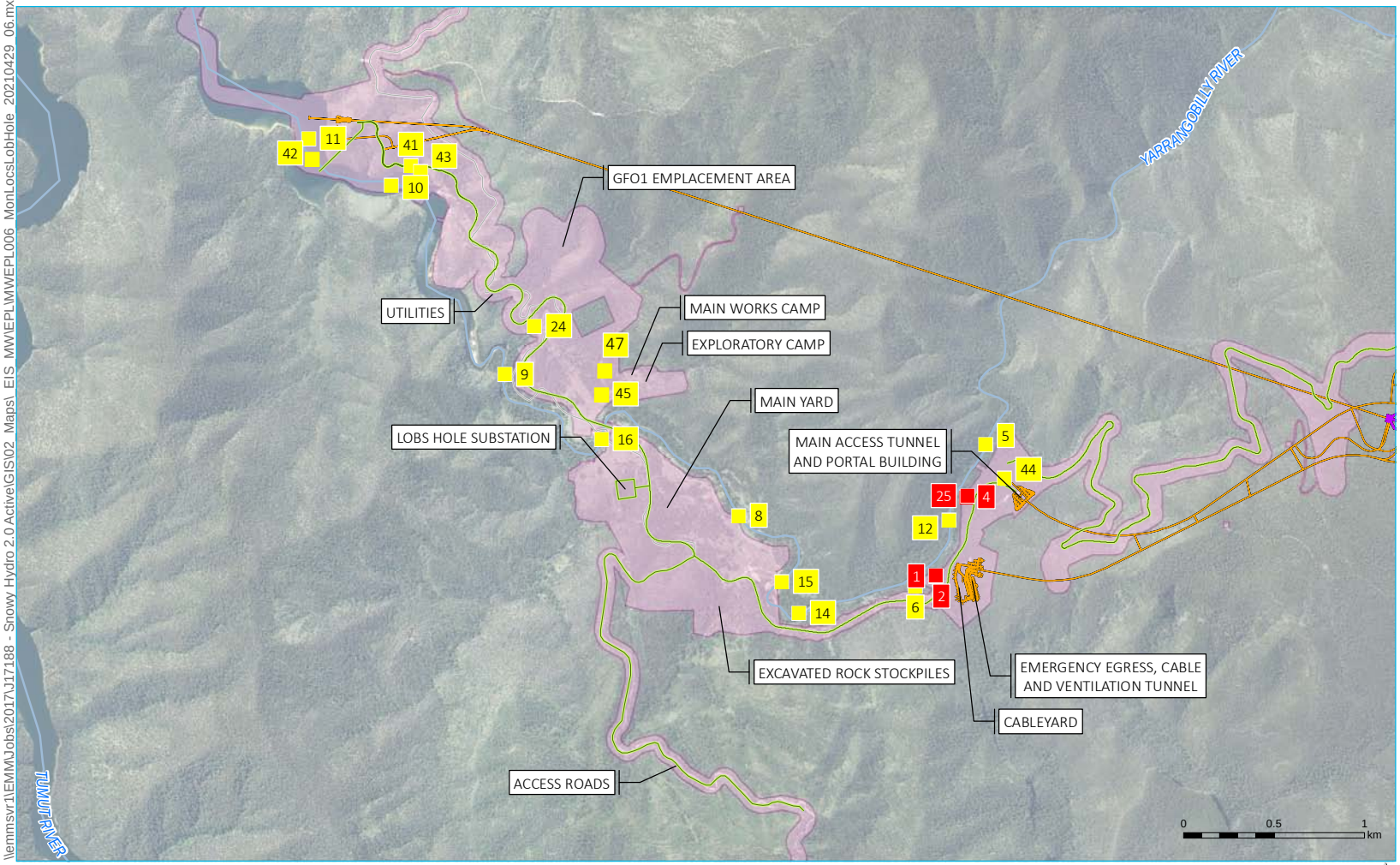

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
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Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

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EPL Premise and monitoring point maps - Lobs Hole

Snowy 2.0
Main Works
Figure 2

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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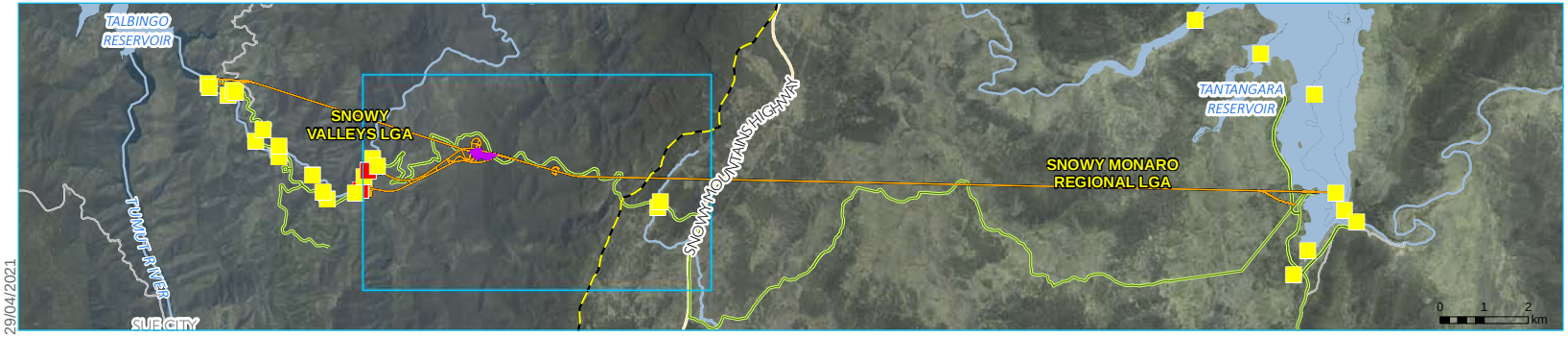

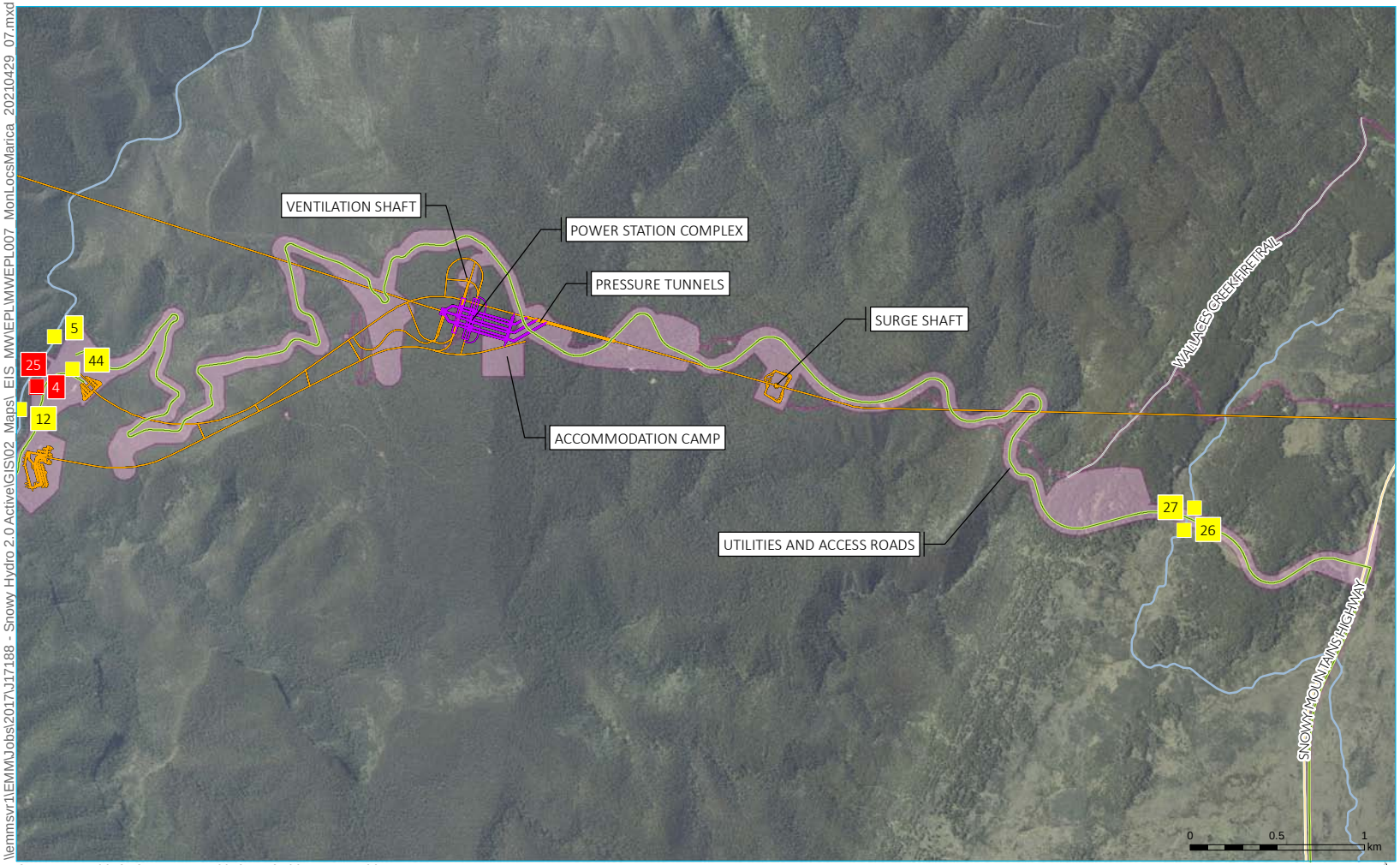

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Marica

Snowy 2.0
Main Works
Figure 3

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

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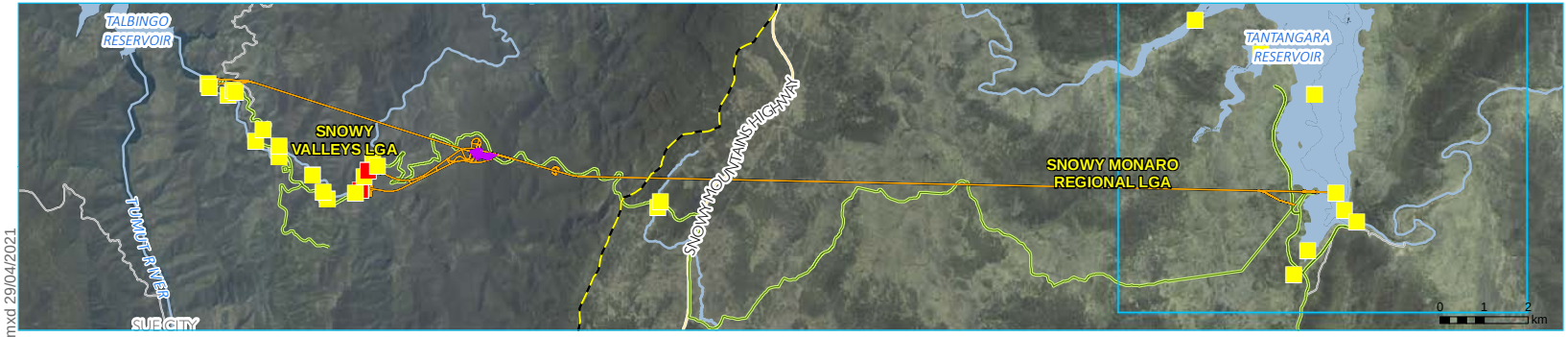

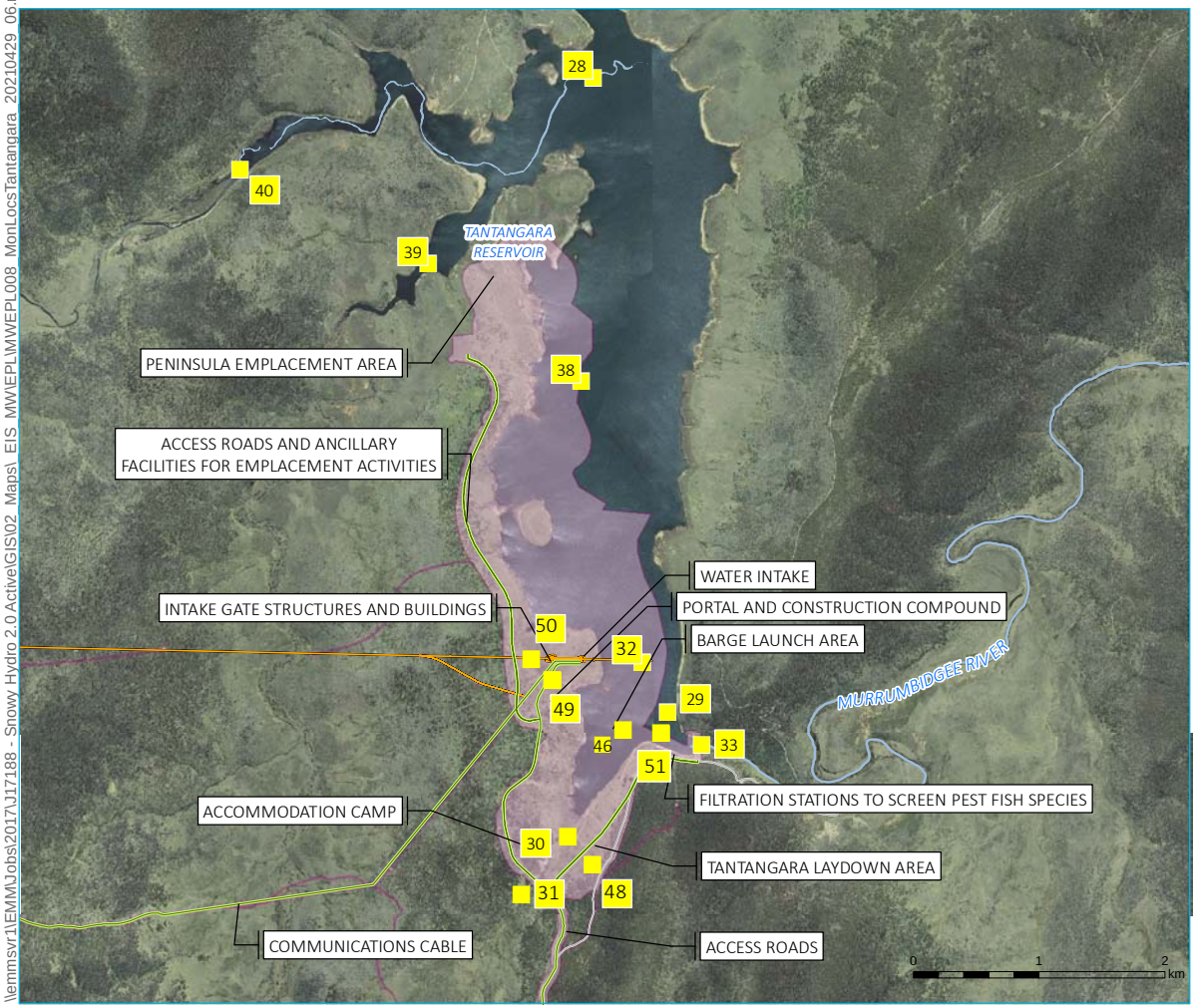

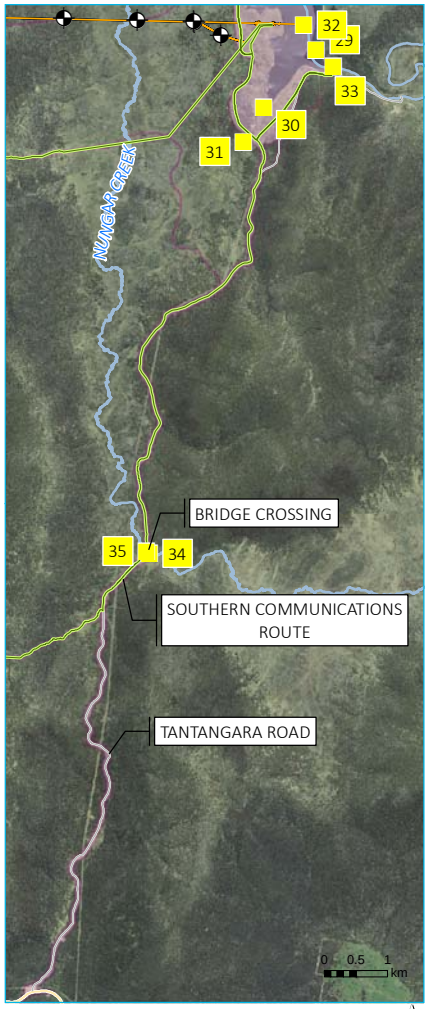

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Tantangara Reservoir

Snowy 2.0
Main Works
Figure 4

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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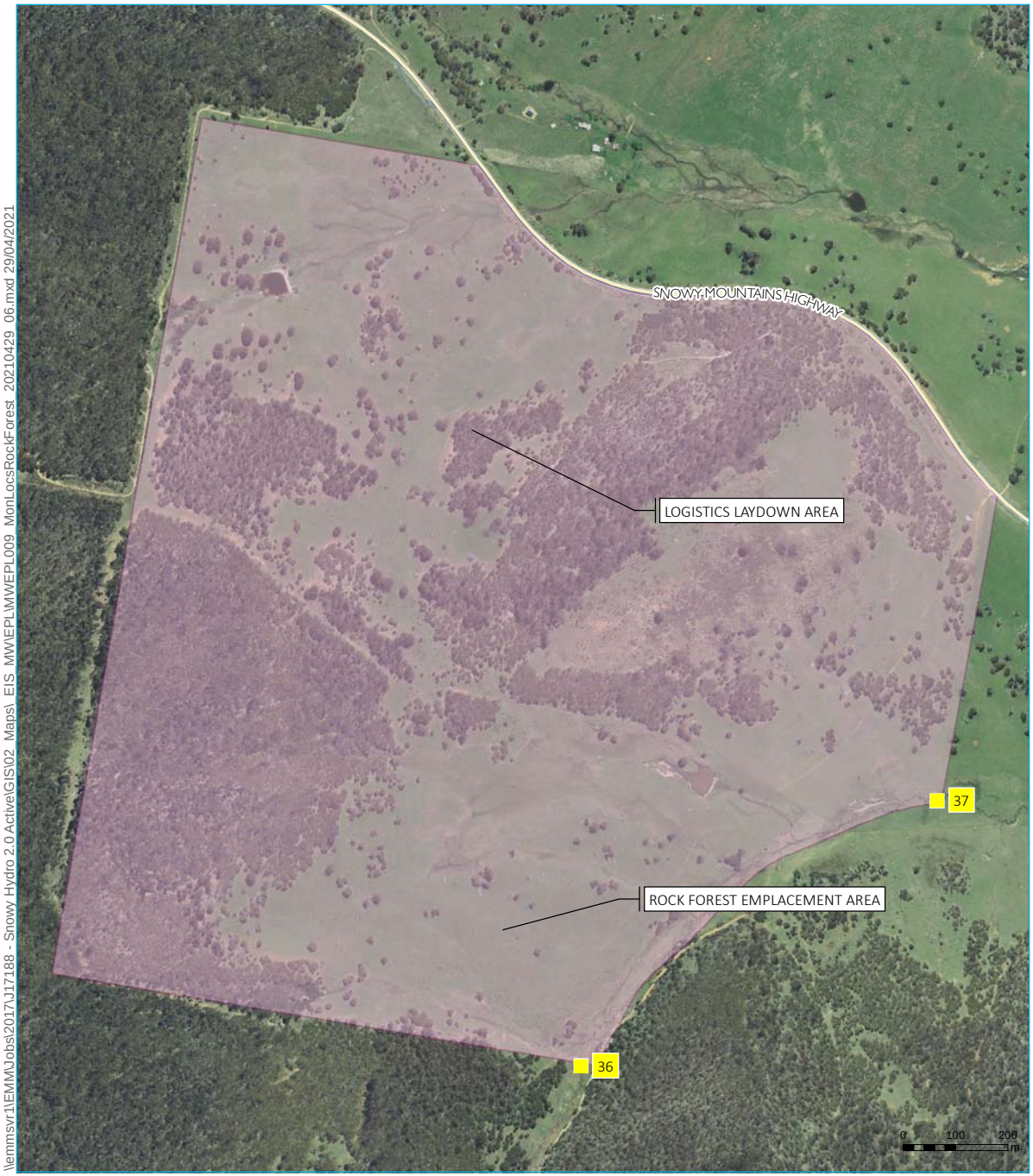

KEY

EPL monitoring point

- Surface water

Existing environment

- Main road
- Local road
- Watercourse

Snowy 2.0 Main Works operational elements

- Tunnels, portals, intakes, shafts
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Rock Forest

Snowy 2.0
Main Works
Figure 5

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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Snowy Hydro 2.0 Main Works EPL Sampling: 05 - 21 August 2022

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 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.

Sampling in August was undertake during significant rainfall events leading to high water flows and levels, and ground saturation.
No discharge was occuring at the time of sampling at the discharge locations.
Exceedances at Rock Forest, Lobs Hole, Marica and Tantangara are generally consistent upstream and downstream of the project.

The trigger action response plans included in the water management plan have been followed for all analytes with concentrations exceeding the respective water quality values. At this time, no further action is required.

