

Department of Planning and Environment

[dpie.nsw.gov.au](http://dpie.nsw.gov.au)



# Snowy Montane Rivers Increased Flows: Safety Management Plan 2022-2027

WINTER-SPRING HIGH-FLOW RELEASES INTO THE UPPER MURRUMBIDGEE  
RIVER BELOW TANTANGARA DAM

May 2023 (Version 2)





## Acknowledgement of Country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Published by NSW Department of Planning and Environment

[dpie.nsw.gov.au](http://dpie.nsw.gov.au)

Snowy Montane Rivers Increased Flows: Safety Management Plan 2022-2027

First published: May 2022

Version 2 published May 2023

Department reference number: PUB22/413 (v1) and PUB23/153 (v2)

### Version Control

Version	Date	Description
1	May 2022	Original publication
2	May 2023	Updates throughout the document

### Copyright and disclaimer

© State of New South Wales through Department of Planning and Environment 2023. Information contained in this publication is based on knowledge and understanding at the time of writing, April 2023, and is subject to change. For more information, please visit: [dpie.nsw.gov.au/copyright](http://dpie.nsw.gov.au/copyright)

# Table of Contents

<b>Acknowledgement of Country .....</b>	<b>2</b>
<b>Table of Contents .....</b>	<b>3</b>
<b>1. Introduction.....</b>	<b>5</b>
1.1. Purpose of environmental releases .....	5
1.2. Purpose of this plan.....	5
1.3. Scope of this plan.....	6
1.4. Structure of this plan.....	6
1.5. Policy and legislative context.....	6
1.6. Overview of responsibilities.....	7
1.7. Review of Safety Management Plan .....	7
<b>2. Risk assessment.....</b>	<b>8</b>
2.1. Stakeholders.....	8
2.2. Catchment description .....	8
2.3. Catchment flow and rainfall gauges.....	11
2.4. River levels at various flow release rates .....	12
2.4.1. Flood levels at Lobb’s Hole gauge.....	15
2.5. Travel times.....	15
2.6. Impact of climatic and catchment conditions on risk .....	16
2.7. Known locations of potential impact .....	16
<b>3. Roles and responsibilities in managing risks.....</b>	<b>17</b>
3.1. DPE-Water responsibilities for safety management .....	17
3.1.1. Decision making delegations.....	17
3.1.2. Coordination responsibilities .....	17
3.1.3 Stakeholder communication responsibilities.....	18
3.2. Responsibilities of the Tintangara STAG.....	19
3.2.1. Composition of the Tintangara STAG.....	19
3.2.2. Roles of key Tintangara STAG members .....	19
<b>4. Process of managing risks.....</b>	<b>22</b>
4.1. Start of the water year.....	22
4.1.1. SMRIF planning .....	22
4.1.2. Safety planning .....	22
4.1.3. Public Communications.....	22
4.1.4. Modelling to estimate flow levels .....	23
4.2. Approximately 4 to 6 weeks before first planned high-flow release commences.....	23
4.3. Approximately 1 week before planned high-flow release.....	23
4.3.1. Notify BoM and review weather .....	23
4.3.2. Review by Tintangara STAG .....	24
4.3.3. Public Communications .....	27
4.4. Approximately 3 days before releases .....	27
4.4.1. Review weather .....	27

4.4.2. Final BoM advice.....	27
4.4.3. Final review by Tantangara STAG.....	27
4.4.4. Public communications.....	27
4.5. During release.....	28
4.6. Modified SMRIF releases.....	28
4.7. Workplace health & safety.....	28
<b>5. Further information .....</b>	<b>30</b>
<b>Appendix A.....</b>	<b>31</b>
<b>Appendix B.....</b>	<b>36</b>
<b>Appendix C.....</b>	<b>46</b>
<b>Appendix D.....</b>	<b>54</b>
<b>Appendix E.....</b>	<b>55</b>



# 1. Introduction

The Snowy Water Initiative (SWI) was formally established in 2002 to significantly improve river health by releasing environmental water into the Snowy, upper Murrumbidgee and upper Murray River systems. Embodied in the Snowy Water Inquiry Outcomes Implementation Deed 2002 (SWIOID 2002), the SWIOID is an agreement for water recovery and environmental flows between the NSW, Victorian and Australian Federal governments (the partner governments) and Snowy Hydro Limited (Snowy Hydro). The NSW Government is responsible for the implementation of the SWI.

The SWIOID 2002 also provides for environmental releases into a number of higher altitude (montane) rivers whose flows are significantly affected by the operation of the Snowy Scheme, known as the Snowy Montane Rivers Increased Flows (SMRIF). The environmental water is released from small weirs as a passing flow, or as managed releases from Tantangara Dam. The NSW Government is responsible for determining the annual volumes and release strategy of these environmental flows.

## 1.1. Purpose of environmental releases

Since the completion of Tantangara Dam in 1960, the upper Murrumbidgee River hydrology has been significantly altered, reducing flows to about 1% of natural flows. The reduction of flows has resulted in loss of aquatic habitat and severe sedimentation of the riverbed, including infilling of riffles, pools and connected ponds and the smothering of aquatic plants.

The build-up of sediment in the upper Murrumbidgee riverbed has been recognised as one of the key limitations for the recovery of the health of the river as this reduces the quality of river habitat and directly impacts on water dependent plants and animals including native fish, frogs and platypus.

To address the effects of river regulation, since 2005 environmental water has been released into the upper Murrumbidgee from Tantangara Dam. Higher planned releases tend to be during the winter and spring months to reflect the natural hydrology of a mixed rainfall and snowmelt river. The releases encourage movement of fine sediment and inundation of lower lying connected ponds to provide habitat for water dependant species.

## 1.2. Purpose of this plan

The Safety Management Plan (SMP) has been prepared by the Department of Planning and Environment (DPE), including the Water (DPE-Water) and Environment and Heritage (DPE-EHG) divisions.

This SMP details the anticipated risks associated with environmental releases into the Upper Murrumbidgee River from Tantangara dam, and outlines the actions and processes required to be undertaken by DPE-Water, DPE-EHG, Snowy Hydro and other key stakeholders to mitigate or manage these risks.

This SMP is prepared to be consistent with the principles of the SMP for the Snowy River Increased Flows program. The Snowy River SMP is a requirement of the Snowy Water Licence and the SWIOID 2002, which state that a SMP be developed to address risks to public safety, third-party property, and workplace health and safety in connection with the release of 'flushing flows', which are defined as a daily release greater than 5,000 ML/day. DPE-Water takes a more conservative approach to safety, and this SMP addresses all environmental releases from Tantangara Dam.

The objectives of the SMP are to ensure that risks relating to environmental flow releases are appropriately minimised by:

- Promoting public awareness of the risks associated with environmental releases into the Upper Murrumbidgee River catchment below Tantangara Dam.
- Issuing of community information and warnings prior to high flow events.
- Working with organisations that also have an interest safe management of environmental releases (e.g. Snowy Hydro Limited State Emergency Service, Councils, and Bureau of Meteorology) before and during high flow events to mitigate, as far as possible, any detrimental impacts.

### 1.3. Scope of this plan

Flows from Tantangara Dam into the Upper Murrumbidgee River may be a result of the following:

1. Planned Snowy Montane Rivers Increased Flow (SMRIF) releases – These are the environmental releases as designed by DPE EHG and outlined in the annual SMRIF Operations Plan.
2. Modified planned SMRIF releases – These are modifications to the dates or volumes of the planned SMRIF releases as a result of climatic, environmental or other unforeseen circumstances that may arise closer to the time of the planned SMRIF release.
3. Snowy Hydro Tantangara Unplanned storage releases – These are releases such as those made by Snowy Hydro in order to manage the volume of water held in storage, including to avoid uncontrolled spills. These are not accounted as SMRIF, but where possible may be released in consideration of environmental outcomes.
4. Uncontrolled spills – These are spills over the dam spillway when the volume of Tantangara Dam exceeds the storage capacity of the dam.

This SMP covers the safe management of (1) planned and (2) modified planned SMRIF releases, including public communications.

Snowy Hydro is responsible for the safe management of (3) unplanned storage releases and (4) uncontrolled spills, including public communications, and as such these are not covered by this SMP.

The SMP covers a 5-year period from May 2022 to April 2027.

### 1.4. Structure of this plan

This Plan outlines the risks and mitigation measures associated with all planned environmental releases. It details the processes to be undertaken in managing safety. The planned release strategy for each water year is outlined in the SMRIF Operations Plan (see Appendix E) and is available on the DPE-Water website. Daily environmental flow releases are published on Snowy Hydro Limited's (Snowy Hydro) website.

### 1.5. Policy and legislative context

The release of SMRIF is governed by the following key acts and agreements:

- Snowy Water Inquiry Outcomes Implementation Deed 2002 (SWIOID)
- *Snowy Hydro Corporatisation Act 1997*
- *Workplace Health and Safety Act 2011*

## 1.6. Overview of responsibilities

Multiple organisations are involved in the planning, design, implementation and safety management of environmental releases. In summary this includes:

- DPE-Water determine annual water allocations to the entitlement associated with SMRIF.
- DPE-EHG, in consultation with the Snowy Advisory Committee (SAC), design the pattern of environmental flow releases to achieve environmental objectives listed in the SWIOID, taking into account operational constraints with Snowy Hydro.
- DPE-Water coordinate and implement the safety management process, including community engagement, noting that all organisations involved are responsible for ensuring safe management of releases.
- DPE-Water instruct Snowy Hydro to make the release.
- Snowy Hydro makes the physical release if safe to do so, and measure released volumes which subsequently are reported to DPE-Water.
- All organisations involved are responsible for ensuring safe management of releases.

Other stakeholders also have responsibilities and roles in identifying risks associated with environmental flows and implementing actions that will reduce the risks down to an acceptable level. Specific responsibilities for safety management are detailed further in **Section 3**.

## 1.7. Review of Safety Management Plan

This SMP is current for the 5-year period from May 2022 to April 2027. DPE-Water will review the SMP for currency prior to the commencement of planned environmental water releases annually. Any required amendments would be made as a revision to this document.

In the event of any adverse impacts resulting from a release, the SMP will be reviewed.

The annual Snowy Montane Rivers Increased Flow Operations Plan is developed by DPE-EHG and published annually. See **Appendix E**.

---

## 2. Risk assessment

DPE-Water, in collaboration with stakeholders, has analysed the anticipated risks to public safety, property and work healthy and safety, associated with planned environmental flow releases. DPE-Water has also assessed the significance of the potential consequences for each associated risk, as well as the probability of that risk being realised. A detailed table of risks is provided in **Appendix A**.

The table also includes proposed control measures required to mitigate or reduce the risks. These measures have been developed into the safety management processes outlined in **Sections 3 and 4**.

### 2.1. Stakeholders

In assessing risks, DPE-Water has taken reasonable steps to identify stakeholders likely to be affected by the releases from Tantangara Dam, or who may be able to assist in ensuring the safety of staff, the public and property during the releases. These include:

- landholders along the upper Murrumbidgee River
- local businesses within the upper Murrumbidgee region
- members of the general public
- recreational fishing and water user groups
- community interest groups
- recreational campers/hikers and tourists
- Bureau of Meteorology
- Snowy Monaro Regional Council
- NSW State Emergency Service
- ACT State Emergency Service
- Local Land Services
- NSW National Parks and Wildlife Service
- NSW Roads and Maritime Services
- WaterNSW
- Snowy Hydro Limited
- Snowy Advisory Committee
- users of The National Trail

DPE-Water recognises that effective management of the risks that could arise from the releases requires the support and coordination of many stakeholders. Effective working relationships with stakeholders must be maintained to ensure the environmental flow events occur safely.

### 2.2. Catchment description

To understand risks it is important to understand the river system downstream of where releases are made at Tantangara Dam. A catchment map is shown in Figure 2-1.



---

Tantangara Dam was completed in 1960 and until recently had captured 99% of inflows. This flow is redirected to Eucumbene Dam where it is used to generate electricity (with flows redirected to the Tumut River and Upper Murray River system).

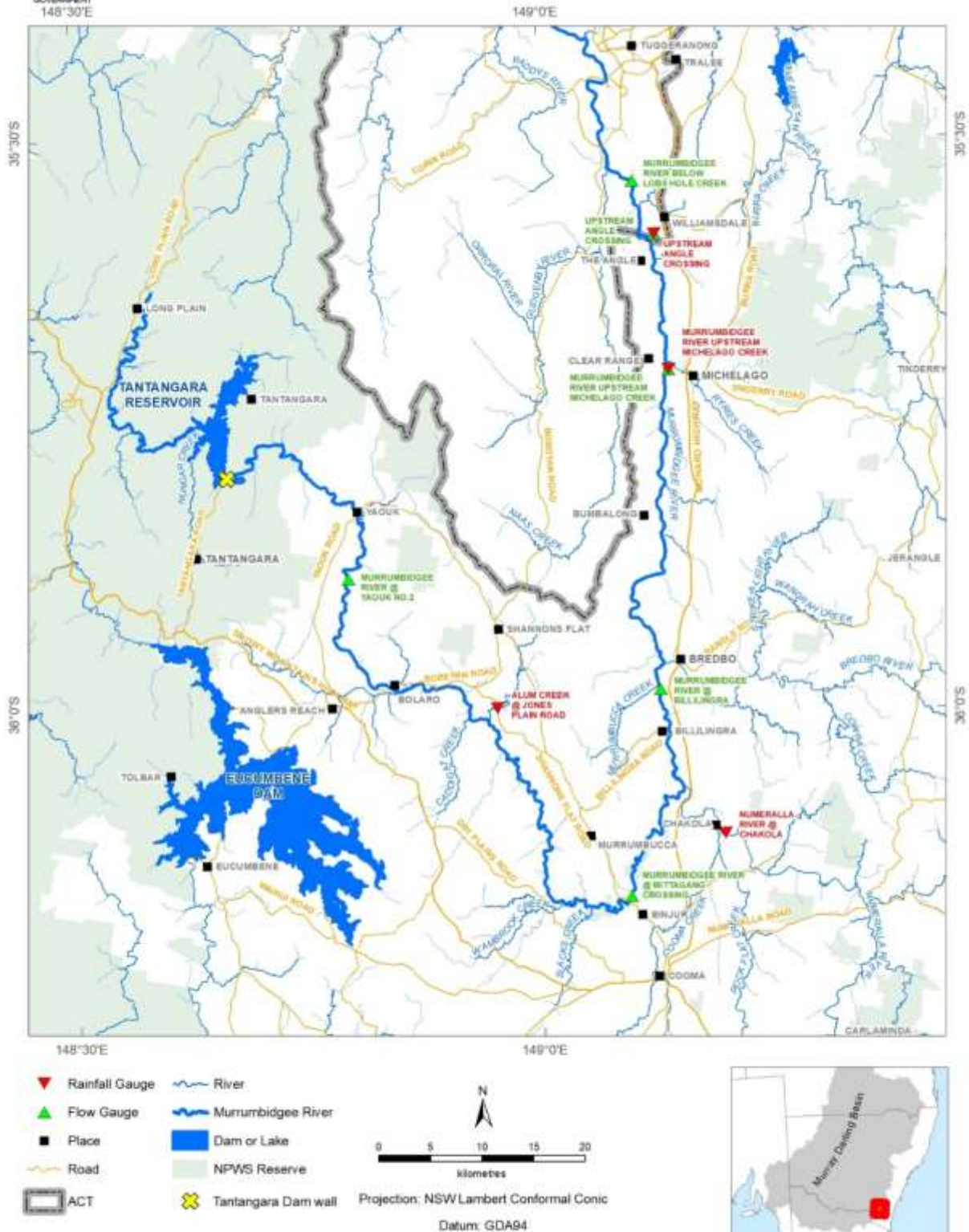
Releases have historically been made from Tantangara dam in the Upper Murrumbidgee River to provide a minimum 'base passing flow' of 32 ML/day at Mittagang Crossing near Cooma. However, when tributaries such as Yaouk Creek provide this flow, releases are shut off and the river above these tributaries can cease to flow. The SMRIF initiative was undertaken to reduce this effect and return on average around 30% of the volume of the mean annual natural flow. These returned flows are, however, restricted by the valve capacity of the dam, the availability of water and the requirement to set releases in advance of the water year.

Environmental flows released from Tantangara dam travel down the Upper Murrumbidgee River in a south easterly direction towards Cooma before flowing in a northwards direction towards the ACT.

The ecological condition of the upper Murrumbidgee's water-dependent environmental assets is largely driven by flows that connect the instream benches, cut-off channels, anabranches, floodplains, wetlands and deflation basins. Flows that provide these connections support organic carbon transfer and nutrient cycling, trigger movement and breeding of native fish and waterbirds, and directly impact vegetation condition and habitat availability.

The upper Murrumbidgee (upstream of Burrinjuck Dam) supports environmental values such as threatened native fish like the Macquarie perch but is adversely affected by the diversion of the majority of flows at Tantangara Dam for the Snowy scheme.

# UPPER MURRUMBIDGEE CATCHMENT



Data Sources:  
© Spatial Services - NSW Department of Finance,  
Services and Innovation 2016  
Murray Darling Basin Authority,  
Geoscience Australia,  
Australian Government, Department of Environment,  
Department of Planning and Environment - Water.

Map produced by DPIE Water  
1 September 2022 WAMD: 13616

Figure 2-1: Contextual map of the Upper Murrumbidgee River

## 2.3. Catchment flow and rainfall gauges

There are six existing relevant flow gauges and four rain gauges as shown in Figure 2-1 and detailed in Table 2-1.

Table 2-1: Flow gauges in the Upper Murrumbidgee River

Flow gauges	Operated by	Site Number	Location
Yaouk #2	WaterNSW	41000260	South of Yaouk
Mittagang	WaterNSW	410033	Murrumbidgee Reserve, Mittagang Road, Binjura
Billiligara	WaterNSW	410050	North west of Billiligara
Michelago	WaterNSW	41000272	Upstream of Michelago Creek
The Angle	ACTEW	41001702	Upstream Angle Crossing ACT
Lobbs Hole	ACTEW	410761	In Gigerline Nature Reserve

Rainfall gauges	Operated by	Site Number	Location
Alum@Jones Plain Rd	WaterNSW	41000271	Alum Creek, Upstream of Jones Plain Road, Shannons Flat
Numeralla@Chakola	WaterNSW	41001701	Numeralla River, upstream of Chakola Road, Chakola
Michelago	WaterNSW	41000272	Upstream of Michelago Creek
The Angle	WaterNSW	41001702	Upstream Angle Crossing ACT

There are a number of tributaries to the Upper Murrumbidgee, as listed in Table 2-2. Additionally, there are many minor and unnamed tributaries throughout the catchment. Detailed waterway information can be accessed in DPE-Water's web mapping portal<sup>1</sup>.

Table 2-2: List of main tributaries into the Upper Murrumbidgee River, from Tantangara Dam downstream to ACT border

Main tributaries into the Upper Murrumbidgee River, from Tantangara Dam downstream to ACT border		
1. Gulf Plain Creek	13. Bulga Creek	25. Long Flat Creek
2. Paytens Creek	14. Bennetts Creek	26. Middle Creek
3. Farm Creek	15. Bridle Creek	27. Snowy Creek
4. Yaouk Creek	16. Slacks Creek	28. Teatree Swamp Creek
5. Dog Plain Creek	17. Pilot Creek	29. Gap Creek

<sup>1</sup> <https://water.dpie.nsw.gov.au/licensing-and-trade/hydro-line-spatial-data>

---

**Main tributaries into the Upper Murrumbidgee River, from Tantangara Dam downstream to ACT border**

6. Boundary Creek	18. Butlers Creek	30. Gungoandra Creek
7. Long Corner Creek	19. Black Snake Creek	31. Colyers Creek
8. Back Creek	20. Numeralla River downstream of Cooma Creek	32. Ingalara Creek
9. Jones Creek	21. Billilingra Creek	33. Micaligo Creek
10. Caddigat Creek	22. Murrumbucca Creek	34. Michelago Creek
11. Alum Creek	23. Bredbo Creek	35. Gossoon Creek
12. Back Creek	24. Spring Vale Creek	36. Waterhole Creek

## 2.4. River levels at various flow release rates

In determining risks, DPE-Water considers the impact of different flows on river heights at key points along the length of the river. Table 2-3 provides water levels during past environmental flow releases, recorded at gauges downstream of the Tantangara Dam wall. Water levels are strongly influenced by catchment and climate conditions at the time of the event, and as such should be used as a guide only.