Based on water quality results from upstream of the site, and a review of site activity, exceedances are not related to the site works.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 05 - 21 August 2022 - 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	7.69	7.64	5.93	5.75	5.68	5.88	6.71	6.14	5.87
Electrical Conductivity	µS/cm	-	20-30	51.9	51.2	10.4	9.4	10.4	10.2	9.1	10.7	9.5
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	-	-	280.9	279.4	284	283.2	229.7	264.3	221.4
Temperature	°C	-	No Water Quality Objective Value	10.8	10.4	6.6	6.4	6.3	6.3	6.1	6.2	6.4
Dissolved Oxygen	% saturation	-	90-110	105.1	101	97.3	93.8	88.5	85.7	102.5	90.4	88.9
Turbidity	NTU	-	1-20	-	-	3.86	5.64	6.23	5.61	3.36	3.71	6.27
Laboratory analytes												
Total suspended solids	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	17.00	22.00	5.40	5.30	<5	<5	<5	5.6	5.3
Nutrients												
Ammonia as N	µg/L	5	10	<5	<5	<5	<5	<5	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	100	630	100	130	150	110	50.0	70.0	130
Nitrogen (Total)	µg/L	10	350	100	630	100	130	150	110	50.0	70.0	130
Reactive Phosphorus	µg/L	1	5	10.0	50.0	<1	<1	<1	<1	<1	<1	<1
Phosphorus (Total)	µg/L	5	10	<5	<5	29.0	15.0	28.0	24.0	16.0	19.0	15.0
Inorganics												
Cyanide Total	µg/L	4	7	10.0	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons												
Oil and Grease	mg/L	5	5	<5	<5	<5	<5	7	<5	9	<5	21
Metals												
Aluminium (dissolved)	µg/L	5	55	<5	5.0	41.0	110	89.0	240	110	25.0	93.0
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	2.0	<1	<1	<1	<1
Copper (dissolved)	µg/L	0.5	14	<1	3.0	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	2	300	<50	<50	<50	70.0	80.0	120	70.0	<50	60.0
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	10.0	5.0	<5	<5	<5	5.0	<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^	6	5	-	-	-	-	-	-	<1
Biochemical Oxygen Demand	mg/L	2	1/5^	<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: 05 - 21 August 2022- 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	6.5	6.6	6.6	6.65	6.45	7.12	7.13	6.6	6.8	6.8	6.5	5.9	5.9	6.2	6.6	7.0	7.3	7.4
Electrical Conductivity	µS/cm	-	30-350	49.0	55.0	65.0	56.0	52.0	79.0	53.0	56.0	52.0	13.2	13.3	11.1	11.8	9.4	7.2	7.2	17.9	22.5
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	242	245	247	256	232	235	220	248.0	236.0	27.8	50.7	283.1	292.0	275.2	220.0	187.1	261.2	201.7
Temperature	°C	-	No Water Quality Objective Value	8.28	8.9	8.59	9.03	7.83	8.35	8.2	8.6	10.9	5.6	5.7	7.8	7.7	6.3	5.6	6.5	1.8	2.9
Dissolved Oxygen	% saturation	-	90-110	95.7	97.2	95.7	96.5	94.2	92.7	95.2	96.4	95.3	86.5	85.3	93.1	93.7	98.9	96.0	98.2	96.8	102.8
Turbidity	NTU	-	2-25	25	40	30	40	19	75	110	35.0	50.0	15.0	2.8	19.5	10.7	6.2	3.9	3.2	13.2	7.3
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	20	30	20	25	12	46	31	27	11.0	<5	15.0	12.0	<5	<5	<5	<5	<5	6.2
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	18	23	27	21	20	35	23	21	22.0	8.7	8.4	<5	5.5	5.3	<5	<5	8.3	9.1
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	110	60.0	200	420	310	200	450	370	150	210	130	60.0	70.0	180	40.0	60.0	110	190
Nitrogen (Total)	µg/L	10	250	120	210	210	540	350	270	550	590	190	220	140	60.0	70.0	180	40.0	60.0	110	190
Reactive Phosphorus	µg/L	1	15	5.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	4.0	2.0	3.0	6.0	5.0	4.0	4.0	3.0	3.0	4.0
Phosphorus (Total)	µg/L	5	20	38.0	34.0	<5	6.0	60.0	13.0	<5	<5	11.0	23.0	10.0	7.0	6.0	51.0	<5	12.0	19.0	14.0
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	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	6.0	<5	9.0	12.0	330	47.0	100	12.0	240	44.0	26.0	45.0	34.0	59.0	23.0	27.0	130	22.0
Arsenic (dissolved)	µg/L	1.0	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	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1.0	1	<1	2.0	<1	2.0	2.0	3.0	<1	3.0	4.0	<1	<1	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	50.0	300	<50	<50	<50	<50	370	60.0	100	<50	220	<50	<50	<50	<50	<50	<50	<50	230	80.0
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	<5	<5	<5	77.0	<5	<5	<5	7.0	19.0	<5	<5	<5	<5	<5	<5	6.0	<5
Nickel (dissolved)	µg/L	1.0	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	<5	<5	6.0	<5	<5	15.0	<5	<5	<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: 05 - 21 August 2022 - 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			-	-	1.7297	0.0509	0.1134	0.0585	0.5475	-
Outflow#	ML/day		4.32 (EPL 43 / 50)	-	0.3523	-	-	-	-	-	0.0036
Field											
pH	pH Unit	-	6.5-8.5	9.35	-	-	-	-	-	-	6.29
Electrical Conductivity	µS/cm	-	700 (EPL 41) / 200 (EPL 50)	657	-	-	-	-	-	-	6.6
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	215	-	-	-	-	-	-	277.5
Temperature	°C	-	15	18.51	-	-	-	-	-	-	10.4
Dissolved Oxygen	% saturation	-	No Water Quality Objective Value	113.4	-	-	-	-	-	-	61.1
Turbidity	NTU	-	<25	1.7	-	-	-	-	-	-	0.59
Laboratory analytes											
Total suspended solids	mg/L	5	5/10	5.8	-	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	7.3	-	-	-	-	-	-	<5
Nutrients											
Ammonia as N	mg/L	5	0.2/2^	0.37	-	-	-	-	-	-	<0.005
Kjeldahl Nitrogen Total	mg/L	10	No Water Quality Objective Value	0.81	-	-	-	-	-	-	5
Nitrogen (Total)	µg/L	10	350	810	-	-	-	-	-	-	5000
Reactive Phosphorus	µg/L	1	No Water Quality Objective Value	22	-	-	-	-	-	-	2
Phosphorus (Total)	mg/L	5	0.1/0.3^	0.02	-	-	-	-	-	-	<0.005
Inorganics											
Cyanide Total	µg/L	4	No Water Quality Objective Value	5	-	-	-	-	-	-	<4
Hydrocarbons											
Oil and Grease	mg/L	5	2/5^	<5	-	-	-	-	-	-	<5
Metals											
Aluminium (dissolved)	µg/L	5	55	1500	-	-	-	-	-	-	<5
Arsenic (dissolved)	µg/L	0.2	13	<1	-	-	-	-	-	-	<1
Chromium (III+VI) (dissolved)	µg/L	0.2	1	100	-	-	-	-	-	-	<1
Copper (dissolved)	µg/L	0.5	14	3	-	-	-	-	-	-	<1
Iron (dissolved)	µg/L	2	300	60	-	-	-	-	-	-	<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		5	<5	-	-	-	-	-	-	<10

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: 5 - 24 September 2022

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 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.

Sampling in Septmeber was undertaken following rainfall events when sampling for EPL 10 and 11.
Exceedances at Rock Forest, Lobs Hole, Marica and Tantangara are generally consistent upstream and downstream of the project with the exception of phosphorus, oil and grease and a number of sampling locations. No visible indicators of oil and grease were observed during sampling. Further investigation is being carried out to determine the source of these exceedances.

Due to a complication with the laboratory, BOD is unavailable for EPL 10, 11 and 41.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 5 - 24 September 2022 - 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	7.6	7.9	6.05	6.37	6.12	6.98	6.14	6.01	6.27
Electrical Conductivity	µS/cm	-	20-30	53	72	11.7	10.4	10.2	11.5	9.6	10.9	10.3
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	194	178	300.3	271	279.5	282.5	192.6	278.6	265.5
Temperature	°C	-	No Water Quality Objective Value	12.31	12.57	7.8	7.8	7.8	7.7	7.2	7.2	7.7
Dissolved Oxygen	% saturation	-	90-110	79.4	90.6	84.6	82	91.3	83.9	90.6	86.6	85.1
Turbidity	NTU	-	1-20	0	2.2	4.2	3.4	2.95	3.18	9	4.27	3.34
Laboratory analytes												
Total suspended solids	mg/L	5	No Water Quality Objective Value	< 5	< 5	<5	<5	<5	<5	5.3	<5	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	21.00	21.00	<5	<5	5	5.6	5	6.4	5.5
Nutrients												
Ammonia as N	µg/L	5	10	<5	<5	<5	<5	<5	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	220	330	90	160	160	60	50	60	40
Nitrogen (Total)	µg/L	10	350	210	320	90	160	440	60	50	60.0	40
Reactive Phosphorus	µg/L	1	5	1.0	<1	<1	<1	<1	<1	7	<1	<1
Phosphorus (Total)	µg/L	5	10	<5	6.00	9.0	16.0	<5	100.0	15	<5	44
Inorganics												
Cyanide Total	µg/L	4	7	<4	<4	<4	<4	5.00	<4	<4	<4	4
Hydrocarbons												
Oil and Grease	mg/L	5	5	28	17	<5	51	60	<5	<5	<5	<5
Metals												
Aluminium (dissolved)	µg/L	5	55	6.00	8.0	14	15	17	60	21	40	50
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	<50	<50	<50	<50	70	80	70	60
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	10.0	10.0	<5	<5	<5	<5	<5	<5	6
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^	<2	<1	<1	-	-	-	-	-	<1
Biochemical Oxygen Demand	mg/L	2	1/5^	-	-	<10	-	-	-	-	-	<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: 05 - 24 September 2022- 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	7.6	8.03	8.03	7.73	7.86	7.9	7.92	7.7	7.6	7.3	7.8	6.5	6.5	7.0	6.4	6.5	6.7	6.4
Electrical Conductivity	µS/cm	-	30-350	65.0	83.0	83.0	75.0	67.0	78.0	70.0	75.0	62.0	17.7	19.3	14.2	13.5	10.1	9.1	8.2	25.2	22.0
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	152	170	170	-37	155	210	189	155.0	96.0	65.5	55.4	239.9	245.7	250.3	233.5	241.6	195.0	215.3
Temperature	°C	-	No Water Quality Objective Value	10.65	10.78	10.78	6.98	10.58	10.17	10.58	7.0	8.2	8.3	8.3	9.4	9.5	7.9	8.1	8.0	9.4	9.5
Dissolved Oxygen	% saturation	-	90-110	118.4	105.4	122.6	120.9	125.6	127.7	118.8	120.9	129.6	83.3	81.4	75.1	78.6	73.6	78.7	73.5	82.6	89.7
Turbidity	NTU	-	2-25	1.5	1.4	50	1.1	0.9	1.1	0.8	1.1	3.9	5.3	6.1	12.3	8.2	3.9	4.3	5.2	3.8	5.7
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	< 5	< 5	< 5	< 5	< 5	360	< 5	< 5	< 5	<5	<5	7.9	8.9	<5	<5	<5	<5	5.5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	28	38	39	31	28	32	31	31	26.0	10	9.9	8.2	6.6	5.5	<5	<5	9.6	12
Nutrients																					
Ammonia as N	µg/L	5	13	20	21	35	11	24	13	<5	16	20	<5	<5	<5	<5	<5	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	100	610	160	<10	420	170	390	270	170	70	60	<10	30.0	30	50.0	70.0	<10	460
Nitrogen (Total)	µg/L	10	250	3000	620	160	2200	430	170	400	270	170	70	60	70	30	30	50	110	440	550
Reactive Phosphorus	µg/L	1	15	<1	<1	4	3	3	5	3	3	9	<1	<1	<1	<1	<1	3	<1	<1	<1
Phosphorus (Total)	µg/L	5	20	15	13	10	19	15	16	14	12	25	<5	13	14	18	17	27	11	21	25
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	5.0	<4	<4	<4	<4	<4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	7.0	14.0	7.0	<5	8	26.0	9	6.0	8	15	<5	45	38	40	27	35	54	64
Arsenic (dissolved)	µg/L	1.0	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	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1.0	1	<1	<1	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1
Iron (dissolved)	µg/L	50.0	300	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	80	60	60	70	80	280	260
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	<5	<5	24.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	13	14
Nickel (dissolved)	µg/L	1.0	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<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: 05 - 24 September 2022 - 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**			-	-	0.2290	0.0650	0.1004	0.0571	0.0233	-
Outflow#	**ML/day**		4.32 (EPL 43 / 50)	-	0.5310	-	-	-	-	-	-
Field											
pH	**pH Unit**	-	6.5-8.5	9.05	-	-	-	-	-	-	7.2
Electrical Conductivity	**µS/cm**	-	700 (EPL 41) / 200 (EPL 50)	199	-	-	-	-	-	-	6
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	130	-	-	-	-	-	-	172.9
Temperature	**°C**	-	15	13.85	-	-	-	-	-	-	8.3
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	24.5	-	-	-	-	-	-	72.6
Turbidity	**NTU**	-	<25	21.6	-	-	-	-	-	-	0.3
Laboratory analytes											
Total suspended solids	**mg/L**	5	5/10	6.7	-	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	13	-	-	-	-	-	-	<5
Nutrients											
Ammonia as N	**mg/L**	0.005	0.2/2^	<0.005	-	-	-	-	-	-	<0.005
Kjeldahl Nitrogen Total	**mg/L**	0.010	No Water Quality Objective Value	0.35	-	-	-	-	-	-	<0.010
Nitrogen (Total)	**mg/L**	0.010	350	0.31	-	-	-	-	-	-	0.25
Reactive Phosphorus	**mg/L**	0.001	No Water Quality Objective Value	0.024	-	-	-	-	-	-	<0.001
Phosphorus (Total)	**mg/L**	0.005	0.1/0.3^	0.066	-	-	-	-	-	-	<0.005
Inorganics											
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	8	-	-	-	-	-	-	<4
Hydrocarbons											
Oil and Grease	**mg/L**	5	2/5^	15	-	-	-	-	-	-	<5
Metals											
Aluminium (dissolved)	**µg/L**	5	55	3900	-	-	-	-	-	-	<5
Arsenic (dissolved)	**µg/L**	0.2	13	5	-	-	-	-	-	-	<1
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	400	-	-	-	-	-	-	<1
Copper (dissolved)	**µg/L**	0.5	14	6	-	-	-	-	-	-	<1
Iron (dissolved)	**µg/L**	2	300	830	-	-	-	-	-	-	<50
Lead (dissolved)	**µg/L**	0.1	3.4	<1	-	-	-	-	-	-	<1
Manganese (dissolved)	**µg/L**	0.5	1,900	49	-	-	-	-	-	-	<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	1/5^	-	-	-	-	-	-	-	<5

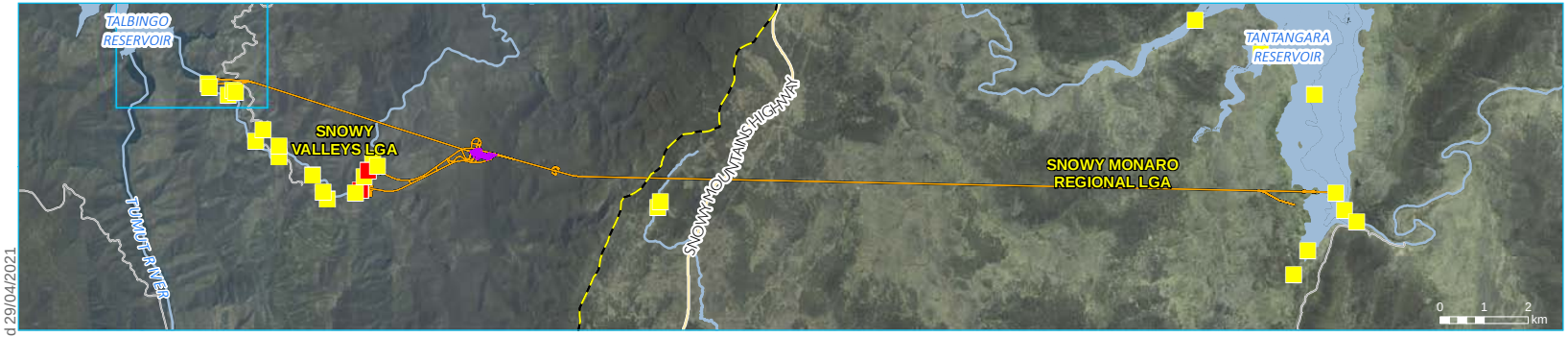
Note: Treated water was not being discharged at Talbingo and Tantangara Reservoirs at the time of EPL sampling

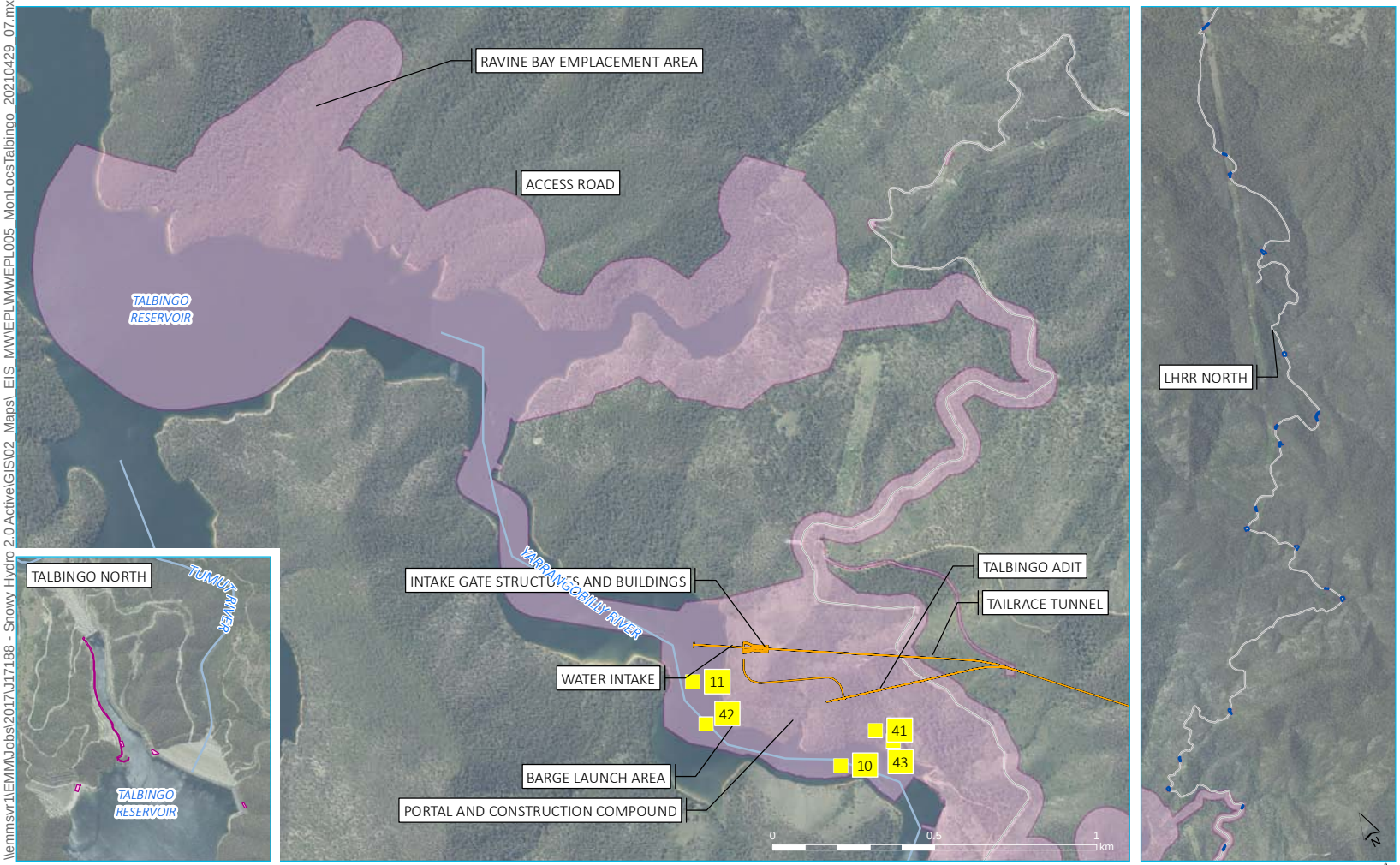
* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- 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





KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Talbingo Reservoir

Snowy 2.0
Main Works
Figure 1

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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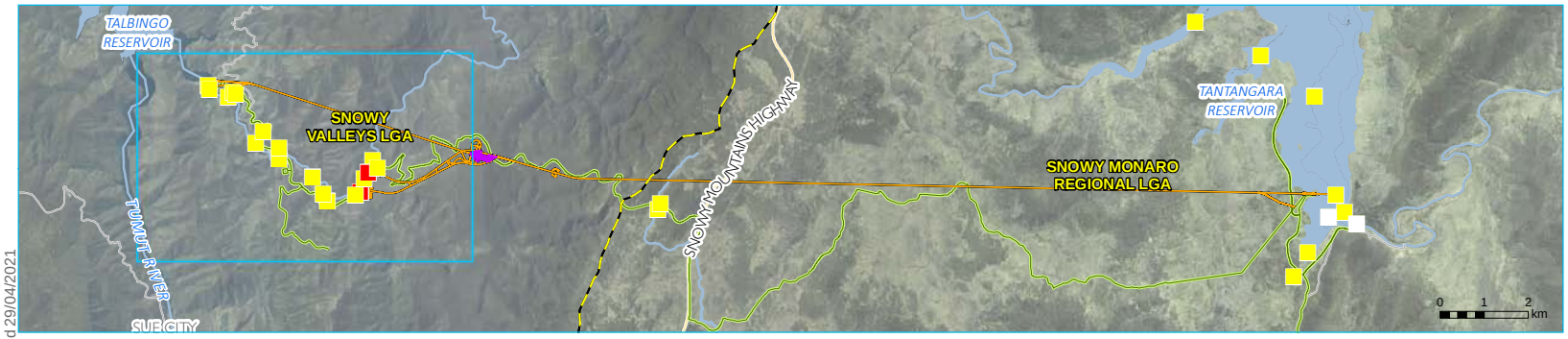

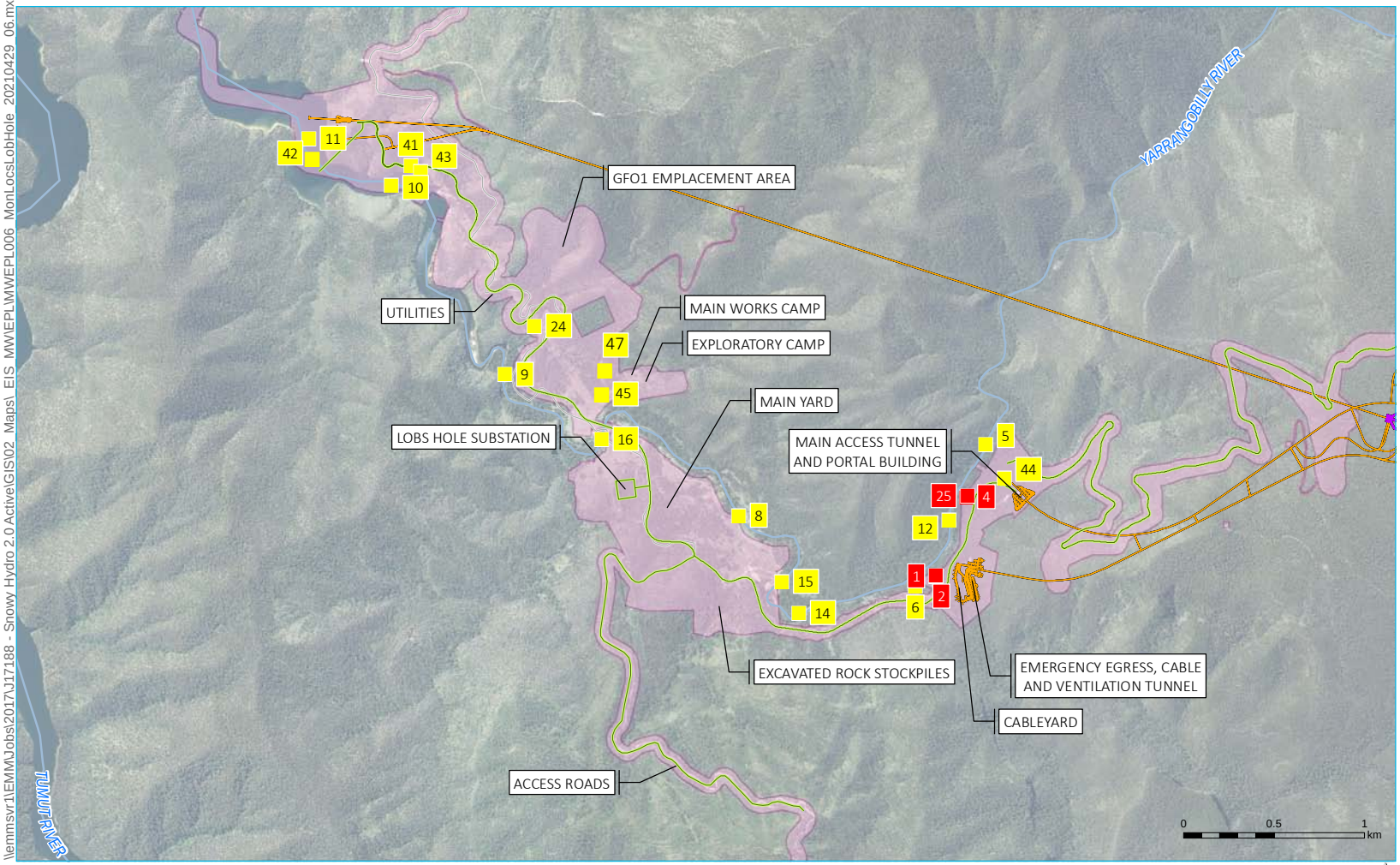

KEY

EPL monitoring point
- Groundwater
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Existing environment
- Main road
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Snowy 2.0 Main Works operational elements
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Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Lobs Hole