Table 2-3: Historic releases and recorded river heights

Gauge	Flow release (ML/d)	600	700	950	1000	1025	1250	1300	1500
	Date	6/6/2022	21/9/21	14/9/22	7/7/21	23/6/22	24/8/21	27/7/22	22/9/21
	Rain (mm)	35.8*	no rain	<2	no rain	no rain	8*	<2	no rain
<b>Yaouk #2<sup>1</sup></b>	<b>Height (m)</b>	<b>1.11</b>	<b>1.17</b>	<b>1.26</b>	<b>1.28</b>	<b>1.33</b>	<b>1.40</b>	<b>1.35</b>	<b>1.4</b>
	Flow (ML/d)	922	1094	1369	1450	1672	1980	1756	1975
	Travel time (hrs) <sup>4</sup>	9	12	9	15	15	13 <sup>^</sup>	13	11
<b>Mittagang<sup>1</sup></b>	<b>Height (m)</b>	<b>0.77</b>	<b>1.03</b>	<b>0.87</b>	<b>1.15</b>	<b>1.19</b>	<b>1.31</b>	<b>1.18</b>	<b>1.27</b>
	Flow (ML/d)	650	1266	917	1628	1782	2261	1748	2094
	Travel time (hrs) <sup>4</sup>	29	30	28	32	32	32	28	29
<b>Billiligara<sup>1</sup></b>	<b>Height (m)</b>	<b>1.30</b>	<b>1.37</b>	<b>1.30</b>	<b>1.48</b>	<b>1.59</b>	<b>1.67</b>	<b>1.59</b>	<b>1.57</b>
	Flow (ML/d)	1044	1370	1044	1720	2168	2541	2177	2095
	Travel time (hrs) <sup>4</sup>	36	38	35	43	42	41	39	39
<b>Michelago<sup>1</sup></b>	<b>Height (m)</b>	<b>2.54</b>	<b>2.58</b>	<b>2.50</b>	<b>2.72</b>	<b>2.78</b>	<b>3.00</b>	<b>2.78</b>	<b>2.78</b>
	Flow (ML/d)	1493	2200	1392	1865	2218	3361	2372	2214
	Travel time (hrs) <sup>4</sup>	47	50	48	52	52	n/a <sup>^</sup>	49	50
<b>The Angle<sup>2</sup></b>	Height (m) <sup>e</sup>	1.95	1.94	1.89	2.02	2.08	2.29	N/A	2.09
	Flow (ML/d)	1518	1474	1244	1848	2157	3203	2194	2198



Gauge	Flow release (ML/d)	600	700	950	1000	1025	1250	1300	1500
	Date	6/6/2022	21/9/21	14/9/22	7/7/21	23/6/22	24/8/21	27/7/22	22/9/21
	Rain (mm)	35.8*	no rain	<2	no rain	no rain	8*	<2	no rain
	Travel time (hrs) <sup>4</sup>	52	54	53	56	56	n/a <sup>^</sup>	54	54
<b>Lobbs Hole<sup>3</sup></b>	<b>Height (m)</b>	<b>2.66</b>	<b>2.55</b>	<b>2.50</b>	<b>2.68</b>	<b>2.81</b>	<b>3.06</b>	<b>2.79</b>	<b>2.78</b>
	Flow (ML/d)	1999	1589	1433	2090	2663	2392	2559	2522
	Travel time (hrs) <sup>4</sup>	51	54	52	58	58	n/a <sup>^</sup>	56	55

<sup>1</sup> WaterNSW gauge

<sup>2</sup> ACTEW Water gauge

<sup>3</sup> BoM gauge

<sup>4</sup> Travel time – from start of release to start of rise at gauge

<sup>^</sup> Cannot be determined

\* Rainfall is an estimated average, derived from the following rainfall gauge reading:

Rain gauge	24/8/2021	6/6/2022	23/7/2022	14/9/2022
Alum Creek	8.4	14.0	0.2	0
Numeralla River @ Chakola	9.5	3.2	0	0
Michelago	7.8	10.8	1.2	0
Angle Crossing	5.8	7.78	0	0.2

### 2.4.1. Flood levels at Lobb's Hole gauge

The Lobb's Hole gauge is utilised by the Bureau of Meteorology (BoM) for the issuing of flood warnings. At this gauge, the BoM has determined river level heights that would cause impacts upstream and downstream in line with minor, moderate and major flood classifications. The levels at Lobb's Hole are shown in Table 2-4. There are no other gauges with associated flood classifications on the upper Murrumbidgee River, upstream of this location.

Table 2-4: Flood levels at Lobb's Hole gauge in the Upper Murrumbidgee River

Classification	BoM flood classification description	Flood level height (m)
Minor	Causes inconvenience. Low-lying areas next to water courses are inundated. Minor roads may be closed and low-level bridges submerged. In urban areas inundation may affect some backyards and buildings below the floor level as well as bicycle and pedestrian paths. In rural areas removal of stock and equipment may be required	4.5
Moderate	In addition to the above, the area of inundation is more substantial. Main traffic routes may be affected. Some buildings may be affected above the floor level. Evacuation of flood affected areas may be required. In rural areas removal of stock is required.	11.0
Major	In addition to the above, extensive rural areas and/or urban areas are inundated. Many buildings may be affected above the floor level. Properties and towns are likely to be isolated and major rail and traffic routes closed. Evacuation of flood affected areas may be required. Utility services may be impacted	13.0

## 2.5. Travel times

In determining risks, DPE-Water also considers the time taken for a flow release to travel down the river. Travel times can vary significantly, influenced by rainfall, existing catchment conditions, depth of flow and channel storage effects. If the ground is already wet, travel times are often reduced. Travel times also reduce as flow increases in the natural channel due to the declining influence of within-channel vegetation and obstructions.

In the event of floods, large volumes of water extending outside the main channel have a dampening effect on peak flows and slow the travel time

To determine risk, DPE-Water estimates travel times based on observed data from similar historical events. As an example, travel times for a 1,500ML flow release during dry conditions in September 2021 between key locations along the Upper Murrumbidgee River are provided in Table 2-5.

Table 2-5: Travel times for a 1500ML events in September 2021

Reach	Distance (km)	Time to initial rise in flow rate (hrs)	Time to peak flow rate (hrs)
Tantangara Dam to Yaouk Gauge	38	11	16
Tantangara Dam to Mittagang Gauge	116	29	34

Reach	Distance (km)	Time to initial rise in flow rate (hrs)	Time to peak flow rate (hrs)
Tantangara Dam to Billilingra Gauge (Bredbo)	147	39	48
Tantangara Dam to Michelago	188	50	59
Tantangara Dam to The Angle	206	54	64
Tantangara Dam to Lobbs Hole Gauge	212	55	66

Note: Flow times recorded for 1,500ML release in September 2021 during dry conditions, flows may be less than nominated. Distances are approximation only and based on GIS measurements from aerial photography.

## 2.6. Impact of climatic and catchment conditions on risk

Climatic and catchment conditions can increase the risks associated with environmental flow releases by creating uncertainty around predicted flow rates and water levels.

In the Upper Murrumbidgee catchment, tributary inflows have a significant influence on flows and water levels in the main river. Inflows may result in the river rising before or during an environmental release, such that the release may contribute to increased flooding risk. Mitigation for this risk has been included in the safety procedures outlined in the next section.

High rainfall events that extend over the catchment area can lead to increases in the dam storage levels which could result in an uncontrolled spill, although this is unlikely to occur from Tantangara dam. Safety management of spills or unplanned releases to manage dam storage levels are the responsibility of Snowy Hydro and are not covered by this SMP. However, in some instances a planned environmental release may be brought forward to reduce the risk of uncontrolled spill.

## 2.7. Known locations of potential impact

Rising water may inundate public roads and private causeways, restricting safe transportation movements. However, feedback from stakeholders recently indicated that environmental releases thus far have no significant impacts observed by landowners along the river. Instead of environmental releases, the rising water from tributaries under wet weather and operational spills from the dam are potential risks to downstream stakeholders.

The following locations have been raised by stakeholders as potentially being impacted by environmental releases:

- The causeway at Bumbalong Road, Colinton. Residents have advised that the causeway cannot be crossed when the Billilingra gauge is at approximately 1.85m. A new bridge is being constructed in this location by June 2024.
- The causeway at Dromore Road, Chakola. Residents have reported using an alternate access during wet periods of the year.
- The Angle Causeway, The Angle. An alternate access route is available.

### 3. Roles and responsibilities in managing risks

The following procedures have been developed to mitigate the risks tabled in **Appendix A**. This section defines the responsibilities of the participating organisations.

#### 3.1. DPE-Water responsibilities for safety management

DPE-Water is responsible for coordinating the safe management of planned environmental releases.

##### 3.1.1. Decision making delegations

DPE-Water’s Chief Operating Officer (COO) has overarching responsibility for relevant decision making, including instructing Snowy Hydro to make, amend or cease environmental flow releases. (Note that Snowy Hydro can cease a release at any time if Snowy Hydro deems it to be unsafe). Should the COO be unavailable, decision making is delegated to the DPE-Water Director Asset Management and Performance. Responsibilities within DPE-Water are depicted in Figure 3-1.

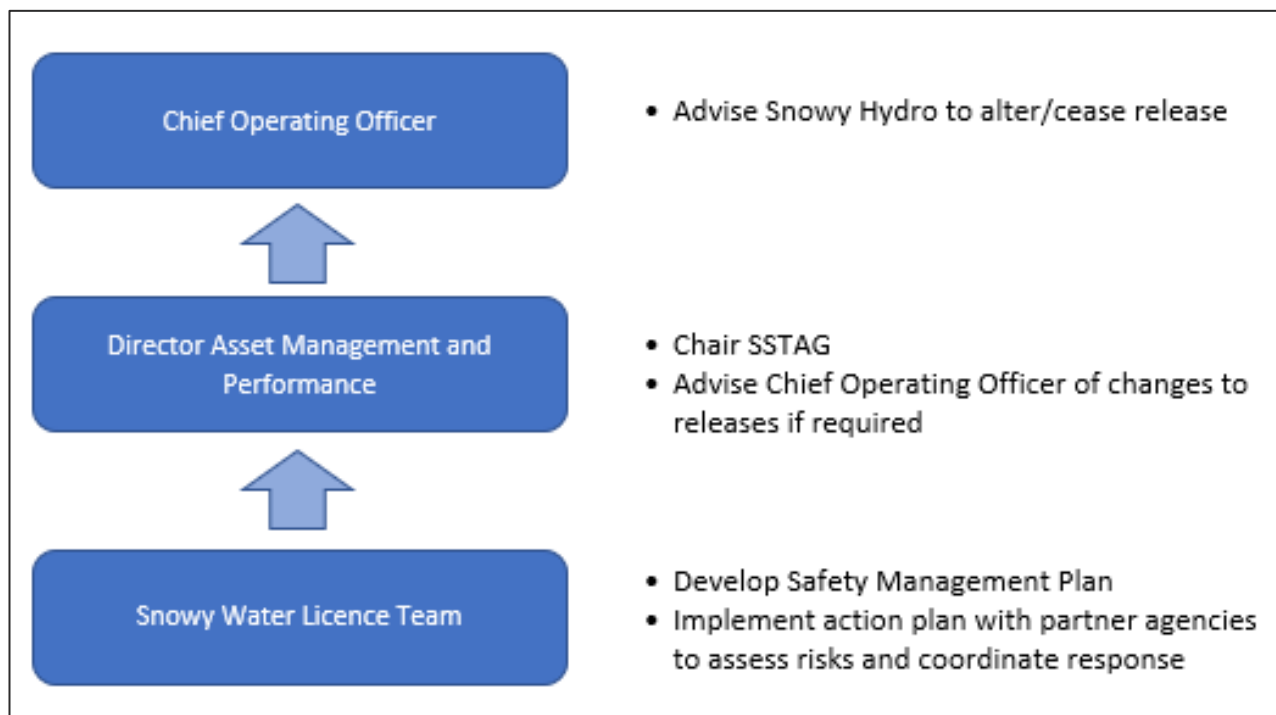


Figure 3-3: SMRIF Safety management framework within Department of Planning and Environment

##### 3.1.2. Coordination responsibilities

DPE-Water is responsible for coordination, including:

- Liaising between DPE-EHG and Snowy Hydro in relation to SMRIF volumes and release patterns.
- Providing timely advice to Snowy Hydro to commence, amend or cease dam releases.
- Chairing, coordinating and secretariat support to the Tantangara Safety Technical Advisory Group (Tantangara STAG) (details of the Tantangara STAG are provided later). DPE-Water’s internal technical staff may also provide advice to the Tantangara STAG as required.

- 
- Through the Tantangara STAG process, coordinating, informing and delegating to stakeholders and responsible agencies, such as DPE-EHG, Snowy Hydro, the State Emergency Service (SES), the Bureau of Meteorology (BoM), National Parks and local councils, for the management of risks.
  - Coordinating stakeholder and public communication (in coordination with DPE Corporate Communications).
  - Alerting relevant emergency services during a flow release to activate emergency arrangements, if required.

### 3.1.3 Stakeholder communication responsibilities

DPE-Water recognises that effective management of the risks requires the support and coordination of many stakeholders. Effective working relationships with stakeholders must be maintained to ensure the high-flow events occur safely.

DPE-Water, in collaboration with the DPE Corporate Communications team and DPE-EHG, is responsible for coordinating communication to stakeholders and the public in relation to environmental releases. DPE Corporate Communications has developed a Stakeholder and Community Engagement Plan (**Appendix B**) to ensure proactive messaging to all stakeholders regarding environmental flow releases. DPE Corporate Communications ensures that community engagement and key messaging on the safety impacts of the releases and its related events is undertaken and continually improved.

DPE-Water currently provides information to stakeholders, downstream residents, and the community in a range of ways or channels in relation to environmental flow releases, including through:

- Direct communication via email, phone and meetings with agency members of the Tantangara STAG.
- Publishing this SMP and SMRIF Operations Plan on the DPE-Water website.
- Publishing up to date web-based information and frequently asked questions regarding environmental flow release events on the DPE-water website.
- Direct communication with downstream landholders and stakeholders prior to a release (for example, via targeted mailing lists). The DPE-EHG website enables members of the public to opt-in to this distribution list.
- Advice and provision of information to emergency services, local councils, National Parks, and other partner agencies who are then expected to enact their own communication arrangements.
- Publishing media releases and rising river alerts, including via email, the DPE-Water website and tweets.
- Issuing rising river alert by SMS to downstream land holders and stakeholders to a distribution list held by DPE-Water's Snowy Water Licence Team.

In the event of an escalating flooding situation DPE-Water will assist relevant emergency service agencies i.e. contact SES STAG member or SES State Communication Centre as required.

In the event of major floods or an impending disaster, legislated NSW emergency management arrangements will be activated by emergency service authorities. At this time, emergency response



---

agencies would take responsibility for provision of community safety and emergency messaging through established systems.

Tantangara STAG detailed list of communication actions and responsibilities is provided in **Appendix B**.

## 3.2. Responsibilities of the Tantangara STAG

The Tantangara STAG is responsible for assessing and reviewing the adequacy of safety management arrangements for all planned environmental releases from Tantangara Dam. Tantangara STAG consists of technical experts that provide DPE-Water with timely advice and information to make informed decisions regarding proceeding with, or the need to alter the timing, of environmental flow releases. The Tantangara STAG has an advisory role, with final decision making, policy direction or delegating additional work to be carried out by DPE-Water.

The Tantangara STAG Terms of Reference is included in **Appendix C**.

### 3.2.1. Composition of the Tantangara STAG

The Tantangara STAG includes organisations with knowledge and expertise relevant to management the safety of environmental flow releases. The composition is flexible and may change subject to the expertise required, however it generally comprises representatives from various Commonwealth, State and Local Government departments / authorities / corporations and Snowy Hydro. Current membership includes representatives from:

- DPE-Water
- DPE-EHG
- DPE Corporate Communications
- BoM
- Snowy Hydro
- NSW National Parks and Wildlife
- NSW State Emergency Service (SES) - Region / Local Controller or nominee
- ACT SES
- WaterNSW
- Snowy Monaro Council

### 3.2.2. Roles of key Tantangara STAG members

The roles of key Tantangara STAG members in relation to managing safety risks of environmental releases are summarised in Table 3-1.

Table 3-1: Tantangara STAG roles and responsibilities

Agency	Role
DPE-Water	<ul style="list-style-type: none"> <li>• Develop the Safety Management Plan</li> <li>• Lead implementation of processes detailed in the Safety Management Plan</li> <li>• Chair Tantangara STAG</li> <li>• Provide secretariat support to Tantangara STAG</li> <li>• Coordinate all public and stakeholder communications prior to high flow releases</li> <li>• Reply to contentious issues and enquires</li> </ul>
DPE Corporate Communications	<ul style="list-style-type: none"> <li>• Develop and implement the Communications Plan</li> <li>• Undertake all public and stakeholder communications prior to high flow releases</li> </ul>
DPE-EHG	<ul style="list-style-type: none"> <li>• Development of Snowy Montane Rivers Increased Flow (SMRIF) release pattern</li> <li>• Provide technical advice as required</li> <li>• Work with Snowy Advisory Committee to ensure they consider risks in planning future SMRIF release patterns</li> <li>• Liaise with impacted stakeholders</li> </ul>
BoM	<ul style="list-style-type: none"> <li>• Provide input to the SSTAG relating to weather conditions (Information for Tantangara release is limited to rainfall forecasts)</li> </ul>
NSW SES	<ul style="list-style-type: none"> <li>• Provide technical advice as required</li> <li>• NSW SES is the legislated Combat Agency for floods and is responsible for the control of flood operations. NSW SES work with the Bureau and Councils to develop warning systems.</li> <li>• Responsible for flood consequence management</li> <li>• Advise on flood risks</li> <li>• Assist with community engagement as required</li> </ul>
ACT SES	<ul style="list-style-type: none"> <li>• Provide technical advice as required</li> <li>• ACT SES is the legislated Combat Agency for floods and is responsible for the control of flood operations. ACT SES work with the Bureau and Councils to develop warning systems.</li> <li>• Responsible for flood consequence management</li> <li>• Advise on flood risks</li> <li>• Assist with community engagement</li> </ul>
Snowy Hydro Limited	<ul style="list-style-type: none"> <li>• Provide technical information to DPE's project teams as required.</li> <li>• Ensure releases are able to be undertaken safely</li> <li>• Operate infrastructure to make releases to the Snowy River</li> <li>• Cease / alter releases (from this planned) when directed by DPE Water</li> <li>• Assist with community engagement as required</li> </ul>

Agency	Role
Snowy Monaro Council	<ul style="list-style-type: none"> <li>• Provide technical information to DPE's project team as required.</li> <li>• Assist in providing up to date contact details for downstream landholders</li> <li>• Advise on flood risks</li> <li>• Assist with community engagement as required</li> </ul>
NSW National Parks and Wildlife Service	<ul style="list-style-type: none"> <li>• Advise on flood risks within NPWS estate</li> <li>• Install signage to alert park users including campers in camping areas</li> <li>• Erect road closed signs as required</li> <li>• Assist with community engagement as required</li> </ul>

---

## 4. Process of managing risks

The following sections out the process to be followed prior to and during environmental releases. The estimated timeframes are indicative only and may be subject to change as a result of factors such as unexpected climatic conditions, ongoing stakeholder consultation, ongoing licence review considerations, etc.