Snowy 2.0
Main Works
Figure 2

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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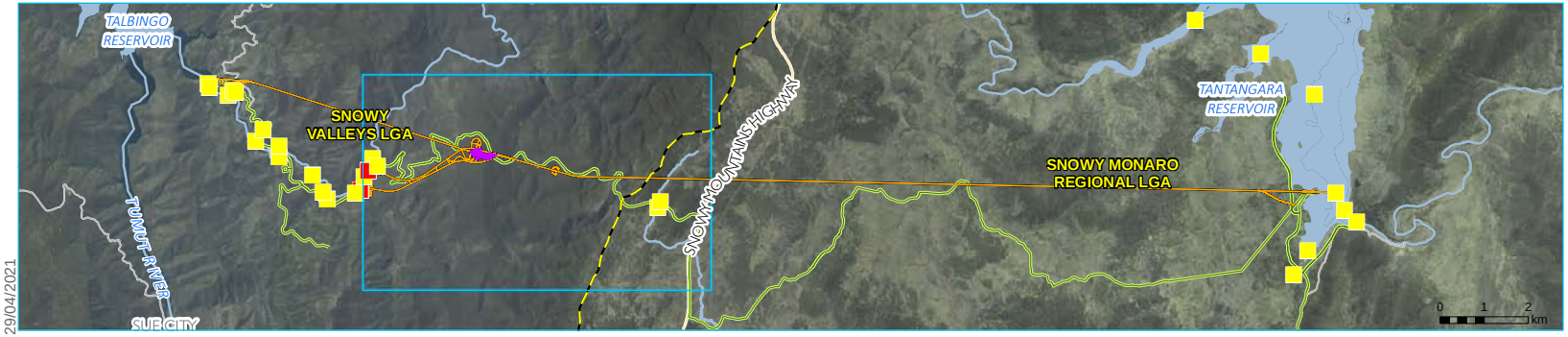

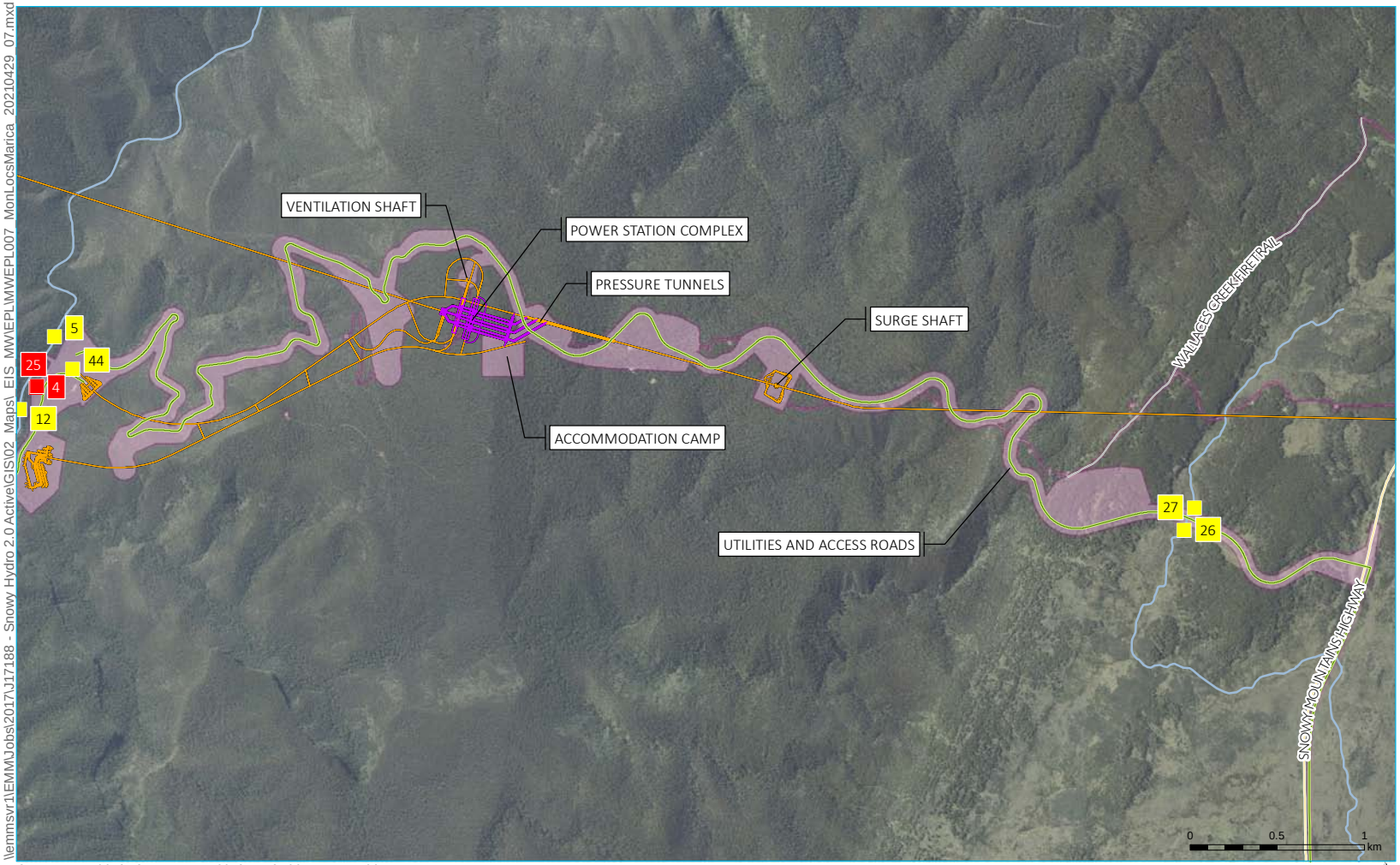

KEY

EPL monitoring point
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Existing environment
- Main road
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Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
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- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Marica

Snowy 2.0
Main Works
Figure 3

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

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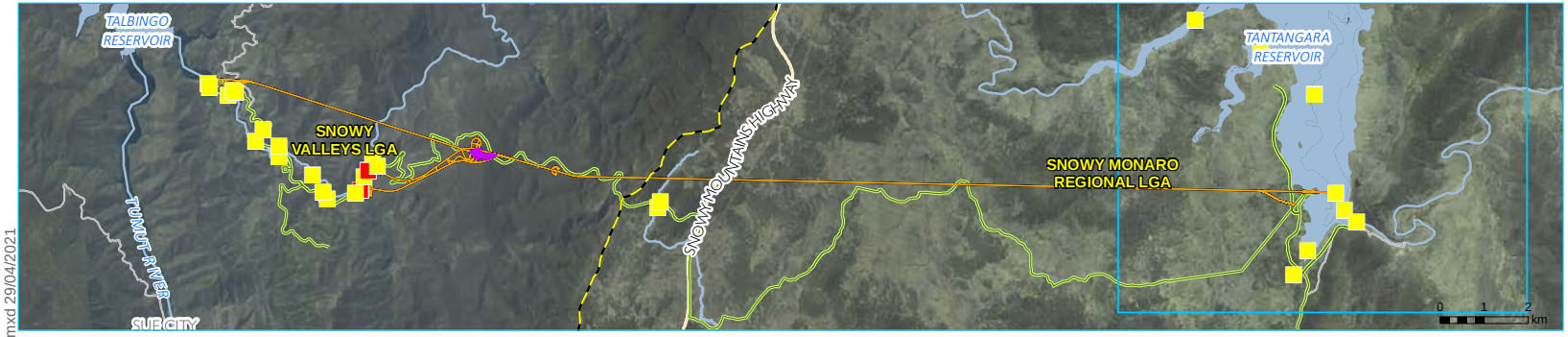

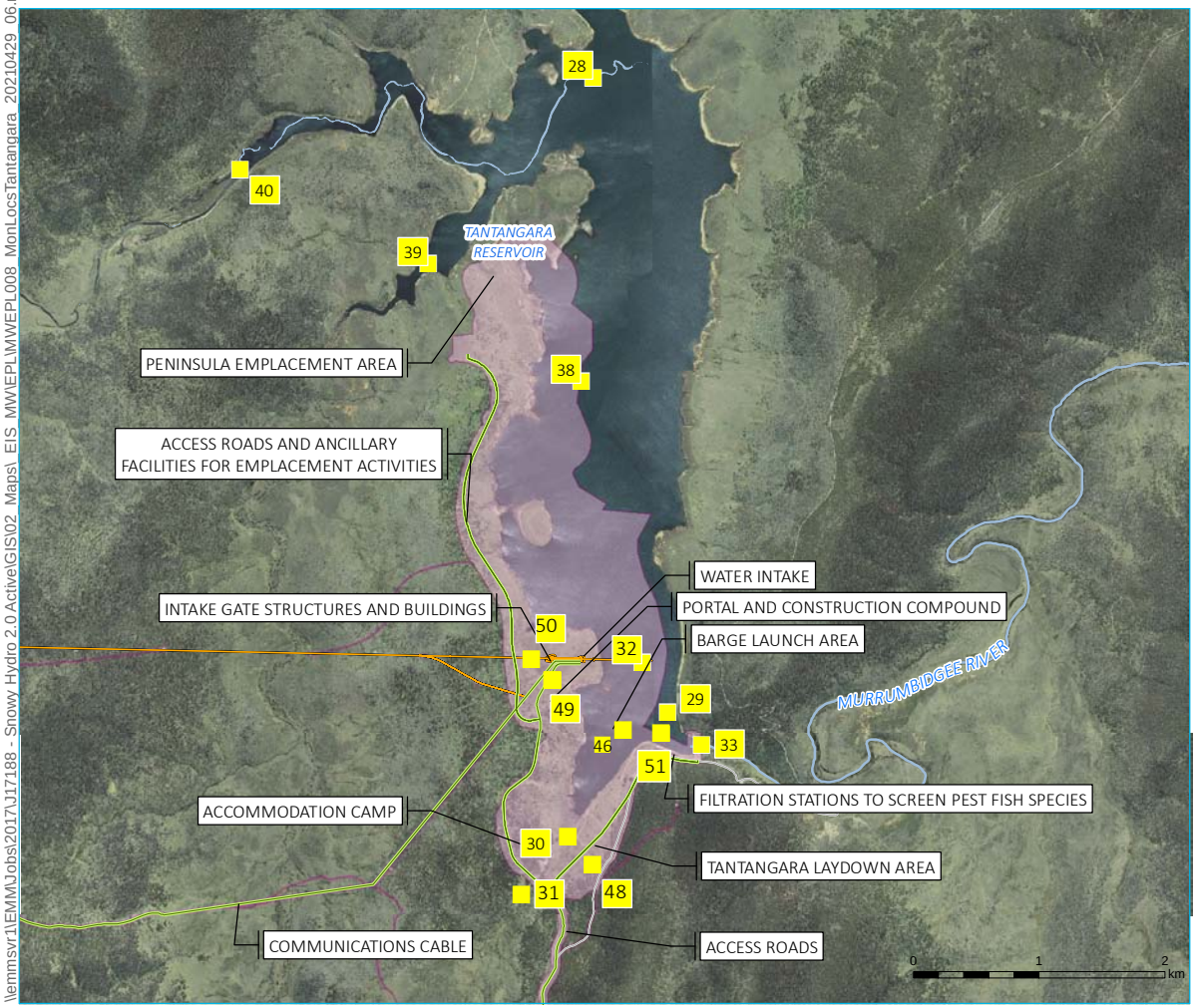

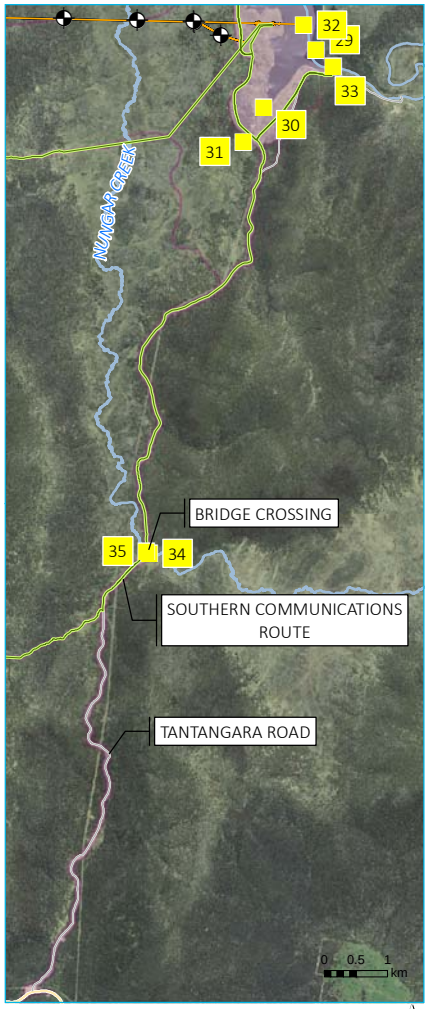

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Tantangara Reservoir

Snowy 2.0
Main Works
Figure 4

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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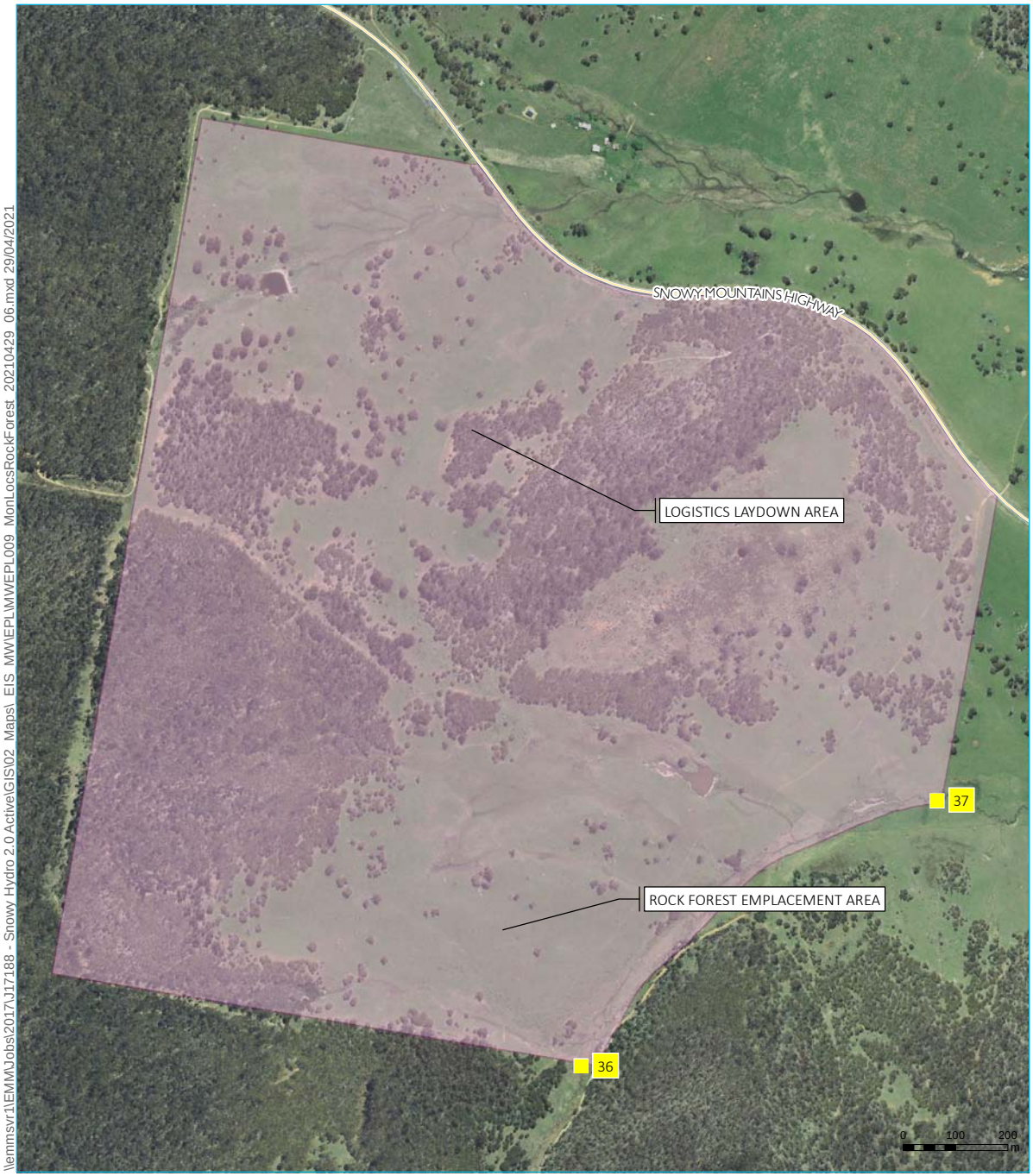

KEY

EPL monitoring point

- Surface water

Existing environment

- Main road
- Local road
- Watercourse

Snowy 2.0 Main Works operational elements

- Tunnels, portals, intakes, shafts
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Rock Forest

Snowy 2.0
Main Works
Figure 5

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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Snowy Hydro 2.0 Main Works EPL Sampling: 1 - 30 October 2022

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.

Exceedances at Rock Forest, Lobs Hole and Tantangara are generally consistent with baseline data with the exception of select analytes at a number of sampling locations. Surface water exceedances for metals (aluminium and copper) are consistent with baseline concentrations as identified in the SWMP. Oil & Grease concentrations at EPL 30 and EPL 34 only marginally exceeded the WQOs, with more significant exceedances at the two Rock Forest EPL locations (EP L36 and EPL 37). These exceedances are likely attributed to off-site agricultural activities as the upstream location (EPL 36) has no input from Rock Forest. The oil and grease exceedances that are consistent accross Tantangara and Talbingo Reserviors could pertain to error during the sampling process. Further investigation will be undertaken to determine the source of these exceedances. Phosphorous concentrations at EPL 16 and EPL 30 are marginally exceeding the WQO with EPL 14 and EPL 35 showing more significant exceedances. These could be a result of run-off derived from soil or plant materials. The EPL 9 total cyanide exceedance is likely a result of human error during the sampling process as it was the only exceedance accross the project EPL locations. Further investigation is being carried out to determine the source of this exceedance.

Dissolved oxygen (mg/L) and redox (mV) results are not available for EPL 10, EPL 11 and EPL 41 due to water quality meter error.
Due to issues with the laboratory and malfunction of the water monitoring equipment, Marica EPL sampling was not completed in October 2022 (EPL 26 and EPL 27).

No discharge of treated water to Tantangara or Talbingo Reservoirs was occuring at the time of sampling.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 1 - 30 October 2022 - 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	7.8	7.8	6.0	6.1	6.3	6.1	6.0	5.9	6.1
Electrical Conductivity	µS/cm	-	20-30	56.2	55.4	11.0	11.1	11.1	12.1	9.9	10.7	11.2
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value			216.4	261.7	253.9	269.5	237.5	227.9	261.4
Temperature	°C	-	No Water Quality Objective Value	17.6	17.2	9.5	9.3	9.5	9.3	8.8	8.3	9.4
Dissolved Oxygen	% saturation	-	90-110	108.7	107.1	110.9	92.3	92.7	93.5	91.0	96.5	92.4
Turbidity	NTU	-	1-20	2.7	2.8	3.8	3.1	3.2	3.0	2.6	2.6	3.8
Laboratory analytes												
Total suspended solids	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	19.0	26.0	<5	6.0	6.0	5.9	4.8	6.1	<5
Nutrients												
Ammonia as N	µg/L	5	10	<5	<5	<5	25.0	<5	<5	<5	25.0	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	100.0	50.0	100.0	130.0	100.0	90.0	100.0	80.0	120.0
Nitrogen (Total)	µg/L	10	350	100.0	50.0	100.0	130.0	100.0	90.0	100.0	80.0	160.0
Reactive Phosphorus	µg/L	1	5	20.0	2.0	1.0	2.0	3.0	2.0	3.0	3.0	<1
Phosphorus (Total)	µg/L	5	10	6.0	<5	19.0	20.0	91.0	15.0	14.0	37.0	11.0
Inorganics												
Cyanide Total	µg/L	4	7	<4	4.0	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons												
Oil and Grease	mg/L	5	5	25.0	53.0	12.0	11.0	11.0	15.0	8.6	11.0	9.7
Metals												
Aluminium (dissolved)	µg/L	5	55	17.0	14.0	53.0	47.0	62.0	46.0	59.0	21.0	45.0
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	1.0	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	0.5	14	<1	3.0	<1	<1	<1	<1	<1	<1	<1
Iron (dissolved)	µg/L	2	300	<50	<50	70.0	60.0	80.0	60.0	70.0	<50	60.0
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	<5	<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	7.0	<5	<5	<5	<5	<5	<5	<5	<5
Biological												
Faecal Coliforms	CFU/100mL	1	10/100^	<1	<1	<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.