### 4.1. Start of the water year

#### 4.1.1. SMRIF planning

Prior to the start of the water year (1 May), the design of the SMRIF release pattern is undertaken by DPE-EHG in consultation with the Snowy Advisory Committee (SAC) and Snowy Hydro. The design considers environmental, safety, available water allocation and operational requirements. The strategy is detailed in DPE-EHG's 'Annual Plan for the Snowy and Montane Rivers Increased Flows'.

**It is important to note that the annual release plan may change throughout the year due to climatic and other environmental conditions.**

#### 4.1.2. Safety planning

Once the SMRIF release has been determined the Tantangara STAG may convene<sup>2</sup> to:

- Discuss the planned releases for the upcoming water year and the Annual SMRIF Operations plan.
- Review the Safety Management Plan.
- Review any new data on flow releases and water levels acquired from the previous water year.
- Determine any risks associated with the planned timing, duration, and size of planned SMRIF releases.
- Determine any risk mitigation measures that may be required for the upcoming water year.
- Determine which flow events would require the Safety Management Process to be enacted, as set out in in the next sections. Based on current available evidence the releases threshold has been revised from 1,000 ML/d to 1,300 ML/d during dry conditions. However, this threshold would be reviewed annually and upon receipt of any evidence that may suggest a more appropriate value. Flow events that exceed the determined threshold are labelled as 'high-flow events'.

The process of Tantangara STAG involvement is detailed in the STAG terms of reference in **Appendix C**.

#### 4.1.3. Public communications

A key strategy for mitigating many of the risks identified in **Appendix A** is ensuring effective and timely stakeholder communication. At the start of the water year, the following communications activities are undertaken:

---

<sup>2</sup> Meetings may be undertaken in person, virtually or as group emails.

- 
- The Stakeholder and Community Engagement Plan (**Appendix B**) is reviewed for currency by the DPE Corporate Communications team.
  - The SMP, as published on the DPE-Water website, will be replaced at any time that amendments are made by DPE-Water.
  - The contact list for downstream landholders and key stakeholders is reviewed for currency by DPE's Communications team as per the process set out in the Communications and Stakeholder Engagement Plan.
  - The Annual SMRIF Operations Plan is published on the DPE-Water website.
  - An overview list of the dates of planned environmental flows is published on DPE-Water website by DPE Corporate Communications.
  - A media release providing an overview of the environmental flow releases is issued to all relevant media outlets and published on the DPE-Water website by DPE Corporate Communications.
  - DPE Corporate Communications publishes FAQs on the SMRIF release plan on the DPE-Water website; emails them directly to downstream landholders and interested parties on the DPE contact list; and shares them directly with relevant stakeholder agencies as required.

Details of communications task and responsibilities are summarised in **Appendix B**.

#### 4.1.4. Modelling to estimate flow levels

The DPE-Water modelling team has developed a Source model of the Upper Murrumbidgee catchment. The model is run for each planned high-flow release event, to generate estimates of the *change* in river flows at each gauge compared to a modelled baseline. This value is then added to the observed flow levels at each gauge 7 days and 2 days prior to the release, in order to estimate the potential flow rate and depth at each gauge as a result of the release.

### 4.2. Approximately 4 to 6 weeks before first planned high-flow release commences

Approximately 4 to 6 weeks prior to the commencement of the first planned high-flow environmental release event, DPE Corporate Communications team contact (via email or similar) downstream landholders and key stakeholders (as identified on the DPE-Water contact list), coinciding with the issuing of the 'overview' media release and updates to the DPE-Water website with information on the planned environmental water releases for the upcoming water year. In some cases, this timeframe may be reduced, however DPE-Water intends to provide the maximum notice period possible for the circumstances.

### 4.3. Approximately 1 week before planned high-flow release

#### 4.3.1. Notify BoM and review weather

During the week leading up to a release, the Bureau of Meteorology (BoM) - Hazard Preparedness and Response (HPR) section, addresses the Tantangara STAG with details of any climate risks and expected rainfall during the release period. Together the Tantangara STAG makes recommendations on the release considering the information available.

If the BoM advises of a climatic risk then additional action is required, as detailed in Table 4-1.



Table 4-1: Potential climatic risk triggers and actions required by DPE-Water

Climatic risk	DPE-Water action required
Flood Watch issued for any part of the catchment	<ul style="list-style-type: none"> <li>discuss probability of flooding with the BoM and possible impacts</li> <li>advise stakeholders and Tantangara STAG that the release may be reviewed</li> </ul>
Severe weather warning	<ul style="list-style-type: none"> <li>discuss probability of flooding with the BoM and possible impacts</li> <li>if there is a risk of flooding, advise stakeholders and Tantangara STAG that the release may be reviewed</li> </ul>
Flood warning	<ul style="list-style-type: none"> <li>discuss extent of predicted flooding with the BoM and probable impacts</li> <li>discuss risk with Tantangara STAG members</li> <li>make recommendation regarding release</li> </ul>
Weather event without warning	<ul style="list-style-type: none"> <li>discuss probability of flooding with the BoM and possible impacts</li> <li>if there is a risk of flooding then take action as required</li> </ul>

A climate risk trigger will not always result in a change to the release flows, but will be discussed with the Tantangara STAG to ensure that the release would not create an unacceptable level of risk.

Triggers that will result in high risk to public safety or disruption to services, such as major transport routes, will be assessed by the Tantangara STAG prior to continuing the release. The Tantangara SSTAG members will provide this level of technical advice, within their area of expertise, and DPE-Water will take mitigating actions if necessary.

#### 4.3.2. Review by Tantangara STAG

The Tantangara STAG convenes to reviews the planned releases, along with the BoM’s rainfall predictions and notification of any climatic risks. The Tantangara SSTAG considers risks by:

- Reviewing estimated travel times listed in Table 2-5.
- Reviewing similar past flow events documented levels in Table 2-3 to estimate the potential water levels at key locations.
- Reviewing the current water levels prior to the release using WaterNSW real-time data.
- Using the results of DPE-Water Source modelling to determine an estimated change in flow as a result of the event, and equating this to an estimated change in river levels (noting this is not based on a flood forecasting model and should be used as a guide only).
- Reviewing the risk and mitigation measures table in **Appendix A**.
- Using local knowledge or agency intelligence records to relate the estimated water levels to local impacts, such as inundation to property, access routes, roads, etc.
- Using local knowledge of upcoming events that may be impacted.
- Or any other appropriate means.

---

If a potential risk is identified, the Tintangara STAG will provide advice on both the risk and relevant mitigation measures.

For example, relevant advice on professional emergency management could be sought from the State Emergency Service to inform decision making on whether to proceed with the planned release.

The Tintangara STAG provides advice/recommendation as requested by DPE-Water to assist the safety management process. The Tintangara STAG makes recommendations to DPE – Water as to whether the release should proceed, be modified or cancelled. Final decision making, policy direction or delegating additional is carried out by DPE-Water. The decision-making process to be undertaken is outlined in the flow chart in Figure 4-1.

It is important to note that decisions to proceed with the release is based on the recommendations from all members of the Tintangara STAG being comfortable that risks are known and mitigated against or reduced to an acceptable level.

The Term of Reference of Tintangara STAG involvement is summarised in **Appendix C**.

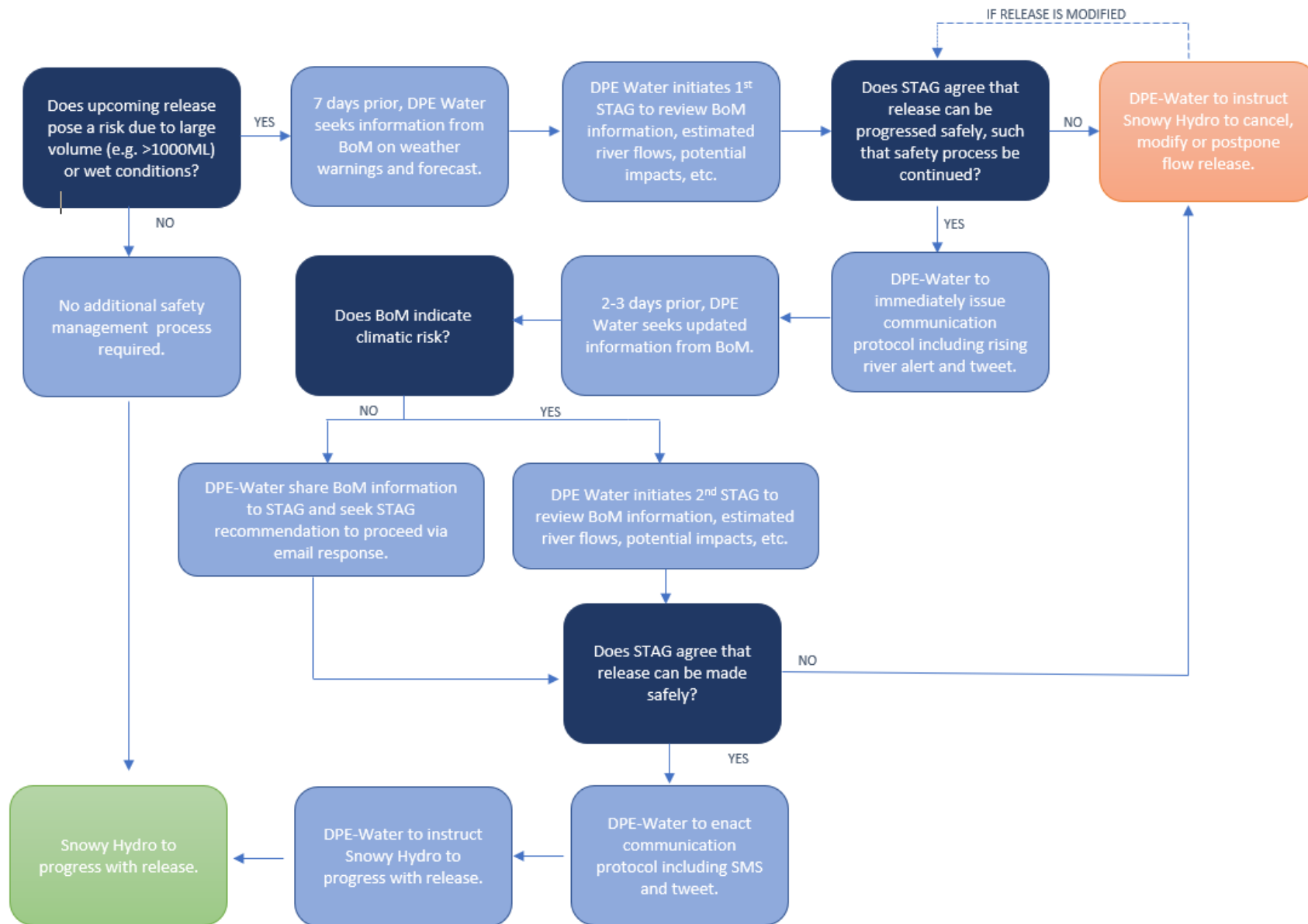


Figure 4-1: Tantangara STAG process flow chart

---

### 4.3.3. Public communications

A 'Rising river alert' media release is issued by DPE Corporate Communications approximately seven days before each planned high-flow environmental release to inform affected communities/general public of the upcoming event. The alert is published on DPE-Water website and a tweet is also issued on the same day. (See **Appendix B**).

## 4.4. Approximately 3 days before releases

### 4.4.1. Review weather

In the days leading up to the high flow environmental release, DPE-Water and Snowy Hydro closely monitor weather forecasts and flows in the Upper Murrumbidgee River and the tributaries downstream of Tantangara Dam.

### 4.4.2. Final BoM advice

DPE-Water continues to liaise with the BoM and undertake a final assessment of weather events based on the most recent weather data.

### 4.4.3. Final review by Tantangara STAG

DPE-Water consults with the Tantangara STAG to undertake a final review, virtually or by email, dependant on the level of risk observed in the BoM rainfall forecast. The review includes:

- the planned release flow rate
- updated BoM rainfall predictions
- updated estimates of water levels (based on using adding the modelled change in flow value to the current observed flow rate, and converting this to a water level at each gauge)
- any final safety issues or actions required

This information is used to confirm that the Tantangara STAG is comfortable that the risks of the impending flow event are known and have been mitigated to an acceptable level.

The STAG again undertakes recommendations in line with the previous flow chart in Figure 4-1 and the department instructs Snowy Hydro based on the outcome.

Where there is a level of uncertainty with the forecasts the Tantangara STAG may determine to reconvene 1 day prior to the environmental release and reconsider available data.

Tantangara STAG involvement is summarised in **Appendix C**.

### 4.4.4. Public communications

If the release is determined safe to proceed, approximately 1 to 3 days prior to release an SMS is sent by DPE-Water to the list of SMRIF stakeholders in the DPE distribution list. DPE-Water and DPE Corporate Communications will work together to regularly review and update the list of stakeholders.

DPE Corporate Communications will also issue a Tweet the day before each respective environmental release event (See **Appendix B**).

---

## 4.5. During release

During the release, DPE-Water monitors information as required through liaison with the DPE-EHG, BoM, Snowy Hydro and the Tantangara STAG, particularly if forecasts indicate that rain is likely or a Flood Watch is issued for any part of the Upper Murrumbidgee River or surrounding catchments.

Where any rainfall risks are forecast during the duration of the event, DPE-Water will request BoM to review rainfall predictions. Where risks are determined, DPE-Water advises the Tantangara STAG and the Tantangara STAG provides recommendations on continuing, ceasing or modifying the release to DPE-Water.

In addition to a flood mitigation directive from DPE -Water, Snowy Hydro will cease releases if:

- Directed to by NSW Police or the State Emergency Service.
- Deemed necessary to manage public safety or environmental health risks.

## 4.6. Modified SMRIF releases

Modifications to the planned SMRIFs may occur throughout the year as a result of climatic, environmental or other unforeseen circumstances that may arise closer to the time of the planned SMRIF release.

For example, prolonged climatic conditions in wet years may result in Tantangara Dam approaching or realising spill level, such as occurred with Lake Jindabyne in December 2021 to March 2022. At these times, modifications to the volume, timing or flow rate of SMRIF releases may be required to prevent uncontrolled spills and ensure that water levels can be reduced in a safe manner. Changes to the planned SMRIF regime may be made rapidly.

As another example, where SMRIF accounting is not finalised at the commencement of the water year, DPE-EHG will design an interim SMRIF regime which may be modified once accounting arrangements are resolved.

In these rare occurrences, a condensed approach to that described in Section 3 would be undertaken within the available timeframe. Warnings would be provided to stakeholders with as much time as practically available. The timeframes may be less than outlined Section 3, and in some extreme instances may be limited to less than 24 hours notice.

During unplanned storages releases or uncontrolled spills (See Section 3), Snowy Hydro is responsible for safety management, stakeholder coordination and public communication. DPE-Water would assist Snowy Hydro as requested.

## 4.7. Workplace health and safety

All agencies, corporations and stakeholders are responsible for their actions with regards to Workplace Health and Safety (WHS) legislation and must follow their organisation's WHS policies and procedures.

Departmental employees must follow the DPE [Work Health and Safety Policy](#) (DOC21/38032) and related procedures, accessed through the internal DPE intranet. Prior to any field work, departmental employees must consider relevant risks and follow all relevant departmental procedures. This may include, but is not limited to, DPE WHS procedures and critical risk controls in place for:

- Driving (WHS CRC 007)



- 
- Remote or isolated work (WHS CRC 014)
  - Working on or near water (WHS CRC 017)
  - Dealing with aggressive stakeholders (WHS CRC 020)

These documents should be accessed by DPE employees through the internal DPE intranet. These documents have not been included herein as they are updated frequently, and it is important to access the most recent version. Further information is below.

---

## 5. Further information

Further information on the Snowy Water Initiative and Snowy Montane Rivers Increased Flows is available on the DPE-Water website.

- Snowy Water Initiative: [www.industry.nsw.gov.au/water/basins-catchments/snowy-river/initiative](http://www.industry.nsw.gov.au/water/basins-catchments/snowy-river/initiative)
- Snowy Montane Rivers Increased Flows: [www.industry.nsw.gov.au/water/basins-catchments/snowy-river/initiative/snowy-montane-rivers](http://www.industry.nsw.gov.au/water/basins-catchments/snowy-river/initiative/snowy-montane-rivers)

Further information on the environmental management of Snowy and Montane Rivers is available on the DPE -EHG website: [www.environment.nsw.gov.au/topics/water/water-for-the-environment/snowy-and-montane](http://www.environment.nsw.gov.au/topics/water/water-for-the-environment/snowy-and-montane)

Register for Rising River Alert notifications or to receive information about the Upper Murrumbidgee or Snowy Water for the Environment programs at:

[www.environment.nsw.gov.au/topics/water/water-for-the-environment/snowy-and-montane/snowy-and-upper-murrumbidgee-landholder-survey-and-contact-information](http://www.environment.nsw.gov.au/topics/water/water-for-the-environment/snowy-and-montane/snowy-and-upper-murrumbidgee-landholder-survey-and-contact-information)

## Appendix A

### Risk analysis and mitigation measures

Table A-1: Risks and mitigation measures associated with environmental releases of SMRIF

Ref	Hazard description (A hazard is a situation or thing that has the potential to cause harm.)	Risk description (A risk is the possibility a hazard can cause harm.)	Likelihood	Consequence	Initial risk rating	Proposed risk controls	Type of risk control	Likelihood	Consequence	Residual risk rating
E.g.	(i.e. wet floor)	(i.e. slip on floor)				(i.e. mop the floor and place wet floor hazard signage)	-	-	-	
1	Lack of public awareness of flow release, given large environmental releases from Tantangara are infrequent.	The community being unprepared, leaving people and property exposed to harm and damage from the release.	Possible	Extreme	High	<ul style="list-style-type: none"> <li>SMP process to be followed by all members of STAG.</li> <li>Communications and Engagement Plan to be developed and implemented by DPE Corporate Communications, in collaboration with DPE Water, to ensure community is aware of upcoming flows.</li> <li>Communications to include targeted communication to community by DPE Corporate Communications (via email, media release and tweet) and by DPE Water (via SMS) at the start of the water year, 7 days and 3 days prior to higher-risk flow events.</li> <li>Information materials, such as FAQs and 'Rising River Alerts' will be made publicly available by DPE Corporate Communications via the DPE-Water website and emailed directly to downstream landholders.</li> <li>DPE to maintain up-to-date contact list of stakeholders and downstream landholders.</li> <li>STAG members to communicate relevant information within their organisation's networks.</li> </ul>	Reduce exposure to the hazard using administrative actions	Unlikely	Moderate	Medium
2	Flooded roads, causeways and property access.	<ul style="list-style-type: none"> <li>Nuisance caused by restricted vehicle access</li> <li>Harm to human safety, such as injury or fatality from entering flooded roads and causeways.</li> <li>Damage to vehicles</li> <li>Damage to roads and driveways</li> </ul> <p>Potential know issues occur at:</p> <ul style="list-style-type: none"> <li>Bumbalong Road, Colinton, which is known to become inundated when Billilingra gauge is from 1.67m - 1.85m/</li> <li>Dromore Road, Chakola, which is known to become inundated when Billilingra gauge is at 1.67m/</li> </ul>	Possible	Extreme	High	<ul style="list-style-type: none"> <li>SMP process to be followed by all members of STAG.</li> <li>Proposed communication measures detailed in item 1 to be enacted to ensure community is aware of upcoming flows.</li> <li>STAG members to use local knowledge to identify potential roads / causeways / property access that may be impacted at STAG meetings prior to release.</li> <li>SES to be informed through STAG process when access is likely to be inundated in order for SES to enact their own processes.</li> <li>STAG to recommend modifying or cancelling release if risk is deemed unacceptable due to nuisance or safety.</li> <li>DPE-Water to communicate with relevant road authority (Council or National Parks) through the STAG meetings to close any roads identified by the STAG and will request Council or National Parks to communicate closures to the public.</li> <li>Where public roadways are cut by flood water, Councils or other relevant authority will erect road closure signage</li> </ul>	<p>Reduce exposure to the hazard using administrative actions</p> <p>Isolate hazard from people</p>	Unlikely	Moderate	Medium