^ 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 October 2022- 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	6.9	7.6	7.5	7.8	7.5	7.6	7.6	7.5	7.3	-	-	6.4	6.0	5.9	5.9	5.9	8.2	6.4
Electrical Conductivity	µS/cm	-	30-350	54.0	77.0	81.0	66.0	59.0	80.0	66.0	66.0	57.0	-	-	12.5	10.7	10.8	7.9	7.9	22.5	20.6
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	97	128	170	134	71	153	160	176.0	127.0	-	-	218.1	245.3	248.5	227.8	229.2	88.8	214.2
Temperature	°C	-	No Water Quality Objective Value	9.5	8.9	10.9	13.1	11.0	9.5	10.4	11.0	16.6	-	-	10.2	9.9	9.1	8.6	8.5	9.5	10.2
Dissolved Oxygen	% saturation	-	90-110	85.7	91.5	90.1	62.7	92.7	87.6	92.6	87.1	64.9	-	-	83.8	90.6	89.5	85.7	92.5	106.4	89.8
Turbidity	NTU	-	2-25	8	9	7	7	6	6	7.5	6.0	6.0	-	-	5.5	4.2	3.7	3.6	3.8	4.6	5.2
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	27.0	38.0	39.0	36.0	30.0	42.0	33.0	34.0	27.0	-	-	6.4	6.0	6.1	4.2	4.2	12.0	12.0
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	140.0	60.0	50.0	40.0	40.0	20.0	100.0	30.0	50.0	-	-	90.0	90.0	100.0	90.0	100.0	80.0	40.0
Nitrogen (Total)	µg/L	10	250	140.0	100.0	50.0	40.0	40.0	20.0	120.0	30.0	50.0	-	-	90.0	90.0	100.0	90.0	100.0	80.0	40.0
Reactive Phosphorus	µg/L	1	15	4.0	5.0	4.0	4.0	4.0	5.0	4.0	8.0	2.0	-	-	3.0	3.0	3.0	2.0	2.0	2.0	3.0
Phosphorus (Total)	µg/L	5	20	<5	<5	8.0	7.0	<5	190.0	<5	23.0	10.0	-	-	24.0	10.0	14.0	11.0	110.0	12.0	18.0
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	230.0	<4	<4	<4	<4	<4	-	-	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	5.5	<5	<5	6.1	<5	12.0	29.0
Metals																					
Aluminium (dissolved)	µg/L	5.0	27	44.0	19.0	36.0	36.0	26.0	23.0	26.0	32.0	38.0	-	-	23.0	17.0	44.0	39.0	21.0	35.0	30.0
Arsenic (dissolved)	µg/L	1.0	0.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1
Chromium (III+VI) (dissolved)	µg/L	1.0	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1	1.0	<1	<1	<1
Iron (dissolved)	µg/L	50.0	300	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	-	<50	<50	<50	<50	<50	150.0	150.0
Lead (dissolved)	µg/L	1.0	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1
Manganese (dissolved)	µg/L	5.0	1,200	<5	<5	<5	<5	<5	<5	<5	<5	29.0	-	-	<5	<5	<5	<5	<5	<5	<5
Nickel (dissolved)	µg/L	1.0	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1
Silver (dissolved)	µg/L	5.0	0.02	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<5	<5	<5
Zinc (dissolved)	µg/L	5.0	2.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	<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 October 2022 - 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**			-	-	0.8446	0.0422	0.0902	0.0591	0.0632	-
Outflow#	**ML/day**		4.32 (EPL 43 / 50)	-	0.5145	-	-	-	-	-	-
Field											
pH	**pH Unit**	-	6.5-8.5	8.1	-	-	-	-	-	-	6.5
Electrical Conductivity	**µS/cm**	-	700 (EPL 41) / 200 (EPL 50)	346.0	-	-	-	-	-	-	7.3
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	504.0	-	-	-	-	-	-	205.8
Temperature	**°C**	-	15	20.4	-	-	-	-	-	-	10.9
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	107.4	-	-	-	-	-	-	78.8
Turbidity	**NTU**	-	<25	30.2	-	-	-	-	-	-	1.7
Laboratory analytes											
Total suspended solids	**mg/L**	5	5/10	24.0	-	-	-	-	-	-	<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^	<5	-	-	-	-	-	-	44.0
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	25000.0	-	-	-	-	-	-	130.0
Nitrogen (Total)	**µg/L**	10	350	24000.0	-	-	-	-	-	-	360.0
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	4.0	-	-	-	-	-	-	18.0
Phosphorus (Total)	**mg/L**	5	0.1/0.3^	0.0	-	-	-	-	-	-	0.0
Inorganics											
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	<4	-	-	-	-	-	-	<4
Hydrocarbons											
Oil and Grease	**mg/L**	5	2/5^	13.0	-	-	-	-	-	-	<5
Metals											
Aluminium (dissolved)	**µg/L**	5	55	110.0	-	-	-	-	-	-	<5
Arsenic (dissolved)	**µg/L**	0.2	13	1.0	-	-	-	-	-	-	<1
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	48.0	-	-	-	-	-	-	<1
Copper (dissolved)	**µg/L**	0.5	14	4.0	-	-	-	-	-	-	<1
Iron (dissolved)	**µg/L**	2	300	50.0	-	-	-	-	-	-	<50
Lead (dissolved)	**µg/L**	0.1	3.4	1.0	-	-	-	-	-	-	<1
Manganese (dissolved)	**µg/L**	0.5	1,900	5.0	-	-	-	-	-	-	<5
Nickel (dissolved)	**µg/L**	0.5	11	1.0	-	-	-	-	-	-	<1
Silver (dissolved)	**µg/L**	0.01	0.05	5.0	-	-	-	-	-	-	<5
Zinc (dissolved)	**µg/L**	1	8	5.0	-	-	-	-	-	-	<5
Biological											
Faecal Coliforms	**CFU/100mL**	1	10/100^	<1	-	-	-	-	-	-	<1
Biological Oxygen Demand	**mg/L**		5	<5	-	-	-	-	-	-	<5

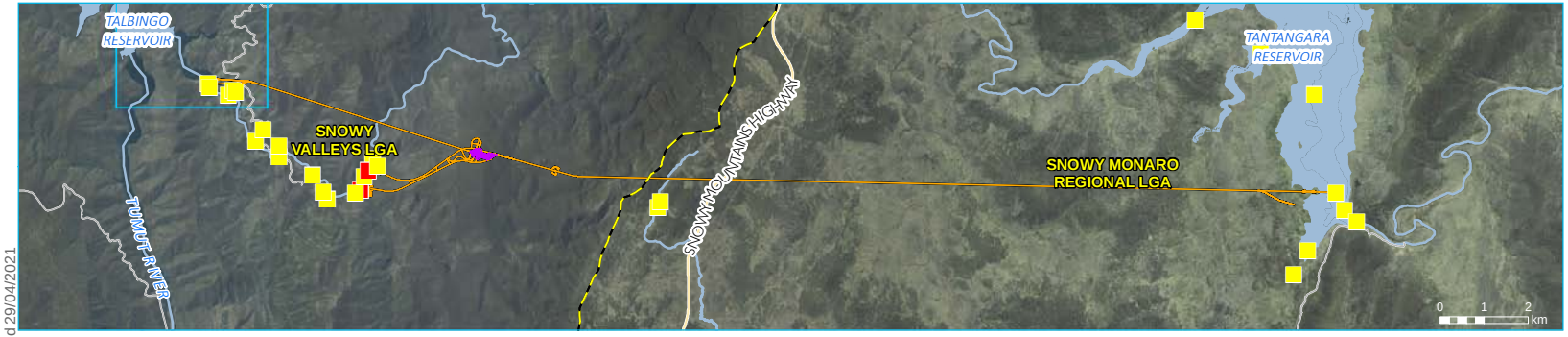
Note: Treated water was not being discharged at Talbingo and Tantangara Reservoirs at the time of EPL sampling

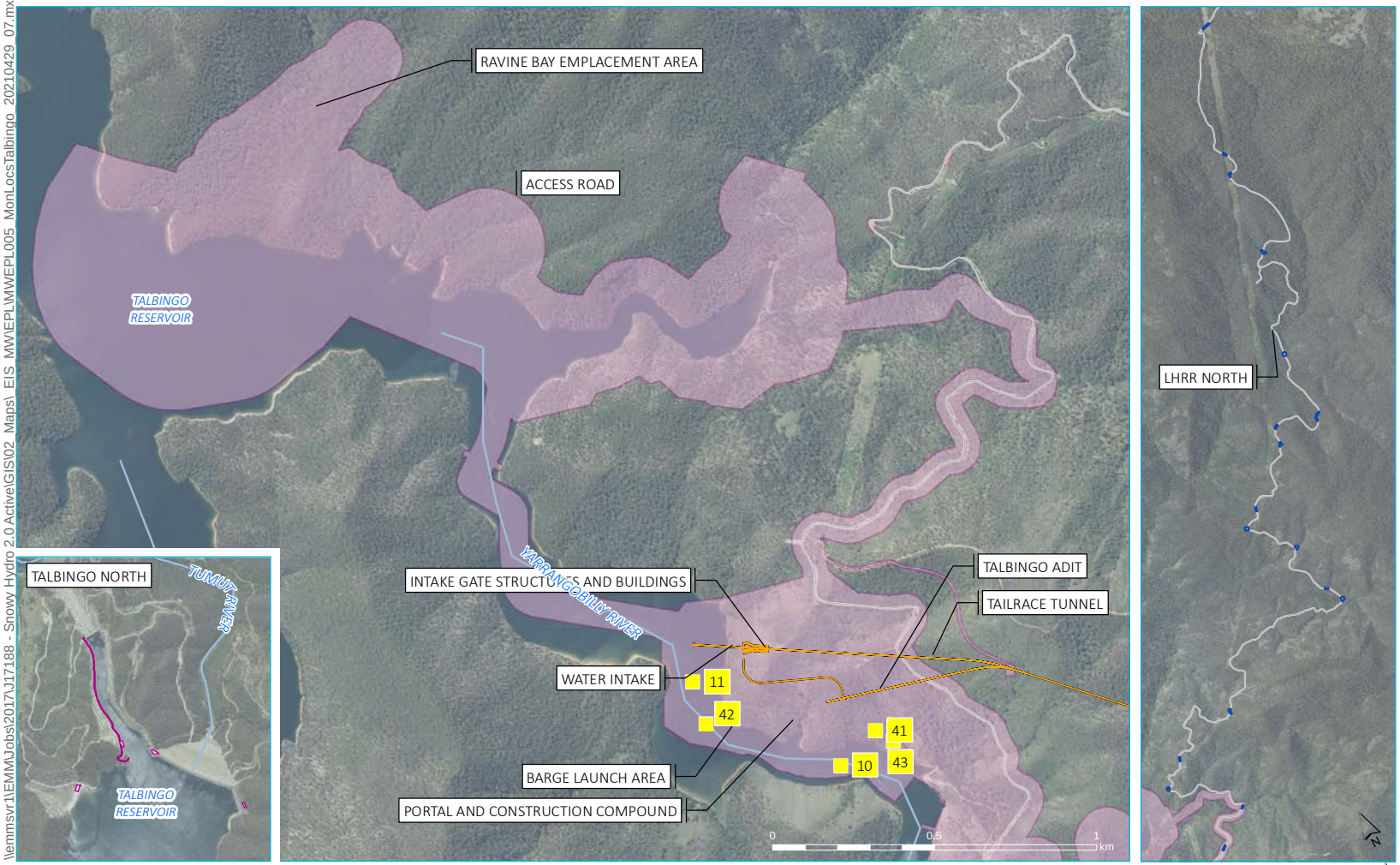
* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- 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





KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
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Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Talbingo Reservoir

Snowy 2.0
Main Works
Figure 1

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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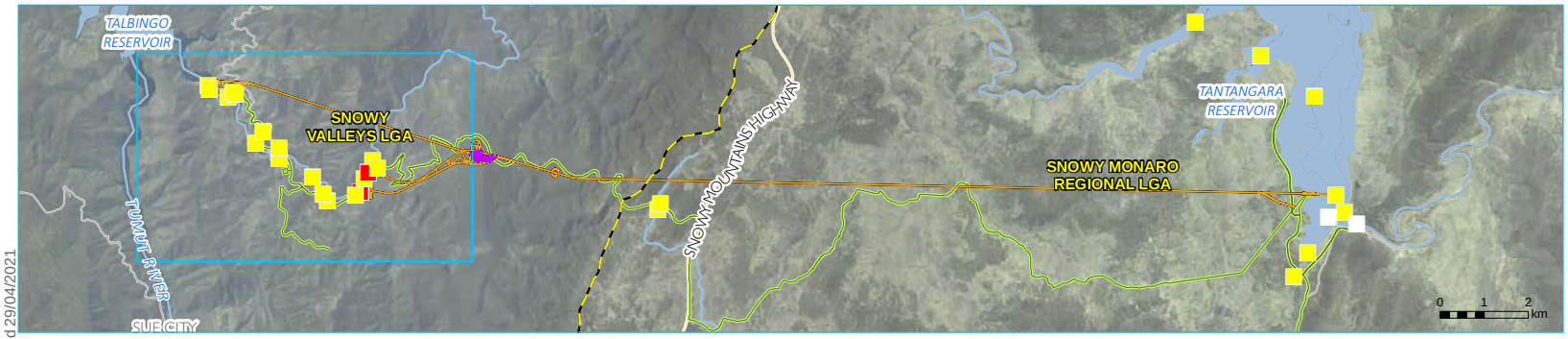

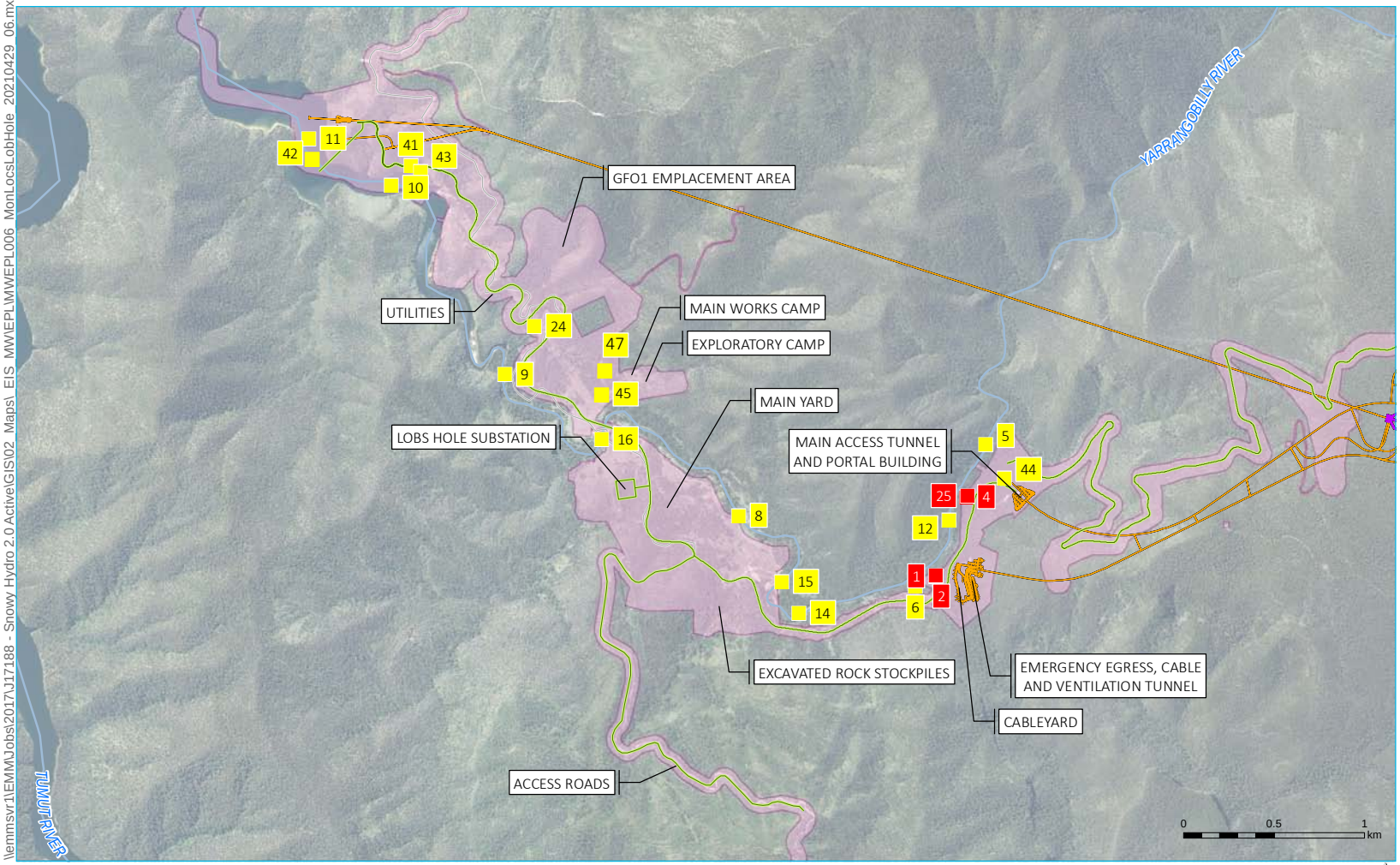

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- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Lobs Hole

Snowy 2.0
Main Works
Figure 2

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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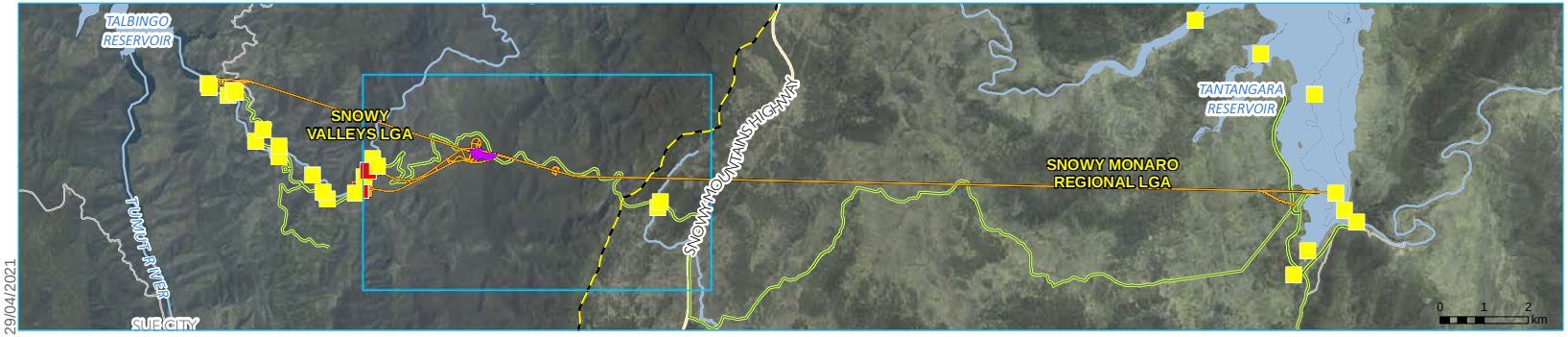

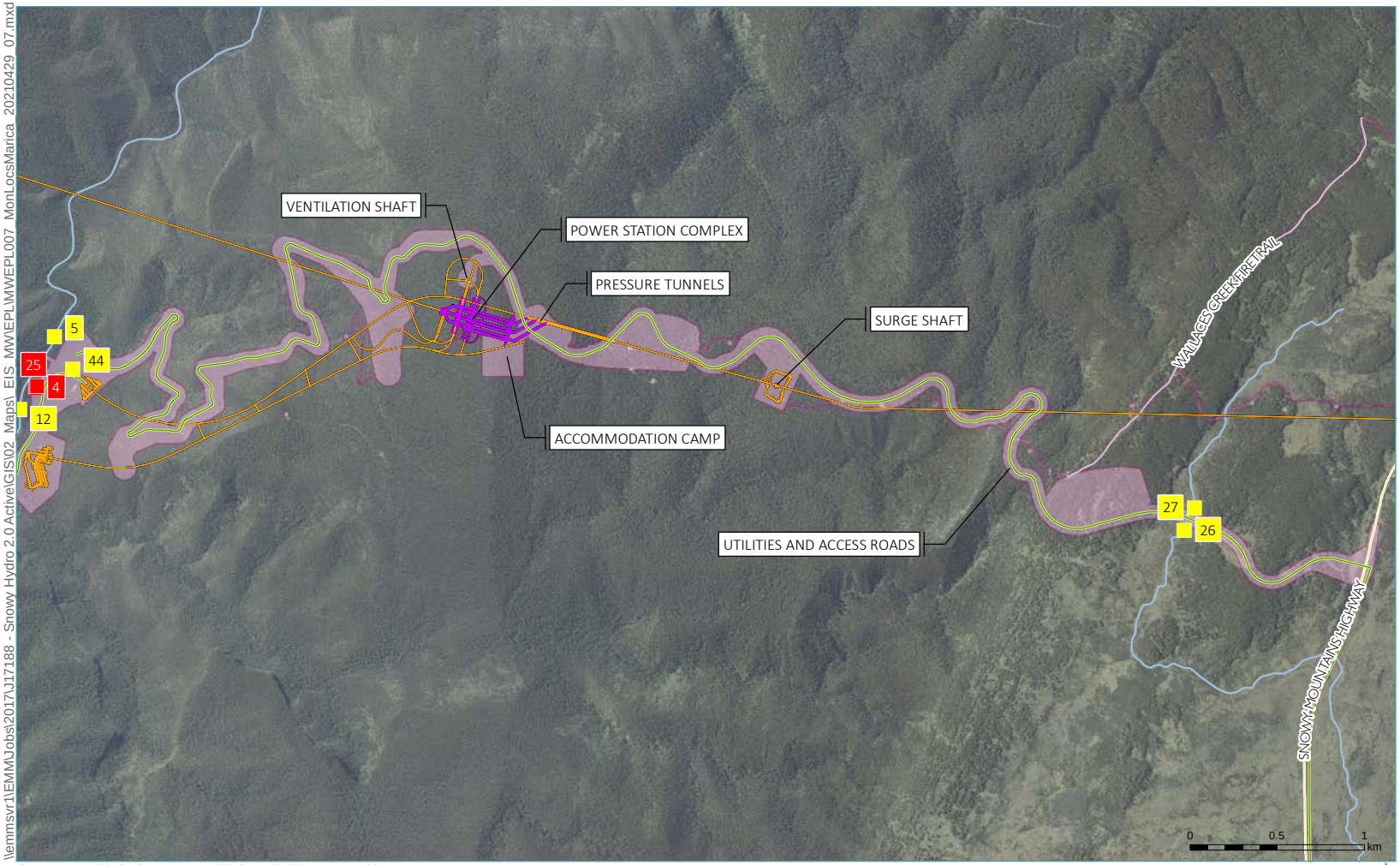

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Marica

Snowy 2.0
Main Works
Figure 3

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

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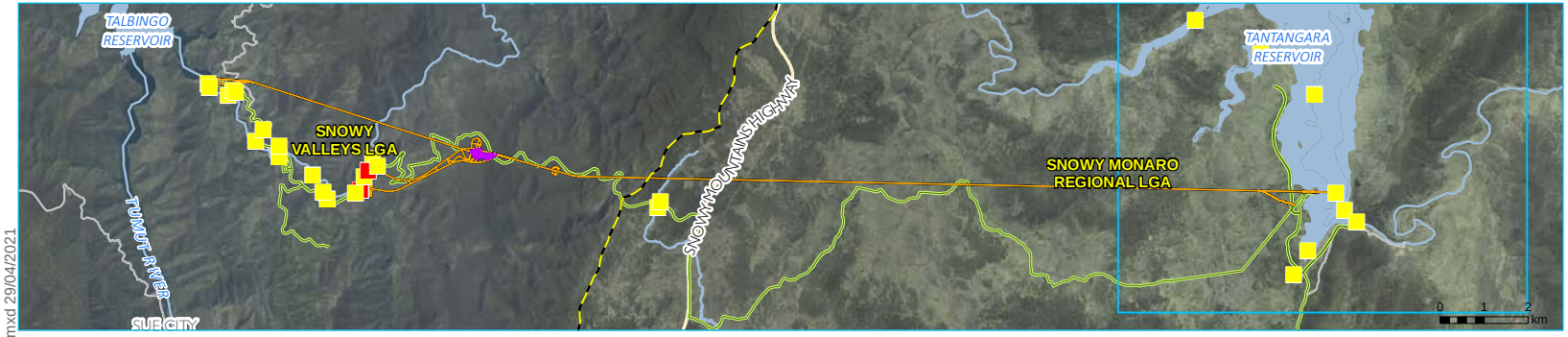