		<ul style="list-style-type: none"> <li>· Crossing north of Bredbo (Gilllands Crossing, downstream of Cooma) will be inundated when Billilingra gauge is at 1.85m.</li> </ul>								
3	Flow release combining with rainfall event and/or downstream tributary inflows to cause flooding.	<ul style="list-style-type: none"> <li>· Harm to human safety such as injury or drowning from rising floodwaters.</li> <li>· Harm to human safety such as injury or drowning from entering waterways.</li> <li>· Damage to private property, e.g. pumps, vehicles, access roads and buildings.</li> <li>· Damage to public property, e.g. pathways, roads, buildings, parks.</li> <li>· Nuisance caused by restricted vehicle and pedestrian access.</li> </ul>	Possible	Extreme	High	<ul style="list-style-type: none"> <li>· SMP process to be followed by all members of STAG.</li> <li>· Proposed communication measures detailed in item 1 to be enacted to ensure community is aware of upcoming flows.</li> <li>· DPE-Water to seek weather warning and rainfall forecast from BoM, who must provide this as requested approx. 7 and 3 days prior to release. This information to be shared with STAG for consideration.</li> <li>· DPE Water to use Source model to estimate potential water levels from proposed release under current climate condition and share information with STAG.</li> <li>· DPE-Water to review past release and climate conditions to gain and understanding of potential flow impacts.</li> <li>· STAG to use local knowledge to provide insight into potential risks and impacts from the release in the existing climate and catchment conditions.</li> <li>· STAG to advise DPE-Water on any mitigation measures necessary to maintain river heights below minor flood levels and at an acceptable level of risk. Releases can be reduced if required to minimise the risk of targeted flows being exceeded.</li> <li>· STAG to recommend modifying or cancelling release if risk is deemed unacceptable due to nuisance or safety. Based on this, DPE-Water to decide if release should be modified or ceased.</li> <li>· DPE-Water to monitor flows prior to and during a release, and to liaise with the BoM, Snowy Hydro, and seek updated rainfall forecasts from the BoM as required to determine risks.</li> <li>· Snowy Hydro to cease releases if requested to do so by DPE, the State Emergency Service (SES) or NSW Police. Note: ceased flow may take considerable timeframe till it has a noticeable effect on a locality.</li> </ul>	<p>Reduce exposure to the hazard using administrative actions</p> <p>Isolate hazard from people</p>	Unlikely	Moderate	Medium
4	Rising water levels at campsites, picnic areas, hiking paths, including The National Trail	<ul style="list-style-type: none"> <li>· Harm to human safety from people entering waterways, such as injury or drowning, especially to holiday makers/ travellers/ hikers, campers and the general public using these areas.</li> <li>· Damage to private property, e.g. camping gear, vehicles, etc</li> <li>· Damage to public property, e.g. campground facilities.</li> </ul>	Possible	Extreme	High	<ul style="list-style-type: none"> <li>· SMP process to be followed by all members of STAG.</li> <li>· Proposed communication measures detailed in item 1 to be enacted to ensure community is aware of upcoming flows.</li> <li>· DPE-Water to work collaboratively to address any identified flooding issues with the National Parks and Wildlife Service (NPWS) through the STAG process.</li> <li>· NPWS to post a warning regarding environmental release alerts on the NPWS website and to install temporary and/or permanent signage at any locations they have identified as vulnerable by NPWS and the STAG.</li> </ul>	<p>Reduce exposure to the hazard using administrative actions</p> <p>Isolate hazard from people</p>	Unlikely	Minor	Low

5	Flow release impacting bridges	<ul style="list-style-type: none"> <li>Bridges subject to gathering of debris, such as tree branches/logs, causing failure of the bridge</li> </ul>	Rare	Major	Medium	<ul style="list-style-type: none"> <li>Communications and Engagement Plan to be developed by DPE Corporate Communications, in collaboration with DPE Water, and implemented by both.</li> <li>RMS and Council are notified of releases as part of the plan.</li> </ul>	Reduce exposure to the hazard using administrative actions	Rare	Minor	Low
6	Flow release impacting property (buildings, pumps, livestock equipment, etc.)	<ul style="list-style-type: none"> <li>Damage to property located within close proximity to the river</li> <li>Although the infrastructure is close to the river, most items are located on the high bank and are unlikely to be inundated.</li> </ul>	Unlikely	Minor	Low	<ul style="list-style-type: none"> <li>SMP process to be followed by all members of STAG.</li> <li>Proposed all communication measures detailed in item 1 to be enacted to ensure community is aware of and prepared for upcoming flows.</li> <li>Pump owners were previously identified and contacted individually to seek their interest in being notified about upcoming releases.</li> <li>STAG members to use local knowledge to identify potential property that may be impacted at STAG meetings prior to release.</li> <li>STAG to recommend modifying or cancelling release if risk is deemed unacceptable due to nuisance or safety.</li> </ul>	Reduce exposure to the hazard using administrative actions	Unlikely	Insignificant	Low
7	Change to planned volume or timing of release with limited notice to the public	<ul style="list-style-type: none"> <li>The community being unprepared, leaving people and property exposed to harm (injury or fatality) and damage from the release.</li> </ul>	Possible	Extreme	High	<ul style="list-style-type: none"> <li>SMP process to be followed by all members of STAG.</li> <li>Communications and Engagement Plan to be developed and implemented by DPE Corporate Communications, in collaboration with DPE Water, to ensure community is aware of upcoming flows.</li> <li>Communications to include targeted communication to community by DPE Corporate Communications (via email, media release and tweet) and by DPE Water (via SMS) at the start of the water year, 7 days and 3 days prior to higher-risk flow events.</li> <li>Information materials, such as FAQs and 'Rising River Alerts' will be made publicly available by DPE Corporate Communications via the DPE-Water website and emailed directly to downstream landholders.</li> <li>DPE Water to ensure communications includes messaging that releases can be modified at short notice,</li> <li>DPE to maintain up-to-date contact list of stakeholders and downstream landholders.</li> <li>STAG members to communicate relevant information within their organisation's networks.</li> </ul>	Reduce exposure to the hazard using administrative actions	Unlikely	Insignificant	Low
8	Cancellation of release with limited notice to public.	<ul style="list-style-type: none"> <li>Nuisance to community that have already made alternative arrangements to address the impact of the release.</li> <li>Commercial losses to businesses that have already made alternative plans to address the release, such as cancellation of accommodation bookings due to restricted property access.</li> <li>Reputational damage to department where community has been unnecessarily impacted</li> <li>loss of environmental benefit from the release</li> <li>Reputational damage to department and</li> </ul>	Possible	Minor	Medium	<ul style="list-style-type: none"> <li>DPE Water to ensure communications includes messaging that releases can be modified or cancelled at short notice, including Rising River Alerts and DPE Water Website.</li> <li>Snowy Hydro to update website to include a note that releases can be cancelled at short notice.</li> <li>Where DPE Water has notified parties of an environmental release, DPE Water to also notify them, by the same medium, if a release is changed or cancelled. This is to be completed as closely to the decision being made as possible</li> </ul>	Reduce exposure to the hazard using administrative actions	Unlikely	Insignificant	Low

		Minister due to environmental water not being delivered as designed.								
9	Public access to dam infrastructure during release (dam wall, spillway, plunge pool)	Harm to human safety, such as injury or drowning from entering spillway, dam, plunge pool or river.	Unlikely	Extreme	High	The area around the dam wall is being fenced off by Snowy Hydro with warning sign to stop access. A buoy line is in place around spillway in the storage. Snowy Hydro will cease releases if notified of a person or watercraft in the plunge pool or if a person or watercraft enters the area of the Dam between the buoy line and the spillway.	Reduce exposure to the hazard using administrative actions  Isolate hazard from people  Provide protective equipment	Rare	Extreme	High
10	SHL personnel access to dam infrastructure during release (dam wall, spillway, plunge pool)	Harm to Snowy Hydro employees undertaking releases or working in the vicinity, such as injury or fatality.	Unlikely	Extreme	High	Snowy Hydro have work health and safety procedures in place for its employees and worksites and is required to comply with them. Snowy Hydro applies its own safety management procedure including access rules and risk managements. These are completed under various internal access rule and risk management policies and procedures that meet WH&S requirements. Operating the dam to release the environmental flows is part of Snowy Hydro's core business.	Reduce exposure to the hazard using administrative actions  Provide protective equipment	Rare	Extreme	High
11	Public access to sites downstream of Tantangara Dam wall during releases	Harm to human safety, such as injury or drowning from entering waterway during release	Unlikely	Extreme	High	Snowy Hydro have warning signs and handrails at immediate downstream of the dam to minimise risk of public access.	Reduce exposure to the hazard using administrative actions	Rare	Extreme	High
12	Monitoring the release near riverbank or spillway	Injury or fatality from falling into water.	Rare	Extreme	High	<ul style="list-style-type: none"> <li>All personal working near water will work in compliance with approved relevant work, health and safety procedures.</li> <li>For DPE-Water this includes 'Working on or near water procedures', WHS CRC 017.</li> <li>For DPE-EHG this includes the South West Region General Fieldwork Job Safety Assessment (signed 09/03/2020) which includes measures for working in and around water</li> <li>DPE-EHG to ensure that any consultants or subcontractors work to relevant DPE-EHG WHS procedures.</li> <li>DPE-EHG to alert SHL that they will be working downstream of the dam prior to any monitoring.</li> </ul>	Reduce exposure to the hazard using administrative actions	Rare	Moderate	Low
13	Remote work to inspect release	Lack of mobile phone signal causing inability to seek help during emergency.	Possible	Extreme	High	<ul style="list-style-type: none"> <li>All personnel working in remote or isolated areas will work in compliance with approved relevant work, health and safety procedures.</li> <li>For DPE-Water this includes 'Remote or isolated work procedures'</li> <li>DPE-Water personnel to carry a Breon device.</li> <li>For DPE-EHG this includes the South West Region General Fieldwork Job Safety Assessment (signed 09/03/2020) which includes measures for working in bushland and "Remote and isolated work procedure".</li> <li>DPE EHG personnel to carry a Spot device or satellite phone.</li> </ul>	Reduce exposure to the hazard using administrative actions	Rare	Moderate	Low