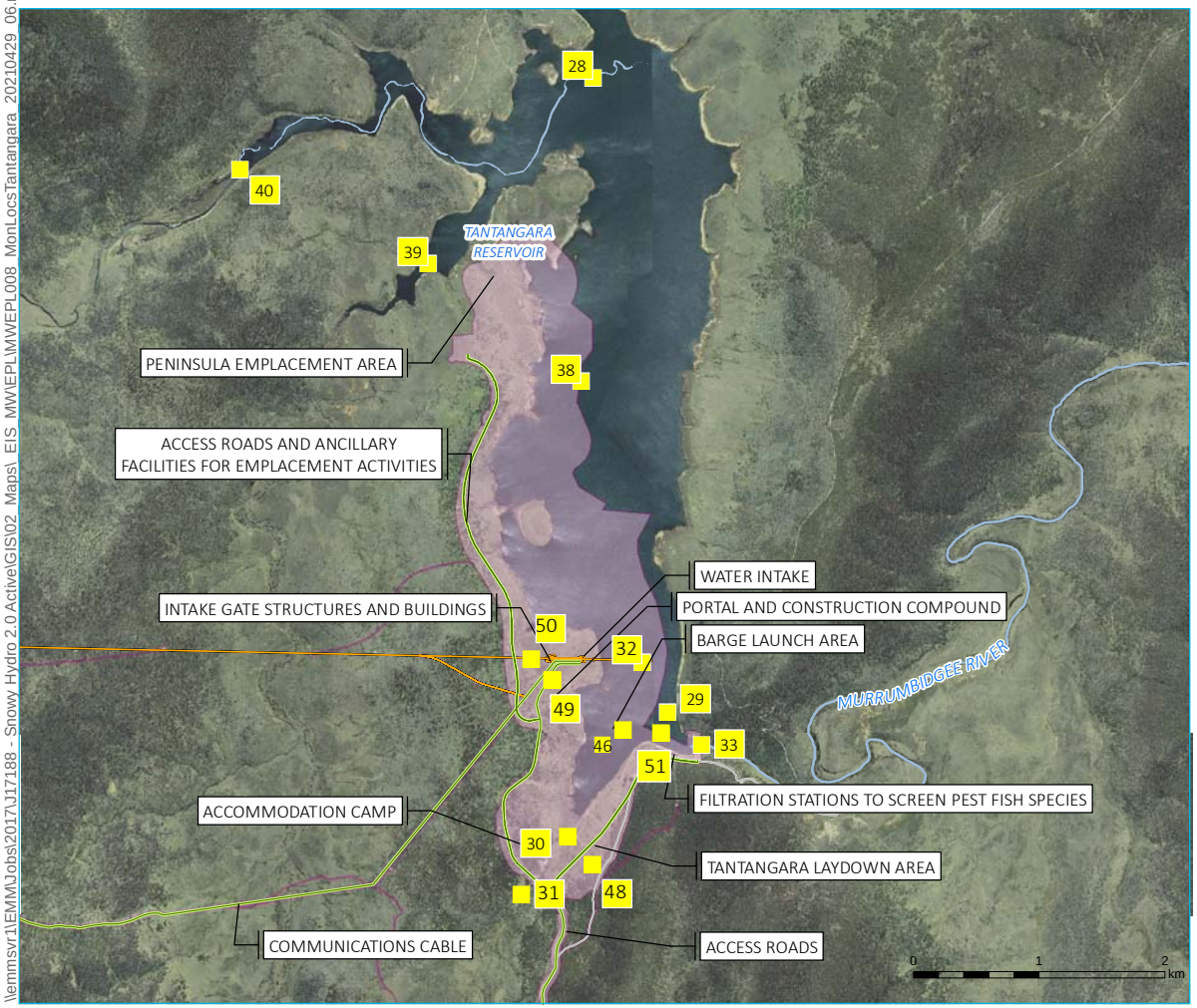

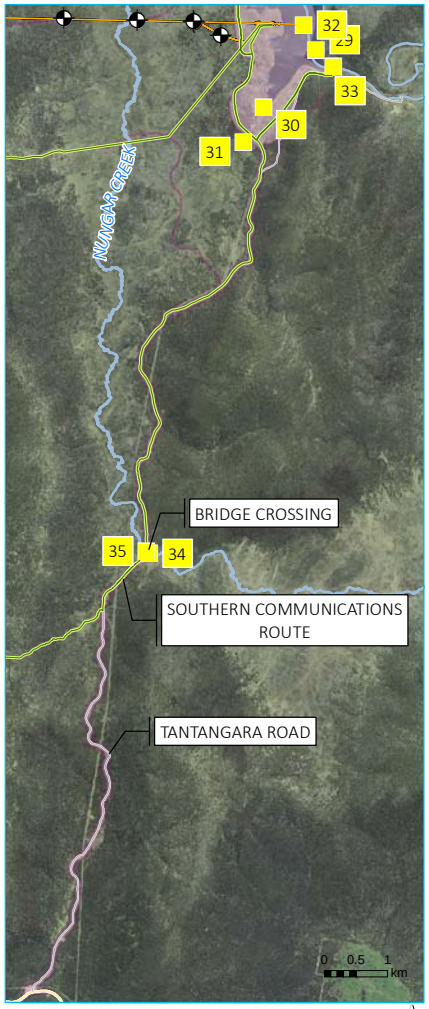

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Tantangara Reservoir

Snowy 2.0
Main Works
Figure 4

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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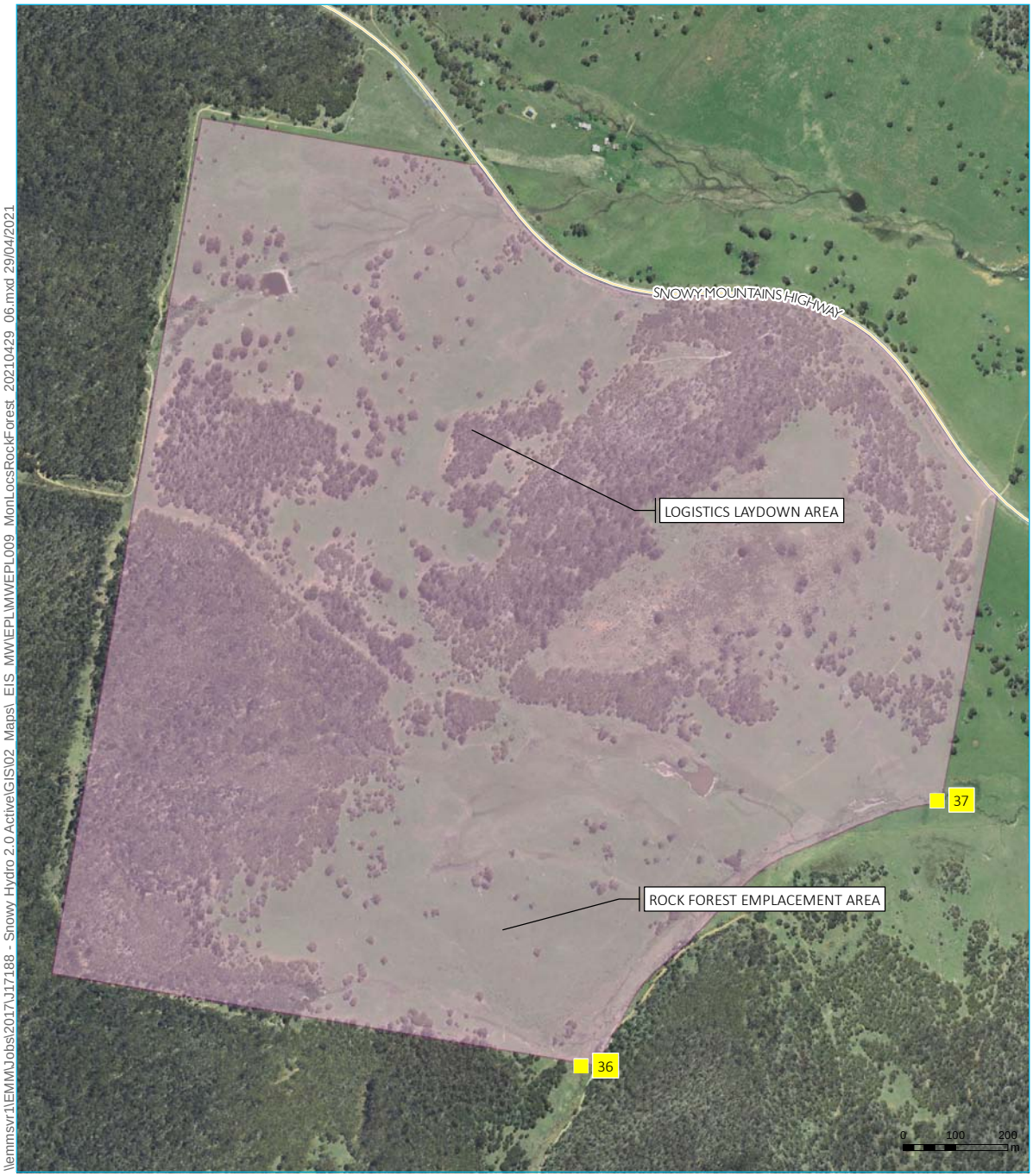

KEY

EPL monitoring point

- Surface water

Existing environment

- Main road
- Local road
- Watercourse

Snowy 2.0 Main Works operational elements

- Tunnels, portals, intakes, shafts
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Rock Forest

Snowy 2.0
Main Works
Figure 5

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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Snowy Hydro 2.0 Main Works EPL Sampling: 01 - 30 November 2022

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.

EPL sampling in Lobs Hole was completed on 5/11/2022 and 7/11/2022. EPL26 and EPL27 at Marica were sampled on 9/11/2022 and Tantangara EPL locations were sampled on 12/11/2022.

Exceedances at EPL sites are generally consistent with baseline data with an exception of select analyes at a number of sampling locations. Dissolved oxygen results that failed to reach the WQO occured at Marica and Tantangara only, water quality meter error is belived to be the issue. Oil and grease exceedances occured again at a number of sites in November 2022 and is being investigated further to determine the root cause. Sampling error or external laboratory issues are likely to have contributed to this rather than construction activities due to exceedances occuring accross most EPL locations. Nutrients, particularly ammonia and phosphorus, exceedances are likely attributed to runoff from naturally occuring soil or plant material. The reactive phosphorus exceedance at EPL27 is likey to be attributed to offsite activities as this site is upstream of Marica Road, hence before construction inputs. The exceedances reported at EPL41 (PWTP at Talbingo) are being investigated.

The PWTP was not discharging into Talbingo or Tantangara Resevoir during the time of sampling or from this point until treatment processes had been rectified and WQO achieved.

Groundwater results are generally consistent with previous monitoring rounds. The high iron levels alongside hydrogen sulphide odours could be indicative of the potential for acid mine drainage occurring. Nutrient concentrations that exceeded WQO are likely a result of natural influence.
Due to laboratory error, nitrogen and Kjeldahl is not available for a number of EPL samples.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 11 November 2022 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	7.72	7.79	7.52	6.64
Electrical Conductivity	**µS/cm**	-	30-350	965	177	999	394
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	-91	-67	-96	-3
Temperature	**°C**	-	No Water Quality Objective Value	19.58	21.97	17.0	18.7
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	19.8	24.5	8.9	20
Turbidity	**NTU**	-	No Water Quality Objective Value	302	621	278	1000
Nutrients							
Nitrogen (Total)	**µg/L**	10	250	1,100	300	600	500
Reactive Phosphorus	**µg/L**	1	15	50	<50	<50	<50
Metals							
Aluminium (dissolved)	**µg/L**	5	27	<5	<5	6	<5
Copper (dissolved)	**µg/L**	0.5	1	<1	<1	<1	<1
Iron (dissolved)	**µg/L**	2	300	310	2,600	740	6,100
Lead (dissolved)	**µg/L**	0.1	1	<1	<1	<1	<1
Manganese (dissolved)	**µg/L**	0.5	1,200	140	180	150	1,300
Nickel (dissolved)	**µg/L**	0.5	8	3	<1	1	13
Silver (dissolved)	**µg/L**	0.01	0.02	<5	<5	<5	<5
Zinc (dissolved)	**µg/L**	1	2.4	<5	<5	<5	21

* 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 November 2022 - 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	7.6	7.9	7.6	7.5	7.5	7.6	6.8	7.3	7.25	7.3
Electrical Conductivity	µS/cm	-	20-30	42	44	16.9	17.9	17.4	16.9	15.5	17.3	17.7	17.8
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	-60	-73	-50	-62.6	-82	-116.5	-6	-31.5	-87	-85.1
Temperature	°C	-	No Water Quality Objective Value	15.82	15.73	15.6	17.6	16.5	15.7	15.4	14.7	16.9	17.3
Dissolved Oxygen	% saturation	-	90-110	99.6	107.5	93.8	92.9	94.9	93.5	90.7	88.3	93.5	95.2
Turbidity	NTU	-	1-20	18.9	48	7	2.3	2	2	2.4	1.7	1.76	2
Laboratory analytes													
Total suspended solids	mg/L	5	No Water Quality Objective Value	9.1	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	15	20	5.1	8.9	7.4	7.4	6.6	7.6	7.1	<5
Nutrients													
Ammonia as N	µg/L	5	10	11	<5	<5	<5	<5	<5	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	-	-	100	100	100	100	100	100	100	200
Nitrogen (Total)	µg/L	10	350	-	-	100	100	100	100	100	100	100	200
Reactive Phosphorus	µg/L	1	5	<1	<1	16	3	4	<1	<1	<1	10	10
Phosphorus (Total)	µg/L	5	10	14	25	8	10	10	12	9	9	9	<5
Inorganics													
Cyanide Total	µg/L	4	7	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons													
Oil and Grease	mg/L	5	5	24	22	7.9	8.6	<5	<5	18	8	8.1	13
Metals													
Aluminium (dissolved)	µg/L	5	55	9	9	21	18	28	27	18	10	23	17
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	2	2	1	<1	<1	<1	<1	1
Copper (dissolved)	µg/L	0.5	14	4	<1	<1	<1	<1	<1	<1	<1	<1	
Iron (dissolved)	µg/L	2	300	<50	<50	80	50	50	60	60	50	50	70
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	<5	<5	<5	<5	<5	<5	<5	<5
Nickel (dissolved)	µg/L	0.5	11	<1	<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	7	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biological													
Faecal Coliforms	CFU/100mL	1	10/100^	<1	<1	<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.

^ 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 November 2022- 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	6.9	6.96	7.65	7.21	6.88	7.56	7.56	7.4	7.0	6.0	6.1	7.4	7.2	6.1	6.6	6.9	6.2	6.5
Electrical Conductivity	µS/cm	-	30-350	48.0	60.0	62.0	57.0	50.0	72.0	54.0	54.0	57.0	14.5	14.6	19.6	16.8	18.5	10.8	11.9	26.4	32.5
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	177	-23	-60	144	-18	167	174	-44.0	77.0	207.4	183.3	-100.2	-93.3	245.2	60.7	137.2	204.1	173.4
Temperature	°C	-	No Water Quality Objective Value	12.15	13.95	11.24	10.43	12.23	10.11	10.18	13.3	11.3	7.2	7.3	13.1	12.8	16.2	12.3	13.1	12.4	14.2
Dissolved Oxygen	% saturation	-	90-110	91	94.4	94	103	92.3	100	94.3	94.9	96.8	67.3	68.5	51.9	78.9	69.9	80.4	72.4	64.1	66.4
Turbidity	NTU	-	2-25	16.7	24.5	23.6	18.1	13.7	17.3	18.1	26.2	16.5	4.7	10.2	17.6	7.8	7.6	2.5	2.5	2.6	3.0
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	<5	11	<5	24	7.2	<5	5.6	7.3	6.0	<5	18	15	12	<5	<5	<5	<5	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	28	35	36	35	29	43	31	30	35.0	12	12	8.2	8.3	9.6	5.6	5.8	17	17
Nutrients																					
Ammonia as N	µg/L	5	13	<5	32	39	<5	24	<5	<5	47	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	<100	-	-	-	<100	-	<100	<100	-	<100	<100	100	200	-	-	100	200	200
Nitrogen (Total)	µg/L	10	250	<100	<100	-	-	<100	-	<100	<100	-	<100	<100	100	200	-	-	100	200	200
Reactive Phosphorus	µg/L	1	15	5	11	5	7	4	7	7	7	5	2	98	1	1	2	<1	6	8	<1
Phosphorus (Total)	µg/L	5	20	70	19	11	14	73	18	26	8	5	<5	31	40	17	9	5	6	<5	17
Inorganics																					
Cyanide Total	µg/L	4	4	4	<4	<4	<4	<4	<4	8	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Hydrocarbons																					
Oil and Grease	mg/L	5	5	5	13	14	18	24	8.3	21	15	28	16	16	14	11	9.4	9.3	21	19	14
Metals																					
Aluminium (dissolved)	µg/L	5	27	19	10	5	16	30	9	41	27	35	<5	<5	21	31	<5	27	5	25	15
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	2	1	<1	1	<1	<1	1
Copper (dissolved)	µg/L	1	1	<1	<1	<1	<1	<1	2	<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	<50	<50	70	70	90	70	70	140	140
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	39	<5	<5	<5	<5	<5	<5	<5	<5	<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
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	<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 - 30 November 2022 - 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**			-	-	0.492	0.041	0.090	0.059	0.049	-
Outflow#	**ML/day**		4.32 (EPL 43 / 50)	-	0.167	-	-	-	-	-	-
Field											
pH	**pH Unit**	-	6.5-8.5	9.55	-	-	-	-	-	-	7.4
Electrical Conductivity	**µS/cm**	-	700 (EPL 41) / 200 (EPL 50)	95.8	-	-	-	-	-	-	9
Oxidation Reduction Potential	**mV**	-	No Water Quality Objective Value	161	-	-	-	-	-	-	-126.9
Temperature	**°C**	-	15	15.34	-	-	-	-	-	-	15.4
Dissolved Oxygen	**% saturation**	-	No Water Quality Objective Value	68.8	-	-	-	-	-	-	42.1
Turbidity	**NTU**	-	<25	1000	-	-	-	-	-	-	0
Laboratory analytes											
Total suspended solids	**mg/L**	5	5/10	320	-	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	**mg/L**	1	No Water Quality Objective Value	9.6	-	-	-	-	-	-	<5
Nutrients											
Ammonia as N	**µg/L**	5	0.2/2^	330	-	-	-	-	-	-	<5
Kjeldahl Nitrogen Total	**µg/L**	10	No Water Quality Objective Value	1100	-	-	-	-	-	-	<100
Nitrogen (Total)	**µg/L**	10	350	1600	-	-	-	-	-	-	400
Reactive Phosphorus	**µg/L**	1	No Water Quality Objective Value	18	-	-	-	-	-	-	6
Phosphorus (Total)	**µg/L**	5	0.1/0.3^	430	-	-	-	-	-	-	20
Inorganics											
Cyanide Total	**µg/L**	4	No Water Quality Objective Value	6	-	-	-	-	-	-	<4
Hydrocarbons											
Oil and Grease	**mg/L**	5	2/5^	15	-	-	-	-	-	-	19
Metals											
Aluminium (dissolved)	**µg/L**	5	55	1600	-	-	-	-	-	-	<5
Arsenic (dissolved)	**µg/L**	0.2	13	11	-	-	-	-	-	-	<1
Chromium (III+VI) (dissolved)	**µg/L**	0.2	1	180	-	-	-	-	-	-	<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**		5	<5	-	-	-	-	-	-	<5

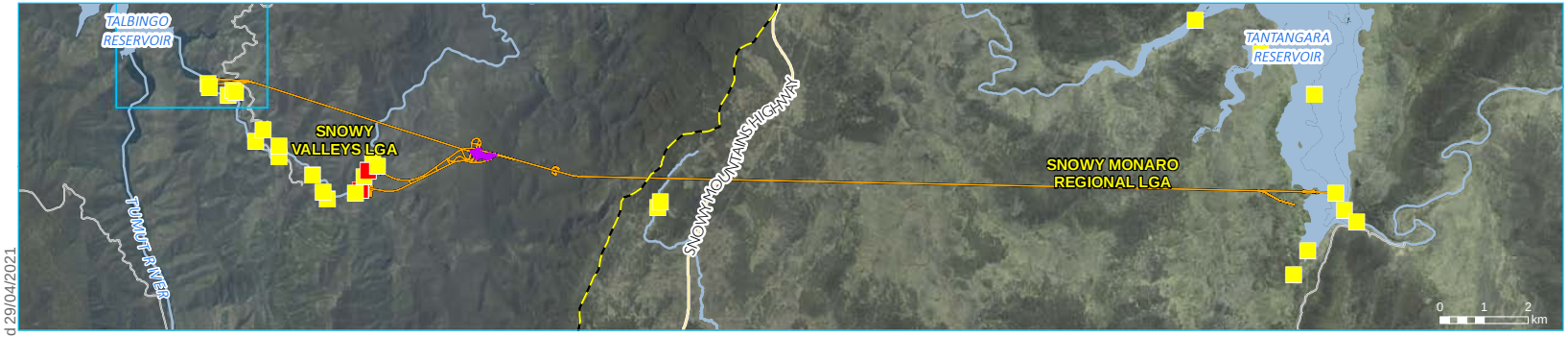
Note: Treated water was not being discharged at Talbingo and Tantangara Reservoirs at the time of EPL sampling

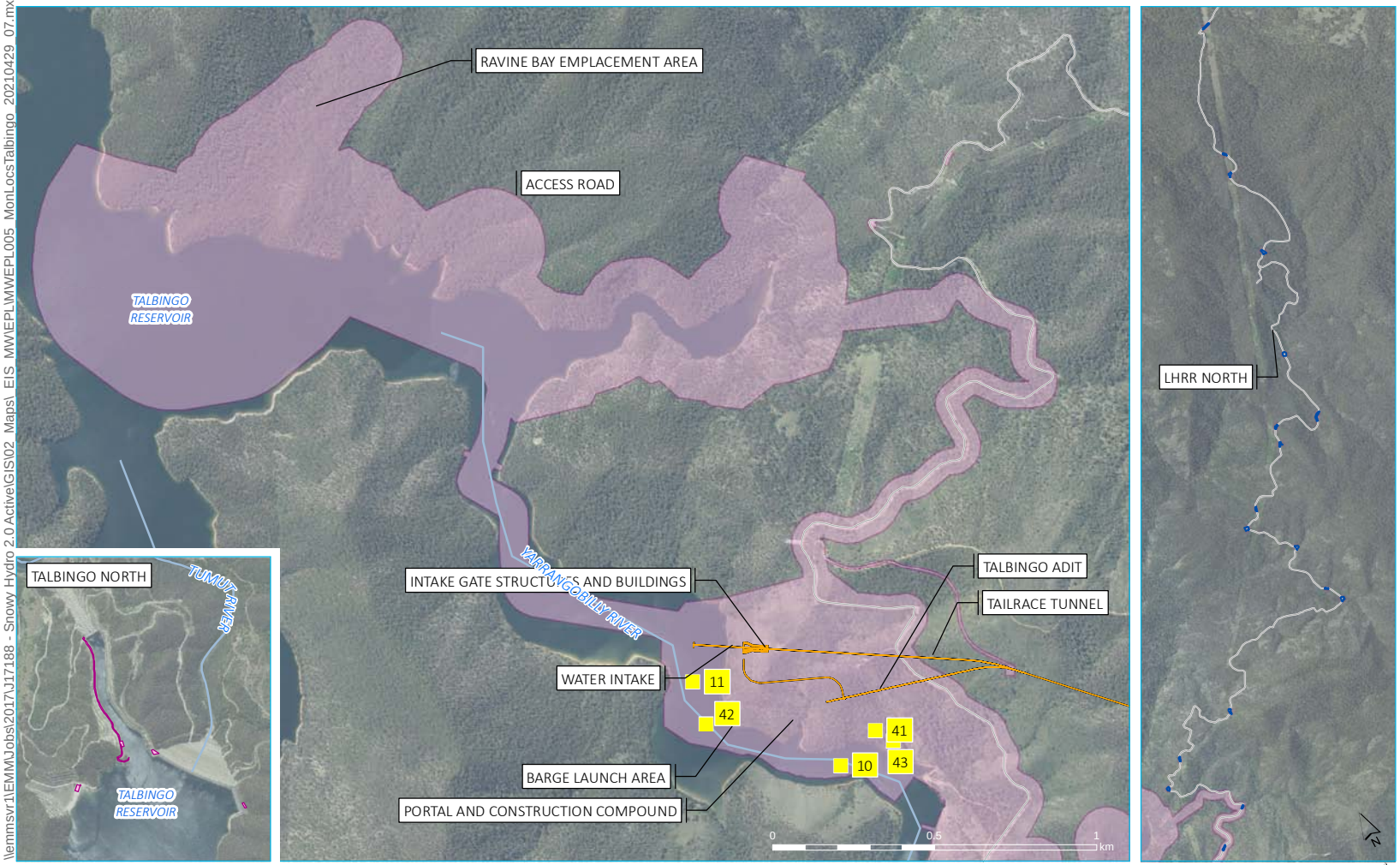
* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- 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





KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Talbingo Reservoir

Snowy 2.0
Main Works
Figure 1

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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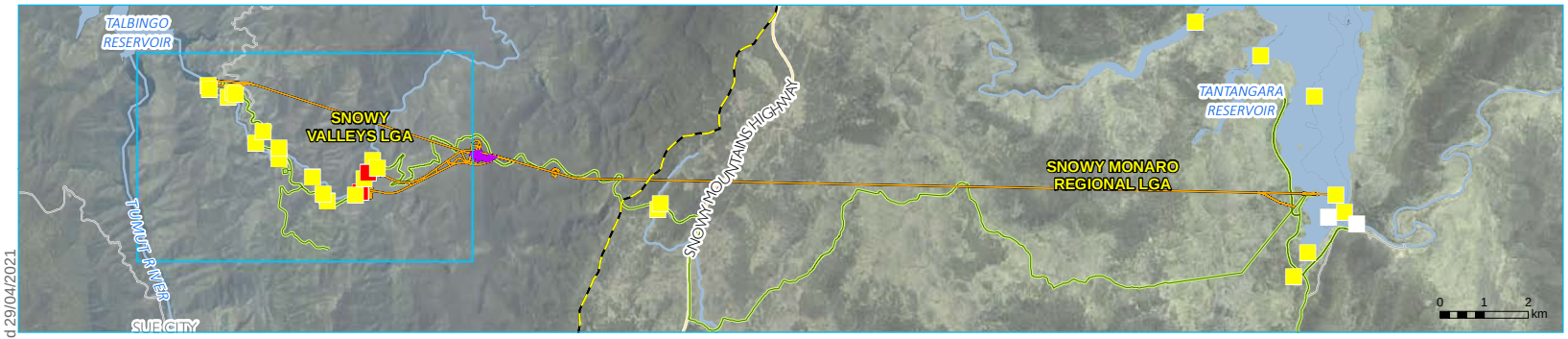

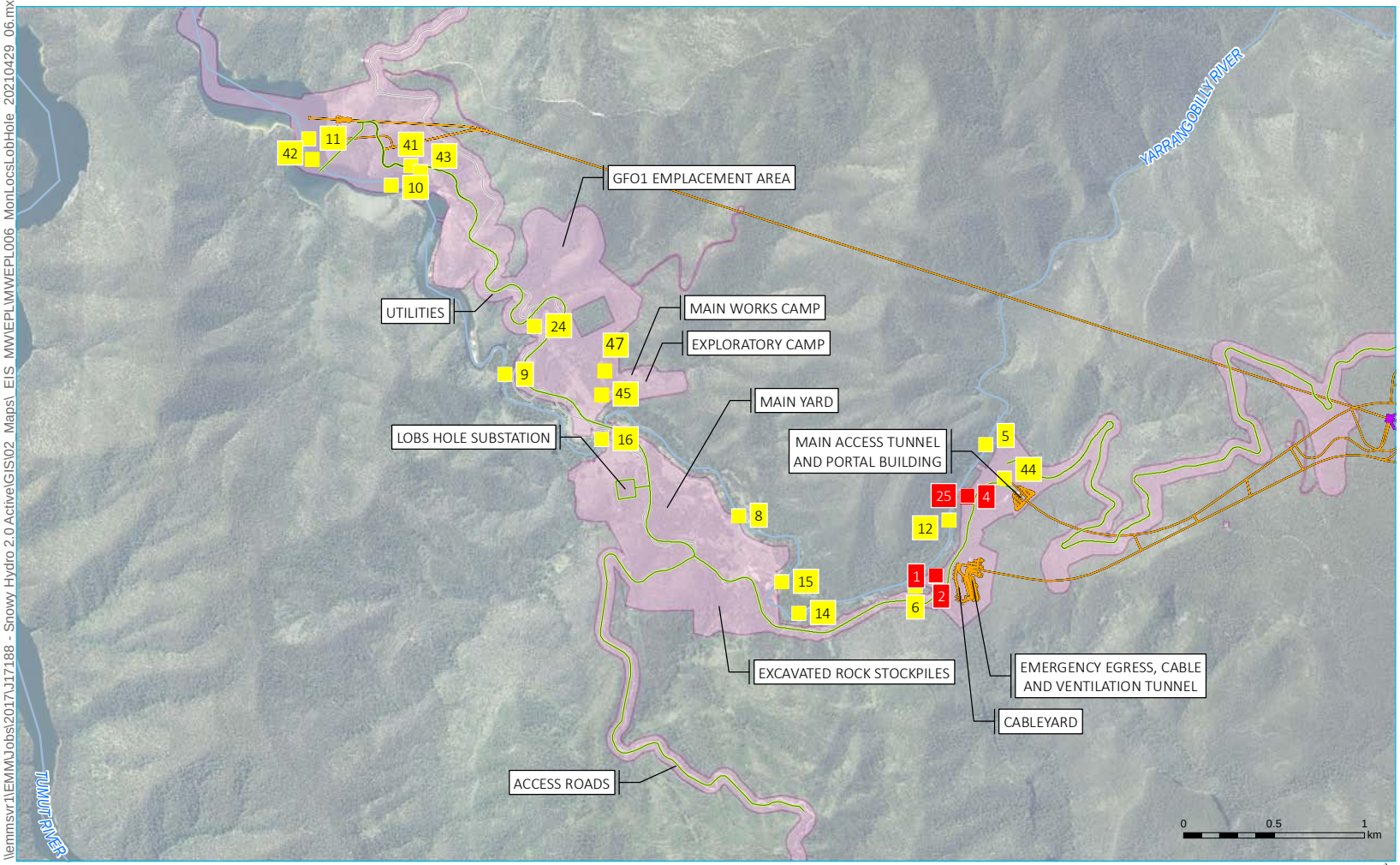

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Lobs Hole

Snowy 2.0
Main Works
Figure 2

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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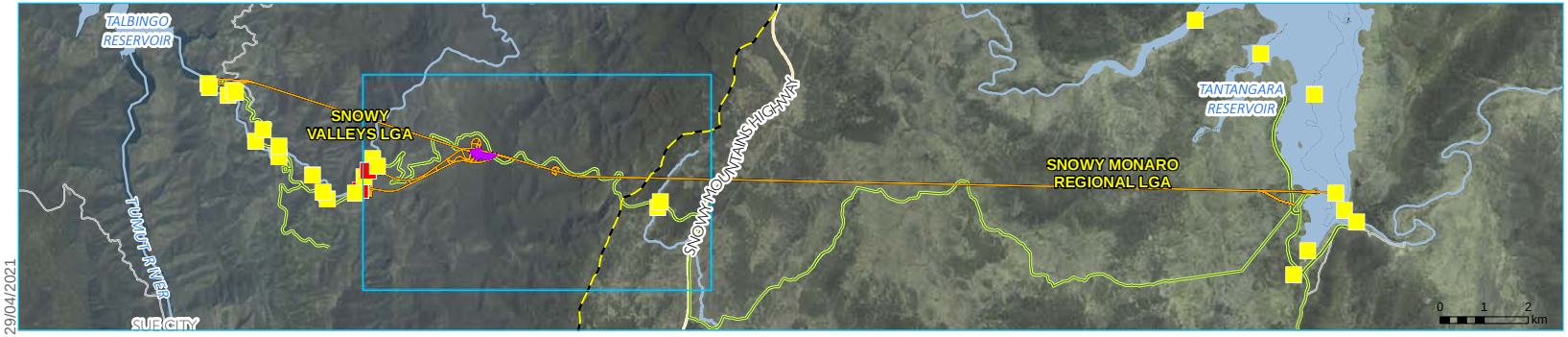

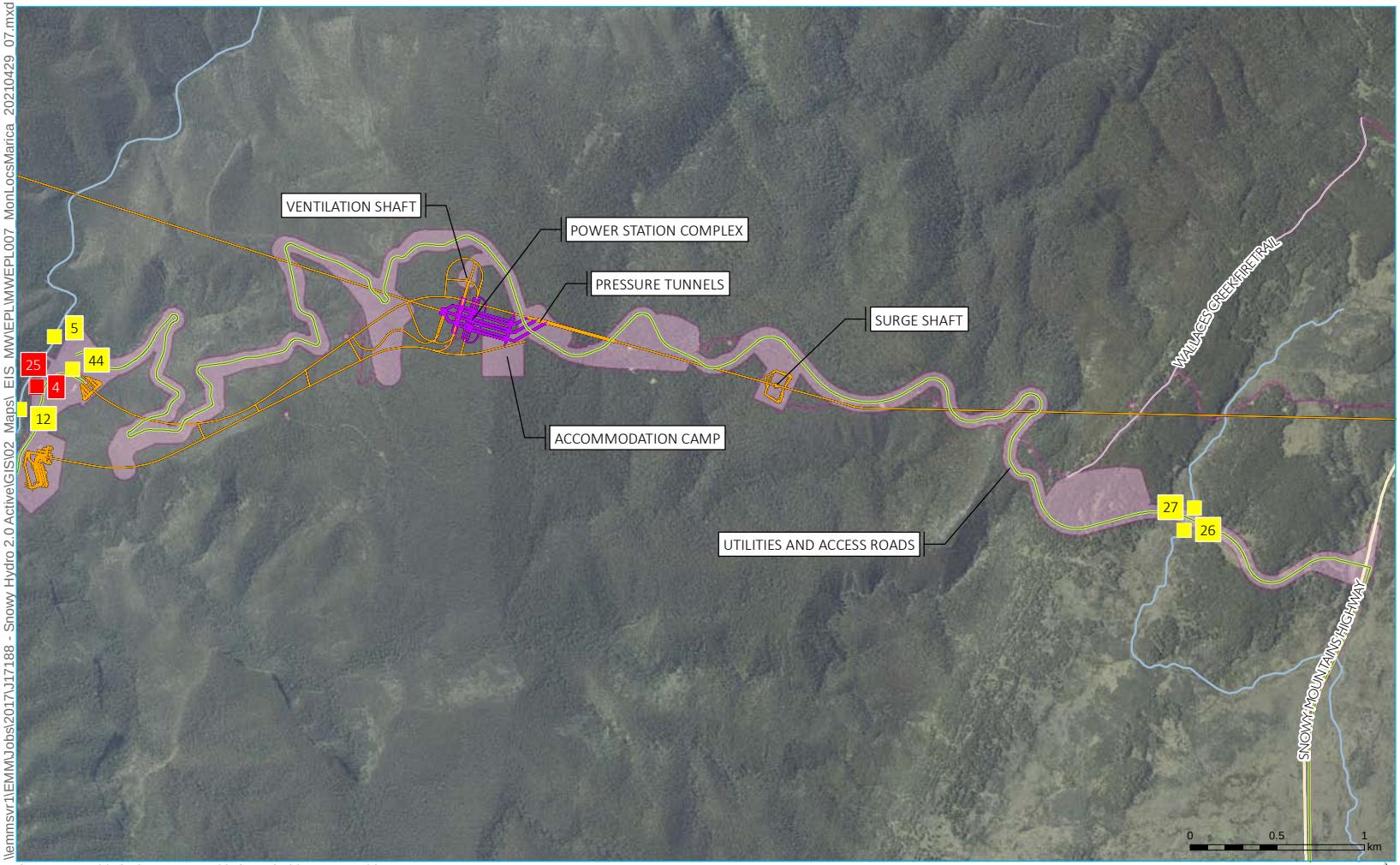

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Marica

Snowy 2.0
Main Works
Figure 3

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

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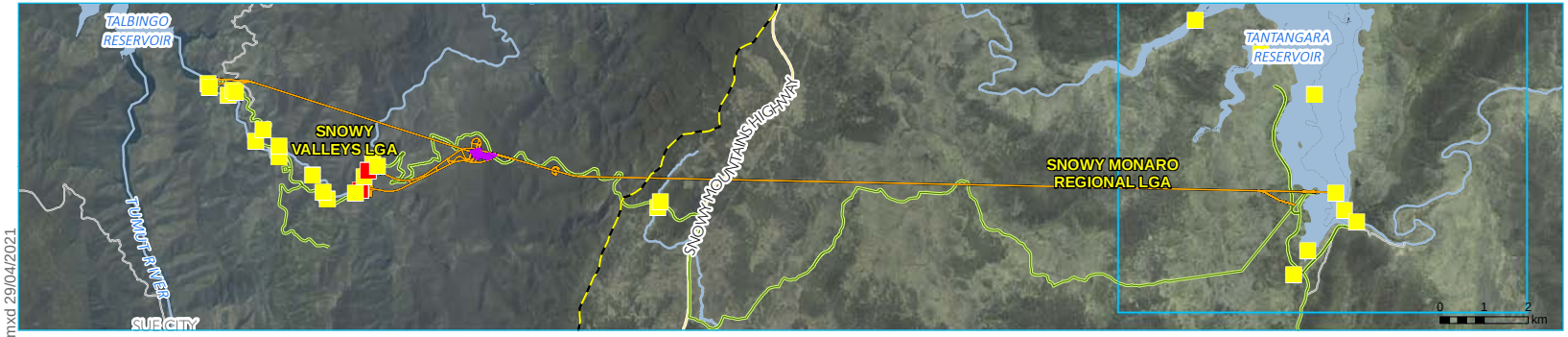

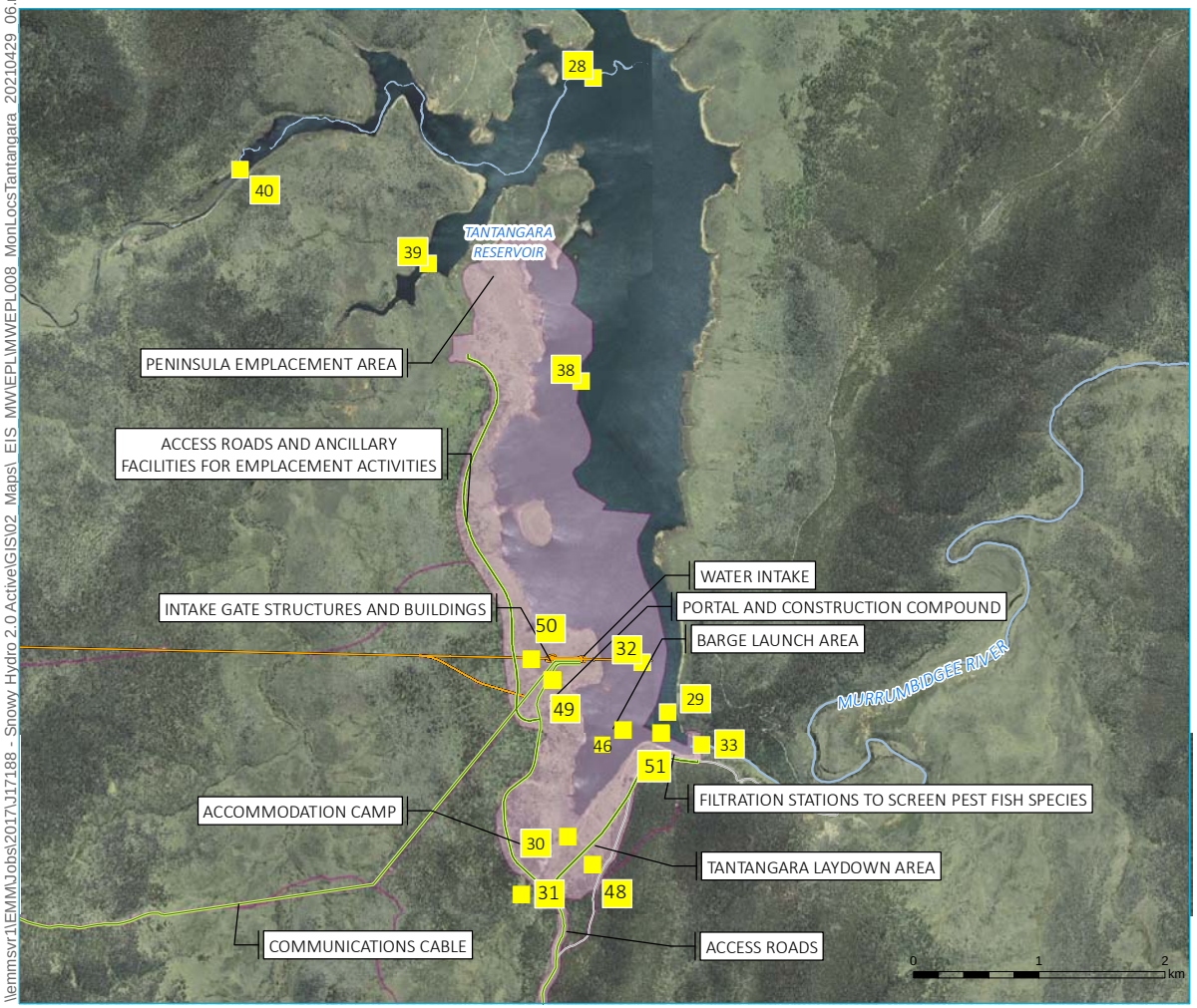

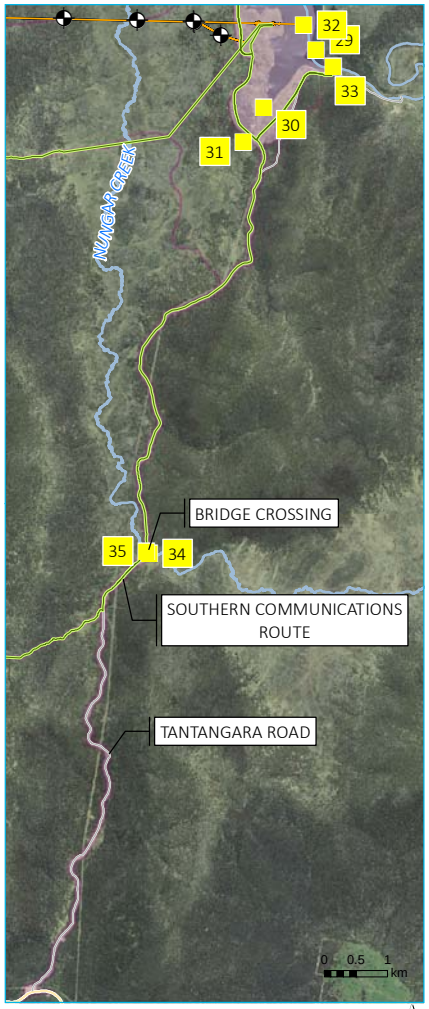

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Tantangara Reservoir

Snowy 2.0
Main Works
Figure 4

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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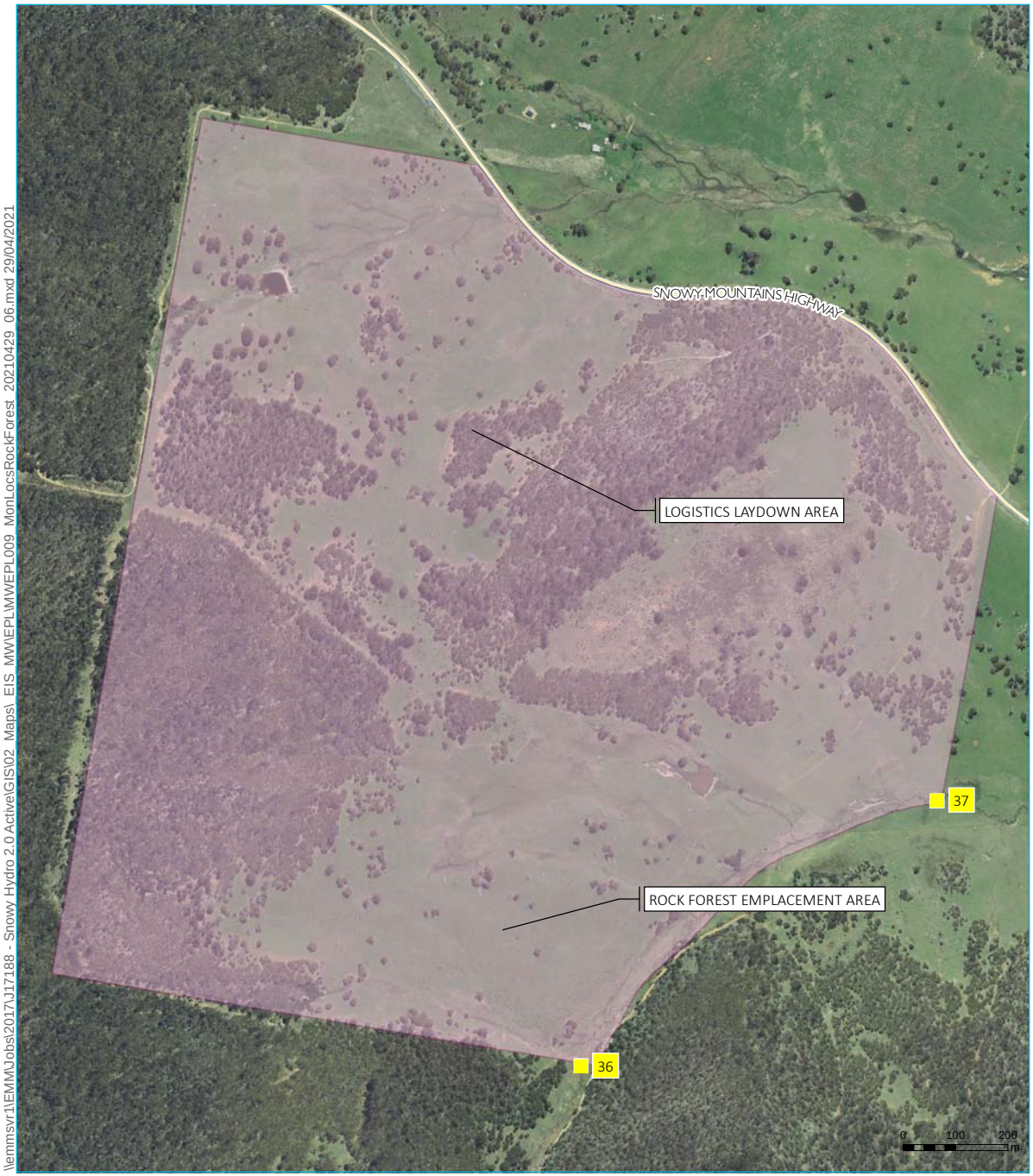

KEY

EPL monitoring point

- Surface water

Existing environment

- Main road
- Local road
- Watercourse

Snowy 2.0 Main Works operational elements

- Tunnels, portals, intakes, shafts
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Rock Forest

Snowy 2.0
Main Works
Figure 5

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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Snowy Hydro 2.0 Main Works EPL Sampling: 01 - 31 December 2022

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.

Reservoir Results

Overall the insitu samples were compliant against the WQOs. Those that did exceed were only minor and remain within historical variation. Minor exceedances of metals and select nutrients (Phosphorous) occurred within Talbingo and Tantangara reservoirs. These exceedances although above the WQO were consistent with background conditions in the reservoirs and remained within historical variation. Oil and grease exceedances remain under investigation and likely pertain to sampling error or discrepancies with the laboratory rather than any direct impact from Snowy 2.0 construction activities, further supported by no visible indication of oil and grease were observed during sampling.

Surface Water Results

Yarrangobilly River consistently displays results outside the WQO range for select in-situ sampling results (DO, Turbidity and pH) and do not stray from typical variation in the December 2022 EPL monitoring round. As the results are displaying Oil and Grease concentrations in majority of the EPL locations project wide, it is likely that these results pertain to sampling or laboratory error which remains under investigation, further no visible indication of oil and grease were observed during sampling. Cyanide and metal exceedances were minor however aluminium exceeded WQO in most surface water EPL locations, which is consistent with previous months of monitoring and baseline data. NTU of 0 was validated using the manual turbidity reader.

Discharge Results

The exceedances at the final discharge points are due to continual vairability in water quality arriving at the plant. Changes can be made to the plant to address this vairability and reach WQO. This is an ongoing process but is managed with no water discharged to the reservoir until WQO are acheived.

The publication of this pollution monitoring data is carried out in accordance with section 66 (6) of the Protection of the Environment Operations Act 1997 (NSW).

Snowy Hydro Limited gives no warranty or representation regarding the data suitability for any particular purpose.

Snowy Hydro Limited excludes all liability to any person for loss or damage of any kind (however caused, including but not limited to by negligence) arising whether directly or indirectly from or relating in any way to the use of this data, whether in whole or in part.

Snowy Hydro 2.0 Main Works

Monthly EPL Sampling: 01 - 31 December 2022 - 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	8.1	7.8	7.0	7.1	7.6	7.3	7.5	7.4	6.9	7.4
Electrical Conductivity	µS/cm	-	20-30	59	57	17.8	17.6	17.5	17.6	16.0	19.5	18.6	17.6
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	143	130	5.0	80.7	101.7	64.6	36.1	46.8	40.1	114.0
Temperature	°C	-	No Water Quality Objective Value	23.19	21.8	16.8	16.9	16.9	16.6	16.6	15.8	16.9	16.9
Dissolved Oxygen	% saturation	-	90-110	93.4	100.5	90.7	94.4	94.4	93.8	76	90.8	94.4	94.2
Turbidity	NTU	-	1-20	1	0	2.8	2.6	2.5	2.2	3.3	2.6	2.0	2.0
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 $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	28	28	7.6	7.8	7.4	7.4	6.5	9	7.4	7.3
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	50	60	<10	<10	<10	<10	<10	<10	<10	<10
Nitrogen (Total)	µg/L	10	350	50	150	<10	<10	<10	<10	<10	<10	<10	<10
Reactive Phosphorus	µg/L	1	5	3	2	3	2	3	3	3	3	2	1
Phosphorus (Total)	µg/L	5	10	<5	<5	9	7	6	15	11	10	<5	7
Inorganics													
Cyanide Total	µg/L	4	7	<4	<4	340	5	230	6	4	4	4	<4
Hydrocarbons													
Oil and Grease	mg/L	5	5	10	11	9	8.3	7	8.2	12	9.5	<5	5.7
Metals													
Aluminium (dissolved)	µg/L	5	55	32	24	59	63	75	34	54	43	82	73
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	25	<1	<1	<1	<1	<1	<1	<1	<1
Copper (dissolved)	µg/L	0.5	14	1	<1	1	2	2	<1	1	<1	<1	<1
Iron (dissolved)	µg/L	2	300	<50	60	140	120	130	110	200	150	130	110
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	8	6	18	11	11	13	11	10	11	10
Nickel (dissolved)	µg/L	0.5	11	<1	<1	<1	2	<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	12	91	24	<5	21	<5	5	<5
Biological													
Faecal Coliforms	CFU/100mL	1	10/100^	2	8	3	-	-	-	-	-	-	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 December 2022- 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	7.4	7.88	8.37	8.32	7.67	7.73	8.27	8.25	7.41	7.27	7.55	7.51	7.55	6.80	6.76	6.89	6.91	6.89
Electrical Conductivity	µS/cm	-	30-350	66.0	103.0	85.0	83.0	73	87	76	77	86	23.5	23.6	16.5	17.6	22.5	14.2	14.3	46.8	47.2
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	138	189	185	180	164	210	202	196	153	-76.6	-114.2	-54.7	-61.8	-54.3	-44.3	-71.6	-109.1	-69.7
Temperature	°C	-	No Water Quality Objective Value	14.46	15.36	18.8	19.33	15.07	16.27	16.61	18.87	21.58	13.9	14	10.2	10.3	17.5	18.9	19	21.8	22.5
Dissolved Oxygen	% saturation	-	90-110	72.1	91.9	69.1	73.1	70.7	73.2	83.8	65	60.2	99.4	90.6	90.5	90.2	82.5	91.5	93.9	70.1	89.0
Turbidity	NTU	-	2-25	0	0	0	0	0	0	0	0	39.2	4.55	3.47	4.58	6.34	2.22	4	4.27	3.48	5.47
Laboratory analytes																					
TSS	mg/L	5	No Water Quality Objective Value	<5	<5	<5	<5	<5	<5	<5	<5	9.1	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3	mg/L	1	No Water Quality Objective Value	33	51	41	39	36	41	37	38	36	12	12	8.3	8	10	5.3	5.4	18	18
Nutrients																					
Ammonia as N	µg/L	5	13	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	12	<5	<5	<5	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	30	30	20	10	<10	20	10	10	30	<10	<10	<10	<10	10	<10	<10	50	60
Nitrogen (Total)	µg/L	10	250	30	220	70	10	120	20	10	10	80	<10	<10	<10	<10	40	<10	<10	120	110
Reactive Phosphorus	µg/L	1	15	4	9	5	6	6	8	5	5	2	3	4	4	4	3	2	4	4	4.0
Phosphorus (Total)	µg/L	5	20	<5	6	<5	<5	6	<5	<5	5	8	8.0	<5	6	8	13	<5	7	<5	18
Inorganics																					
Cyanide Total	µg/L	4	4	<4	<4	<4	<4	<4	4	<4	<4	<4	4	5	<4	<4	<4	5	5	<4	4
Hydrocarbons																					
Oil and Grease	mg/L	5	5	13	7	22	20	10	14	16	21	12	8	9	<5	<5	<5	<5	12	15	13
Metals																					
Aluminium (dissolved)	µg/L	5	27	28	32	39	32	51	26	35	46	70	29	20	46	47	41	45	40	23	28
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	3	<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	100	<50	<50	60	90	230	190	190	270	310
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	6	6	<5	5.0	<5	<5	<5	<5	150	<5	<5	6	<5	40	6.0	6	<5	<5
Nickel (dissolved)	µg/L	1	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<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	<5	<5	9	<5	12	<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 December 2022 - 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			-	-	0.3298	0.0424	0.0901	0.0540	0.0740	-
Outflow#	ML/day		4.32 (EPL 43 / 50)	-	0.2090	-	-	-	-	-	-
Field											
pH	pH Unit	-	6.5-8.5	8.31	-	-	-	-	-	-	8
Electrical Conductivity	µS/cm	-	700 (EPL 41) / 200 (EPL 50)	371	-	-	-	-	-	-	26
Oxidation Reduction Potential	mV	-	No Water Quality Objective Value	567	-	-	-	-	-	-	69.5
Temperature	°C	-	15	21.64	-	-	-	-	-	-	17.1
Dissolved Oxygen	% saturation	-	No Water Quality Objective Value	95.9	-	-	-	-	-	-	36.2
Turbidity	NTU	-	<25	139	-	-	-	-	-	-	1.6
Laboratory analytes											
Total suspended solids	mg/L	5	5/10	22	-	-	-	-	-	-	<5
Hardness as $CaCO_3$ (filtered)	mg/L	1	No Water Quality Objective Value	15	-	-	-	-	-	-	<5
Nutrients											
Ammonia as N	µg/L	5	0.2/2^	19	-	-	-	-	-	-	<5
Kjeldahl Nitrogen Total	µg/L	10	No Water Quality Objective Value	130	-	-	-	-	-	-	10
Nitrogen (Total)	µg/L	10	350	240	-	-	-	-	-	-	10
Reactive Phosphorus	µg/L	1	No Water Quality Objective Value	5	-	-	-	-	-	-	2
Phosphorus (Total)	µg/L	5	0.1/0.3^	65	-	-	-	-	-	-	<5
Inorganics											
Cyanide Total	µg/L	4	No Water Quality Objective Value	<4	-	-	-	-	-	-	<4
Hydrocarbons											
Oil and Grease	mg/L	5	2/5^	<5	-	-	-	-	-	-	22
Metals											
Aluminium (dissolved)	µg/L	5	55	750	-	-	-	-	-	-	14
Arsenic (dissolved)	µg/L	0.2	13	1	-	-	-	-	-	-	<1
Chromium (III+VI) (dissolved)	µg/L	0.2	1	51	-	-	-	-	-	-	<1
Copper (dissolved)	µg/L	0.5	14	7	-	-	-	-	-	-	4
Iron (dissolved)	µg/L	2	300	390	-	-	-	-	-	-	<50
Lead (dissolved)	µg/L	0.1	3.4	2	-	-	-	-	-	-	<1
Manganese (dissolved)	µg/L	0.5	1,900	23	-	-	-	-	-	-	<5
Nickel (dissolved)	µg/L	0.5	11	5	-	-	-	-	-	-	<1
Silver (dissolved)	µg/L	0.01	0.05	<5	-	-	-	-	-	-	<5
Zinc (dissolved)	µg/L	1	8	270	-	-	-	-	-	-	10
Biological											
Faecal Coliforms	CFU/100mL	1	10/100^	<1	-	-	-	-	-	-	<1
Biological Oxygen Demand	mg/L	2	5	<5	-	-	-	-	-	-	<5

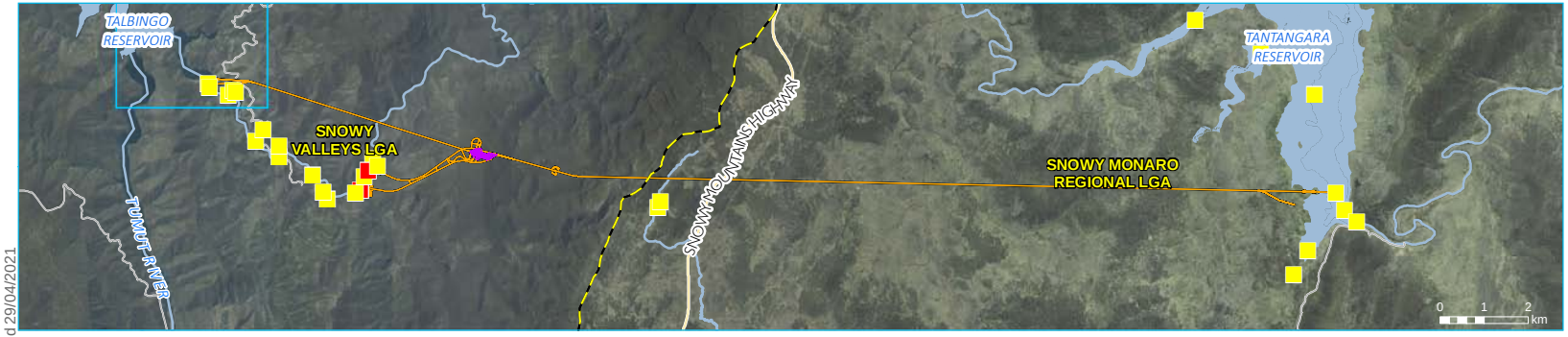
Note: Treated water was not being discharged at Talbingo and Tantangara Reservoirs at the time of EPL sampling

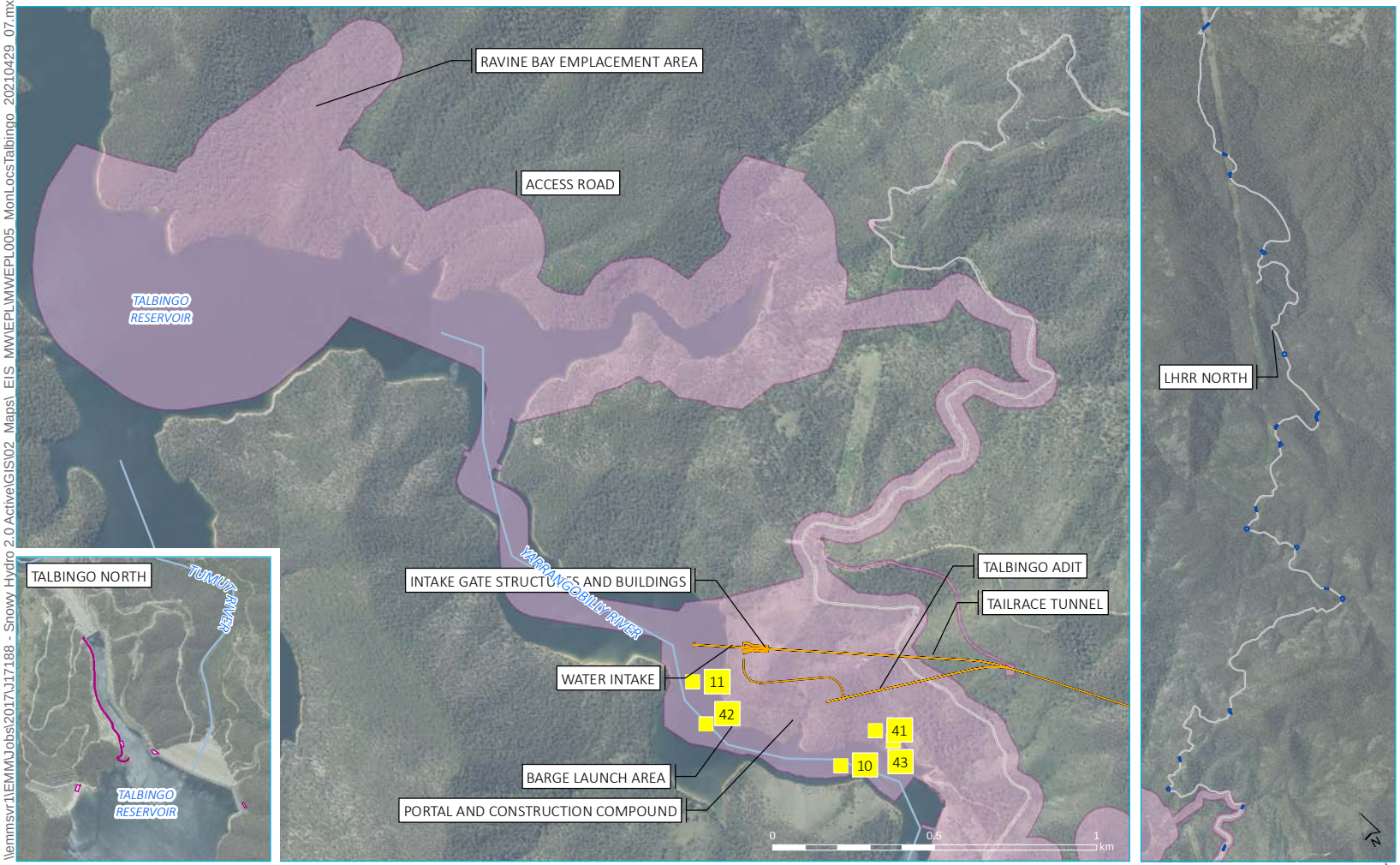
* Water Quality Objective values Treated Water reference the predicted values for physical and chemical stressors from the treatment plant as presented in the Main Works EIS.

\- 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





KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Talbingo Reservoir

Snowy 2.0
Main Works
Figure 1

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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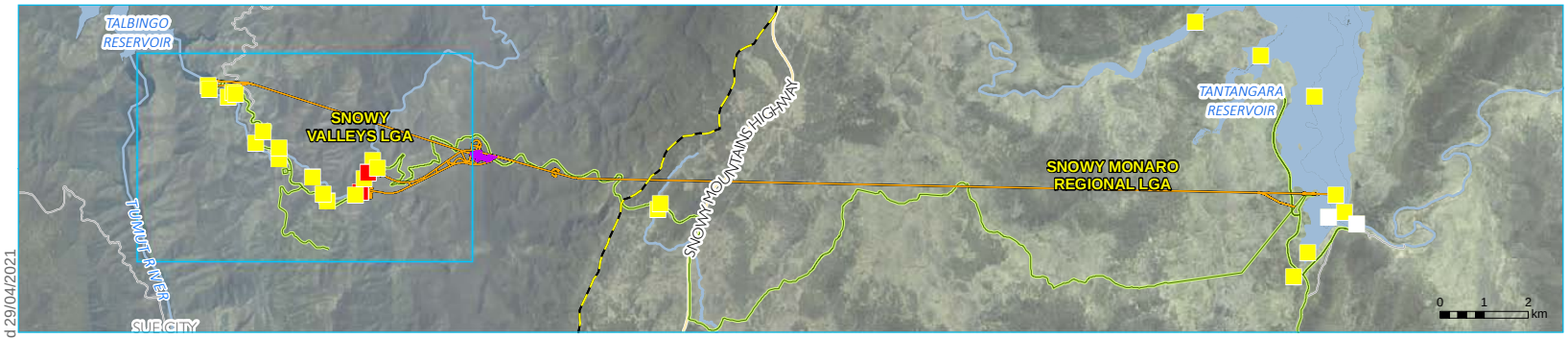

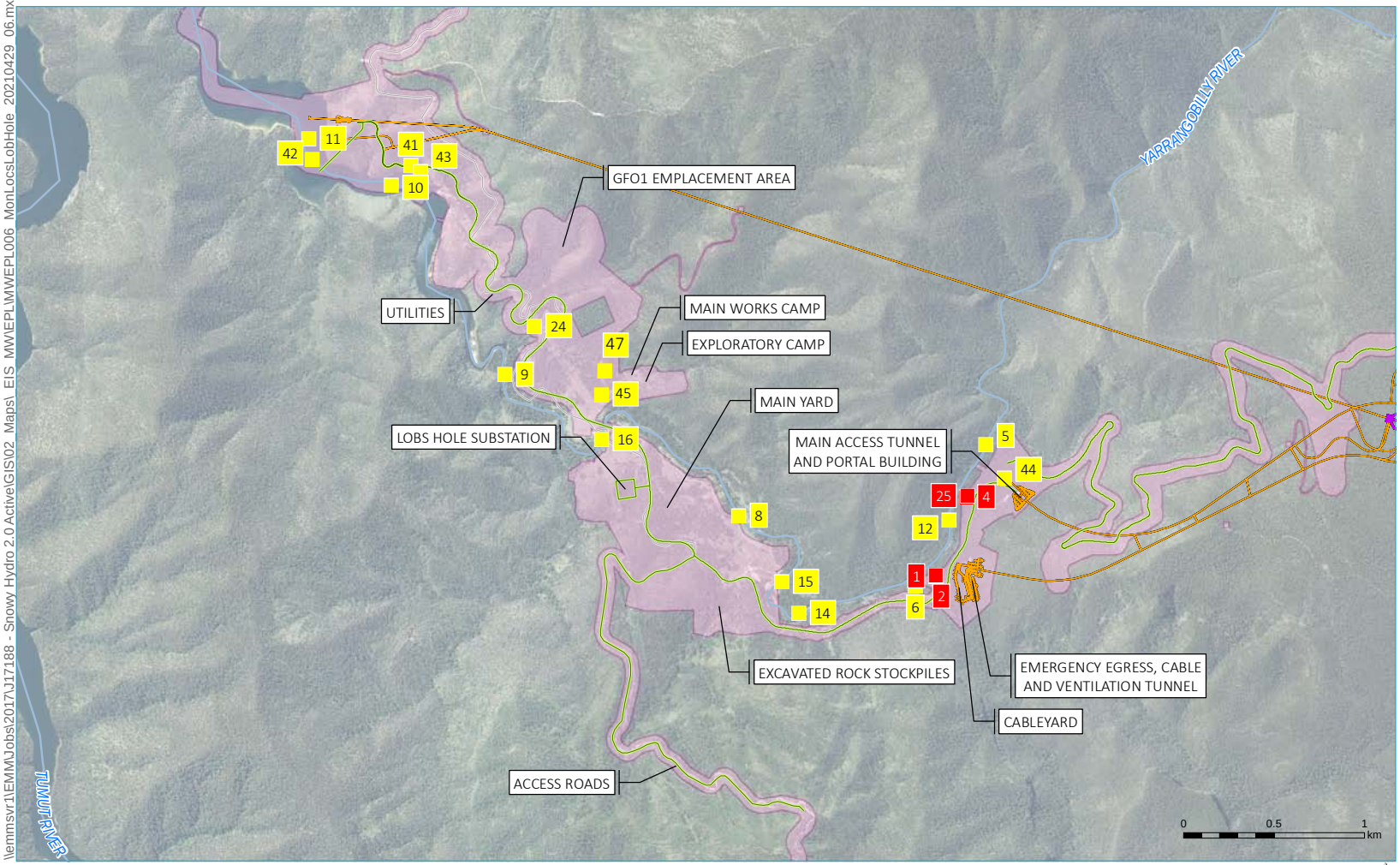

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Lobs Hole

Snowy 2.0
Main Works
Figure 2

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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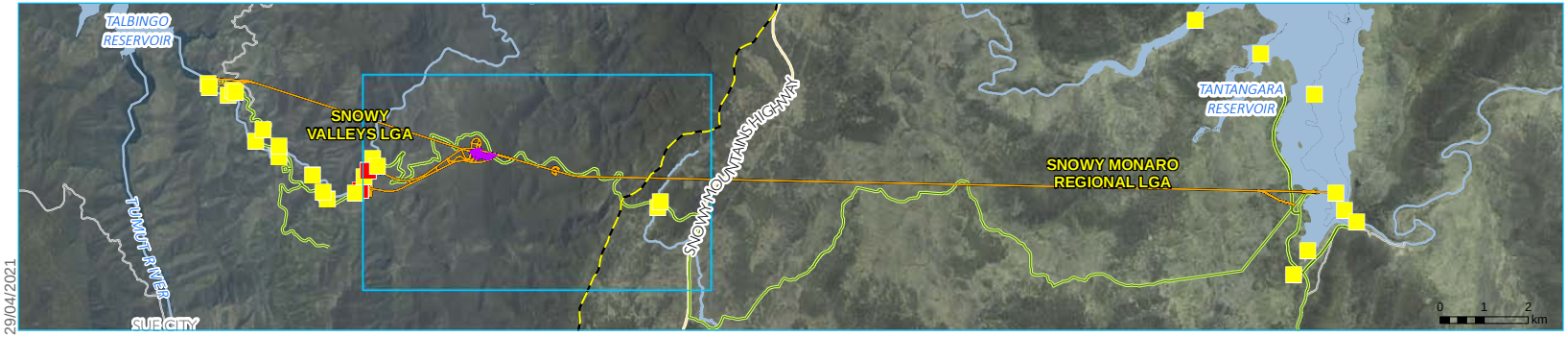

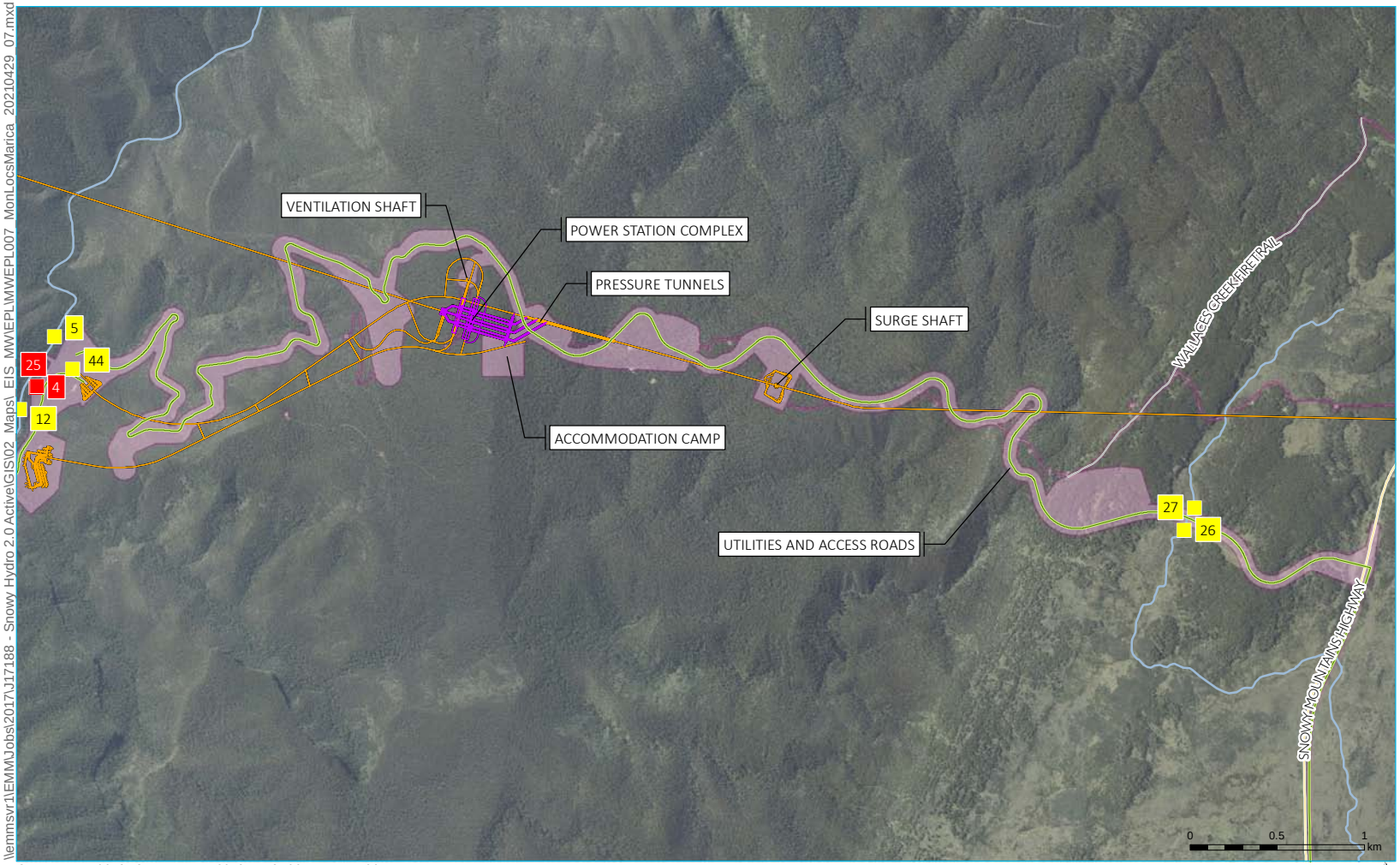

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

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EPL Premise and monitoring point maps - Marica

Snowy 2.0
Main Works
Figure 3

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

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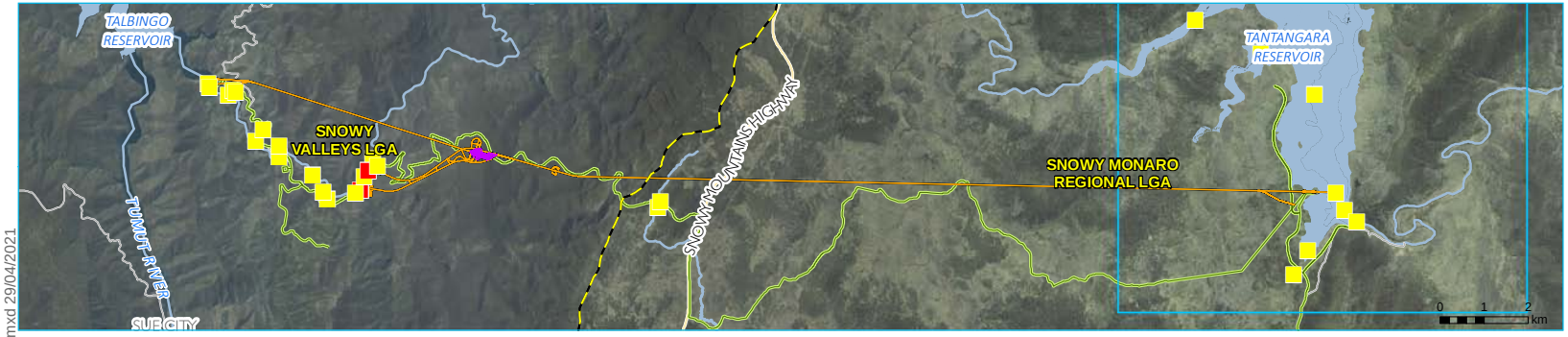

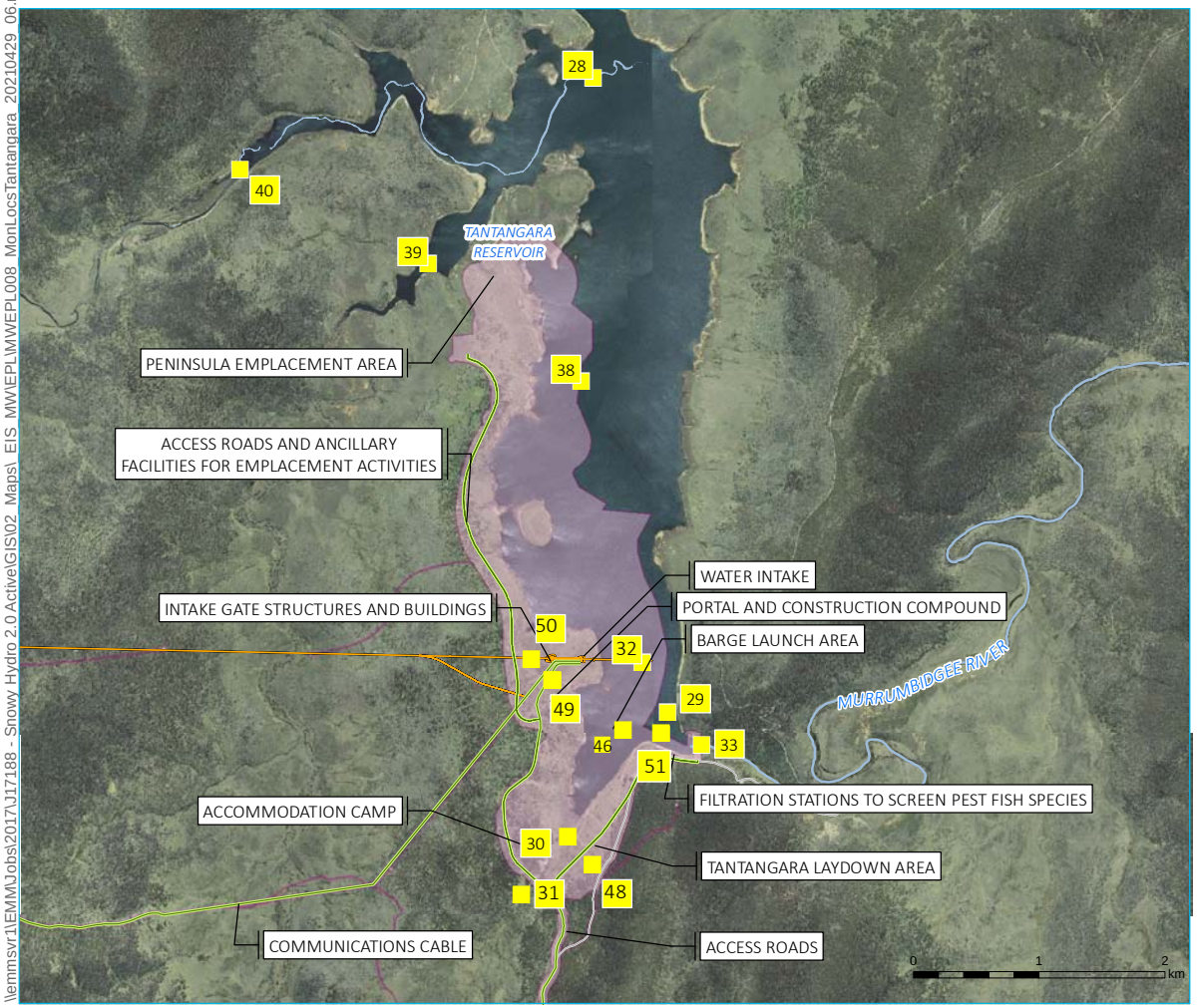

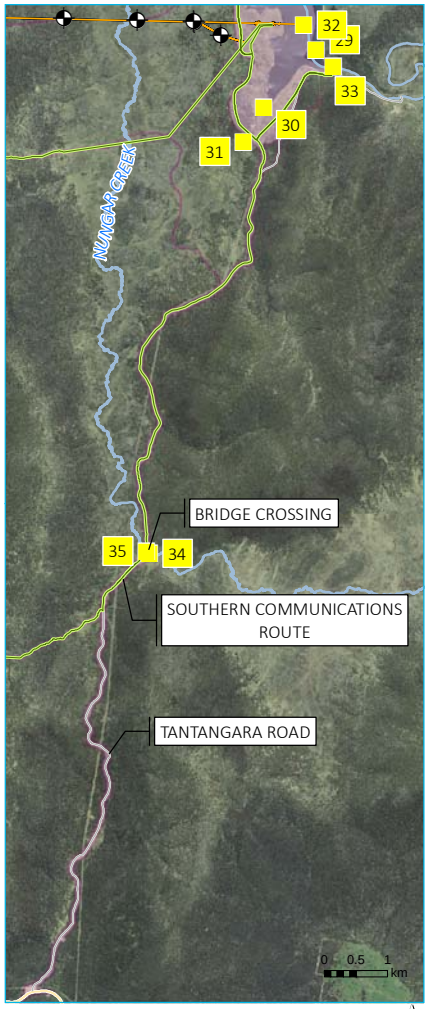

KEY

EPL monitoring point
- Groundwater
- Surface water

Existing environment
- Main road
- Local road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Tantangara Reservoir

Snowy 2.0
Main Works
Figure 4

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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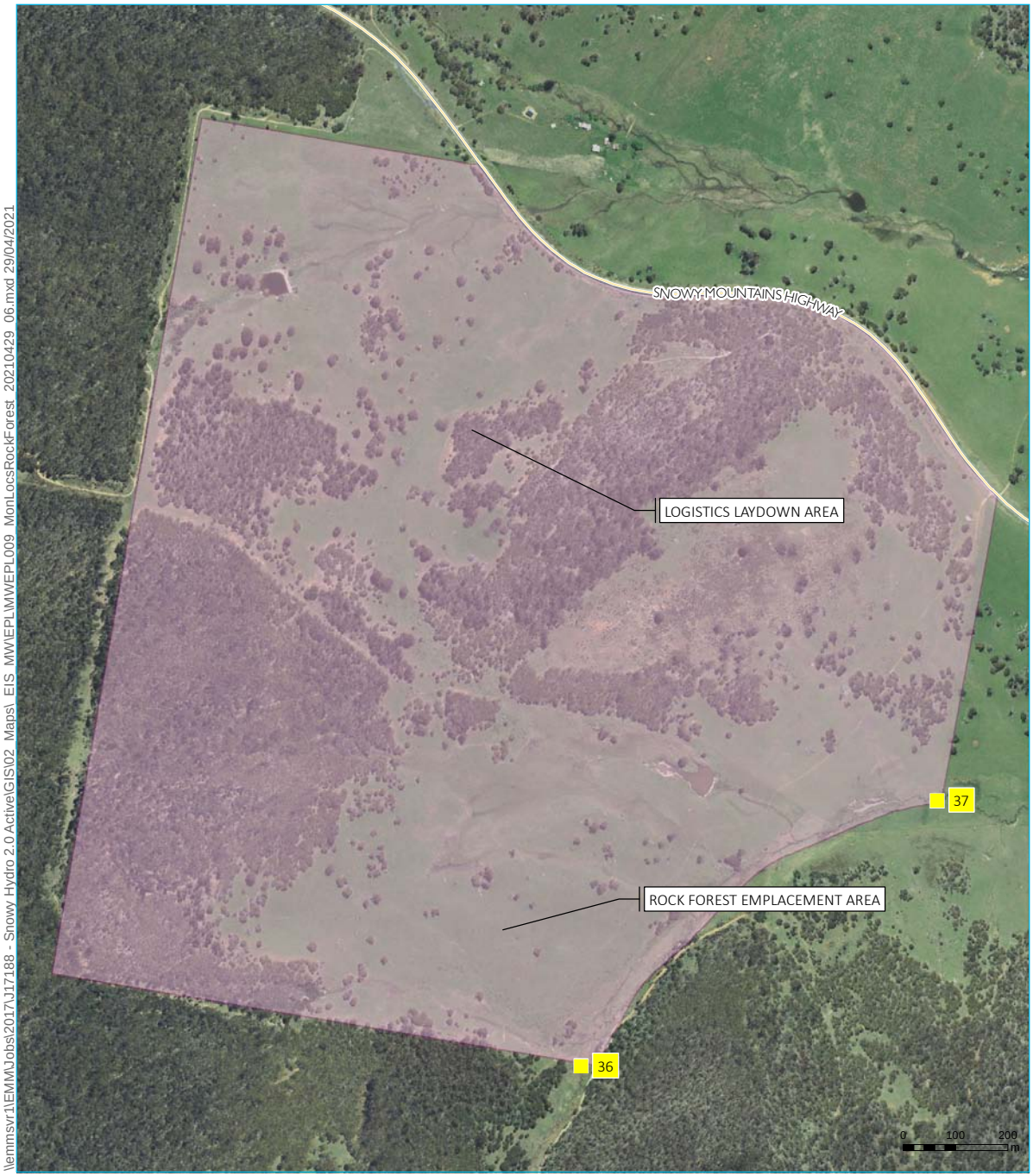

KEY

EPL monitoring point

- Surface water

Existing environment

- Main road
- Local road
- Watercourse

Snowy 2.0 Main Works operational elements

- Tunnels, portals, intakes, shafts
- Utilities
- Licence Premise

The disturbance area is an estimation of the area required for construction works based on the current level of project design. Detailed design is still required to be completed, therefore it is expected that the precise location of the disturbance area may move within the broader construction envelope and consequently there will be some further refinements to the disturbance area.
Note that the Approved Exploratory Works disturbance area (SSI 9208) will also be a disturbance area for Main Works, even following surrender of the Exploratory Works Approval. The cumulative disturbance area for the Main Works and approved Exploratory Works is therefore presented in this figure.

EPL Premise and monitoring point maps - Rock Forest

Snowy 2.0
Main Works
Figure 5

Source: EMM (2019); Snowy Hydro (2019); DFSI (2017); LPMA (2011)

GDA 1994 MGA Zone 55

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December 2022 EPL 21266 In Situ Water Quality Measurements

EPL Monthly Monitoring December 2022

Table 1 - Surface Water Quality Data
River and Minor Watercourses

Water Quality Objectives (see note 1)							
Temp (°C)	DO (%)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)
-	90 - 110	-	30 - 350	-	6.5 - 8.0	-	2 - 25

Date and Time	EPL Site ID	Location Description	Temp (°C)	DO (%)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)	Field Comments	Context
3/12/2022, 8:30 am	EPL5	Yarrangobilly River, upstream of the exploratory tunnel and construction pad	14.46	72.1	7.36	66	44	7.38	138	0	Sunny weather, clear runny water - turbidity confirmed with the manual turbidity reader	This location is upstream of works and is therefore representative of background conditions. NTU readings was validated using the manual turbidity reader.
3/12/2022, 9:30 am	EPL6	Wallaces Creek, upstream of Yarrangobilly River and Wallaces Creek confluence	15.36	91.9	9.2	103	67	7.88	189	0	Sunny weather, clear runny water - turbidity confirmed with the manual turbidity reader	NTU reading was validated using the manual turbidity reader.
3/12/2022, 12:19 pm	EPL8	Yarrangobilly River, downstream of Lick Hole Gully	18.8	69.1	6.44	85	55	8.37	185	0	Clear and sunny. Very clear water.	NTU reading was validated using the manual turbidity reader. DO is representative of background conditions for December 2022 and is within range of historical results at this location. pH is slightly elevated however no direct source was identified. This will be monitored.
3/12/2022, 12:30 pm	EPL9	Yarrangobilly River, downstream of the accommodation camp and upstream of Talbingo Reservoir	19.33	73.1	6.74	83	54	8.32	180	0	Clear and sunny, very clear water	NTU reading was validated using the manual turbidity reader. DO is representative of background conditions for December 2022 and is within range of historical results at this location. pH is slightly elevated however no direct source was identified. This will be monitored.
3/12/2022, 9:00 am	EPL12	Yarrangobilly River, immediately downstream of portal pad	15.07	70.7	7.12	73	47	7.67	164	0	Clear running water, sunny weather, turbidity confirmed with manual	NTU reading was validated using the manual turbidity reader. DO is representative of background conditions for December 2022 and is within range of historical results at this location.
3/12/2022, 8:45 am	EPL14	Yarrangobilly River, downstream of road construction areas	16.27	73.2	7.18	87	56	7.73	210	0	Sunny weather, clear runny water - turbidity confirmed with the manual turbidity reader	NTU reading was validated using the manual turbidity reader. DO is representative of background conditions for December 2022 and is within range of historical results at this location.
3/12/2022, 11:45 am	EPL15	Yarrangobilly River, downstream of road construction areas	16.61	83.8	8.16	76	49	8.27	202	0	-	NTU reading was validated using the manual turbidity reader. DO is representative of background conditions for December 2022 and is within range of historical results at this location. pH is slightly elevated however no direct source was identified. This will be monitored.
3/12/2022, 11:45 am	EPL16	Yarrangobilly River, downstream of road construction areas	18.87	65	6.04	77	50	8.25	196	0	Clear and sunny. Very clear water.	NTU reading was validated using the manual turbidity reader. DO is representative of background conditions for December 2022 and is within range of historical results at this location. pH is slightly elevated however no direct source was identified. This will be monitored.
3/12/2022, 2:09 pm	EPL24	Yarrangobilly River tributary (Watercourse 2), directly downstream of road	21.58	60.2	5.3	86	56	7.41	153	39.2	Clear and sunny.	DO and pH are representative of background conditions for December 2022 and is within range of historical results at this location.
2/12/2022, 3:45 pm	EPL26	Eucumbene River downstream of Marica Road	13.9	99.4	10.3	23.5	19.5	7.27	-76.6	4.55	-	-
2/12/2022, 3:48 pm	EPL27	Eucumbene River upstream of Marica Road	14	90.6	9.3	23.6	19.4	7.55	-114.2	3.47	-	This location is upstream of works and is therefore representative of background conditions.
4/12/2022, 3:50 pm	EPL30	Kellys Plain Creek, downstream of accommodation camp and laydown areas	10.2	90.5	10.2	16.5	14.9	7.51	-54.7	4.58	-	-
4/12/2022, 3:52 pm	EPL31	Kellys Plain Creek, upstream of accommodation camp and laydown areas	10.3	90.2	10.3	17.6	15.9	7.55	-61.8	6.34	-	-
3/12/2022, 3:45 pm	EPL33	Murrumbidgee River, downstream of Tantangara reservoir outlet	17.5	82.5	7.9	22.5	17	6.80	-54.3	2.22	-	DO is generally representative of background conditions for December 2022 and is within range of historical results at this location.
3/12/2022, 3:07 pm	EPL34	Nungar Creek, upstream of Tantangara Road	18.9	91.5	8.5	14.2	10.5	6.76	-44.3	4	Strong flow fine weather	This location is upstream of works and is therefore representative of background conditions.
3/12/2022, 3:12 pm	EPL35	Nungar Creek, downstream of Tantangara Road	19	93.9	8.7	14.3	10.5	6.89	-71.6	4.27	-	-
3/12/2022, 2:19 pm	EPL36	Camerons Creek, upstream of works in Rock Forest	21.8	70.1	6.2	46.8	32.4	6.91	-109.1	3.48	Fine weather steady flow clear	This location is upstream of works and is therefore representative of background conditions.
3/12/2022, 2:27 pm	EPL37	Camerons Creek, downstream of works in Rock Forest	22.5	89	7.7	47.2	32.3	6.89	-69.7	5.47	-	DO is generally representative of background conditions for Decemeber 2022 and is within range of historical results at this location.

Table 2 - Reservoir Water Quality Data
Talbingo and Tantangara Reservoirs

Water Quality Objectives (see note 2)							
Temp (°C)	DO (%)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)
-	90 - 110	-	20 - 30	-	6.5 - 8.0	-	1 - 20

Date and Time	EPL Site ID	Location Description	Temp (°C)	DO (%)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)	Field Comments	Context
4/12/2022, 12:35 pm	EPL10	Talbingo Reservoir, downstream of road works and upstream of water intake point	23.19	93.4	7.99	59	38	8.1	143	1	-	pH is slightly elevated however no direct source was identified. This will be monitored.
4/12/2022, 9:23 am	EPL11	Talbingo Reservoir, downstream of outlet	21.8	100.5	8.82	57	37	7.8	130	0	-	NTU reading was validated using the manual turbidity reader.
3/12/2022, 10:25 am	EPL28	Tantangara Reservoir, upstream in the mouth of the Murrumbidgee River	16.8	90.7	8.8	17.8	13.7	7.0	5.0	2.8	-	This location is upstream of works and is therefore representative of background conditions.
3/12/2022, 11:10 am	EPL29	Tantangara Reservoir, downstream of works area and upstream of lower Murrumbidgee River	16.9	94.4	9.1	17.6	13.5	7.1	80.7	2.6	-	This location is upstream of works and is therefore representative of background conditions.
3/12/2022, 10:59 am	EPL32	Tantangara Reservoir, Tantangara Intake. Downstream of construction works	16.9	94.4	9.2	17.5	13.5	7.6	101.7	2.5	-	-
3/12/2022, 10:50 am	EPL38	Tantangara Reservoir, variable location dependant on tide and reservoir levels. Between the emplacement area and the ancillary facilities for emplacement activities	16.6	93.8	9.1	17.6	13.6	7.3	64.6	2.2	-	-
3/12/2022, 9:29 am	EPL39	Confluence of Nungar Creek and Tantangara Reservoir, variable location dependent on tide and reservoir levels. Upstream of Tantangara construction works	16.6	76	7.4	16.0	12.4	7.5	36.1	3.3	Clear low wind sunny	This location is upstream of works and is therefore representative of background conditions.
3/12/2022, 9:53 am	EPL40	Confluence of the upper Murrumbidgee River and Tantangara Reservoir, variable location dependent on tide and reservoir levels. Upstream of works	15.8	90.8	9.0	19.5	15.4	7.4	46.8	2.6	-	This location is upstream of works and is therefore representative of background conditions.
3/12/2022, 11:16 am	EPL 51	Tantangara Reservoir, downstream of Tantangara STP/PWTP diffuser outlet	16.9	94.2	9.1	17.6	13.5	7.4	114.0	2.0	-	-

Table 3 - Treated Water Quality Data ***Talbingo***

	Water Quality Objectives (see note 3)							
	Temp (°C)	DO (%)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)
	-	-	-	700	-	6.5 - 8.0	-	25

Date and Time	EPL Site ID	Location Description	Temp (°C)	DO (%)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)	Field Comments	Context
4/12/2022, 3:50 pm	EPL41	Lobs Hole STP/PWTP Final Effluent Quality Monitoring Point. Downstream of final treatment, prior to discharge to Talbingo Reservoir.	24.83	57.7	4.77	654	419	9.48	195	144	No discharge to Talbingo Reservoir.	Exceedances due to continual vairability in water quality arriving at the plant. Changes made to the plant to address this vairability and reach WQO. No was being discharged to the reservoir at the time of sampling.
5/12/2022, 10:00 am	EPL41	Lobs Hole STP/PWTP Final Effluent Quality Monitoring Point. Downstream of final treatment, prior to discharge to Talbingo Reservoir.	21.64	95.9	8.43	371	241	8.31	567	139	Re-tested on 5/12/2022	

Table 4 - Treated Water Quality Data
Tantangara

	Water Quality Objectives (see note 3)							
	Temp (°C)	DO (%)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)
	-	-	-	200	-	6.5 - 8.0	-	25

Date and Time	EPL Site ID	Location Description	Temp (°C)	DO (%)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)	Field Comments	Context
27/12/2022, 9:15 am	EPL50	Tantangara STP/PWTP Final Effluent Quality Monitoring Point. Downstream of final treatment, prior to discharge to Tantangara Reservoir.	17.1	36.2	3.5	26	19.50	8.0	69.5	1.6	-	No was being discharged to the reservoir at the time of sampling.

Notes:

Note 1: Water Quality Objective values for the Yarrangobilly River and Minor Watercourses refer to the default trigger values for physical and chemical stressors in south-east Australia (upland rivers) that are reported in Tables 3.3.2 and 3.3.3 of ANZECC/ ARMCANZ (2000).

Note 2: Water Quality Objective values for Talbingo Reservoir are the default trigger values for physical and chemical stressors in south-east Australia (freshwater lakes and reservoirs) that are reported in Tables 3.3.2 and 3.3.3 of ANZECC/ ARMCANZ (2000).

Note 3: 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.