						<ul style="list-style-type: none"> <li>· DPE-EHG to ensure that any consultants or subcontractors work to relevant DPE-EHG WHS procedures.</li> </ul>				
14	Animals	Snake bite and insect stings	Possible	Moderate	Medium	<ul style="list-style-type: none"> <li>· Personnel to wear sturdy shoes, long pants and long sleeves where appropriate.</li> <li>· Personnel to wear insect repellent.</li> <li>· Personnel to have access to a first aid kit.</li> <li>· At least one member of the group to be trained in first aid.</li> </ul>	<p>Reduce exposure to the hazard using administrative actions</p> <p>Provide protective equipment</p>	Unlikely	Minor	Low
15	Driving to inspect release	Injury to personnel from vehicle crash	Unlikely	Extreme	High	<ul style="list-style-type: none"> <li>· All staff undertaking extended periods of driving will work in compliance with approved relevant work, health and safety procedures.</li> <li>· For DPE-Water this includes 'Driving procedures', WHS CRC 007.</li> <li>· For DPE-EHG this includes the South West Region General Fieldwork Job Safety Assessment (signed 09/03/2020) which includes measures for driving and "Driving &amp; Vehicle Safety Policy and Procedures"</li> <li>· DPE-EHG to ensure that any consultants or subcontractors work to relevant DPE-EHG WHS procedures.</li> </ul>	Reduce exposure to the hazard using administrative actions	Rare	Moderate	Low
16	Meetings with community and landholders	Aggressive stakeholders causing harm to personnel	Unlikely	Extreme	High	<ul style="list-style-type: none"> <li>· All staff working in remote or isolated areas will work in compliance with approved relevant work, health and safety procedures.</li> <li>· For DPE-Water this includes 'Dealing with Aggressive Stakeholders', WHS CRC 020.</li> <li>· For DPE-EHG this includes the South West Region General Fieldwork Job Safety Assessment (signed 09/03/2020) which includes the "Guide to dealing with aggressive, abusive, threatening "</li> <li>· DPE-EHG to ensure that any consultants or subcontractors work to relevant DPE-EHG WHS procedures.</li> </ul>	Reduce exposure to the hazard using administrative actions	Rare	Moderate	Low

---

## Appendix B

# Stakeholder and Community Engagement Plan

## Introduction

The Snowy Water Initiative (SWI) was formally established in 2002 to significantly improve river health by releasing environmental water into the Snowy, upper Murrumbidgee and upper Murray River systems.

Embodied in the Snowy Water Inquiry Outcomes Implementation Deed 2002 (SWI OID 2002), the SWI is an agreement for water recovery and environmental flows between the NSW, Victorian and Australian governments (the partner governments) and Snowy Hydro Limited. The NSW Government is responsible for the implementation of the SWI

The SWI OID 2002 also provides for environmental releases into a number of higher altitude (montane) rivers whose flows are significantly affected by the operation of the Snowy Scheme known as the SMRIF allocation.

The environmental water is released from small weirs as a passing flow, or as managed releases from Tantangara Dam. The NSW Government is responsible for determining the annual release strategy of these environmental flows, which collectively are called the Snowy Montane Rivers Increased Flows (SMRIF).

The annual increased flows strategy focuses on two key aspects, these being:

- Increased daily flow variability - as the flow rates will reflect the natural pre-Snowy Scheme hydrology of Snowy montane rivers.
- A series of high-flow releases to rework the riverbed and improve in instream habitat.

## Background

The New South Wales, Victorian and Commonwealth governments, along with Snowy Hydro Limited, have invested over \$1.2 Billion to:

- recover an average of 212,000 megalitres of water in the Murray-Darling Basin annually
- upgrade infrastructure
- develop water release strategies
- undertake scientific analysis
- release water to Snowy montane rivers as part of Snowy montane rivers increased flows initiative

---

## Key issues/considerations

For the 2023-24 water year, the New South Wales, Victorian and Australian governments have committed a volume of approximately 40,755 megalitres (ML) to be released into Snowy montane rivers from storage.

The 2023–24 release strategy uses the natural flow-scaling approach to deliver three flood pulse events from Tantangara Dam into the Upper Murrumbidgee River, with flow peaks greater than 1,000 ML/d and not larger than 1,500 ML/d.

These high-flow releases are designed to more closely mimic the natural characteristics of the Murrumbidgee River, including snowmelt and ‘freshes’ that occurred before the construction of the Snowy Mountains Scheme.

This is only the second time in recent history that planned high-flow environmental water releases have been made from Tantangara Dam, therefore it is paramount that adequate and widespread notification be provided to downstream landholders to ensure they are prepared for a rise in river levels.

## Key water release dates

Date	Volume of release
Tuesday 10 July 2023	Daily peak flow of 1,500 ML/d over 24 hours from midday
Monday 14 August 2023	Daily peak flow of 1,450 ML/d over 24 hours from midday
Tuesday 19 September 2023	Daily peak flow of 1,500 ML/d over 24 hours from midday

**Note:** The 24 hour release period from Tantangara Dam commences at 12.00pm, this is to allow for manual operation of large release.

There will be 7 days where flows will be above 500 ML/day across seven peak events, including 3 daily high flow peaks above 1,000 ML to move fine sediment and inundate low lying benches. The highest of these planned flow events will be 1,500 ML/day.

Environmental flows from Tantangara Dam will vary in volume but will be continuous between 10 July and 21 September 2023.

A series of small ‘freshes’ will also be provided from December 2023 to April 2024.

A primary objective of this plan is to inform down-stream landholders and the general community of anticipated risks associated with the planned high-flow events.

The department has prepared a *Snowy Montane Rivers Increased Flows: 2023 Snowy Montane Rivers Increased Flows: Safety Management Plan 2022-2027* to identify and manage public and staff risks associated with the planned environmental water releases.

## About this stakeholder and community engagement plan

---

The stakeholder and community engagement activities outlined in this plan have been developed in line with the department's Stakeholder and Community Engagement Policy (IND-I-245) to ensure effective and genuine engagement with stakeholders and the broader community to achieve better public policy outcomes, improved service delivery and enhanced customer service.

The methodologies and actions listed in this plan demonstrate a transparent and consistent approach in relation to stakeholder and community engagement and have been developed using the principles of the International Association for Public Participation (IAP2) model.

These principles include:

- **Purposeful** – deliver on NSW Government priorities, corporate goals with a clear understanding of what we want to achieve.
- **Inclusive** – the identification of all stakeholders and enabling participation.
- **Timely** – clear identification of timeframes and allow sufficient time for meaningful consultation.
- **Transparent** – clearly explain the engagement, consultation and implementation processes and provide the information necessary to enable meaningful and purposeful participation.
- **Respectful** – ensure engagement activities acknowledge and cater for the differing needs, perspective and levels of understanding of participants.

## Objectives

The aim of this Stakeholder and Community Engagement Plan is to outline the key activities to be undertaken during the 2023-2024 water year, but predominantly focusing on the three planned high-flow events of 1,000 ML/day or greater between early July and late September 2023.

The plan will identify agency responsibilities and actions to be undertaken within specified timelines and methods to ensure the principles of the department's engagement policy are achieved.

This plan will:

- Identify and define the approach, methods and collateral material to engage stakeholders to inform them of and assist them prepare for the Tantangara Dam releases.
- Ensure appropriate action is undertaken in a timely manner to inform stakeholders and the community, with particular emphasis on down-stream landholders, of the planned 'high-flow' water releases, the anticipated dates of each release, the associated volumes of each release and the potential impacts to landholders down-stream of Tantangara Dam.

## Engagement purpose

To effectively engage with relevant stakeholders regarding the Snowy montane rivers environmental high-flows by:

- Informing all interested parties of the planned series of three 'high-flow' events between July and September 2023.

- 
- Providing interested stakeholders and the broader community with access to relevant materials regarding the high-flow events.
  - Ensuring interested people, particularly landholders immediately down-stream of Tantangara Dam are aware of the planned high-flow events, their timing and magnitude, as well as the daily flow releases from the Dam.

## Stakeholders targeted under this plan

- Minister for Water
- Commonwealth, NSW and Government agencies
- Snowy Hydro Limited
- Snowy Advisory Committee
- Landholders along the Upper Murrumbidgee River
- Snowy Monaro Regional Council
- NSW National Parks and Wildlife Service
- NSW Roads and Maritime Services
- State Emergency Service
- Bureau of Meteorology
- Local Land Services
- State/Regional/Local media organisations
- Local businesses within the Snowy region
- Recreational fishing industry
- Recreational campers and tourists
- Community interest groups
- Members of the general public
- Department of Planning and Environment – staff
- The National Trail

## Key messages

### 2023 winter/spring Tantangara Dam high-flow releases

- There are three scheduled high-flow environmental water releases to the Upper Murrumbidgee River planned for winter/spring 2023 - commencing Tuesday 11 July and finishing Wednesday 20 September.
- Flow may be modified and cancelled subject to climatic environmental or operational conditions at the time.

- 
- The high-flow releases to the Upper Murrumbidgee River will have a peak in the order of 1,500 megalitres per day over three separate events, increasing and decreasing either side and each event spanning a 48 - 72 hours period.
  - The largest releases for 2023 will occur on Monday 10 July, Monday 14 August and Tuesday 19 September and will see 1450-1,500 megalitres released from Tantangara Dam over 24 hours, weather permitting.
  - For the three high-flow events the days leading up to and following the event will have intermediate flows to create the hydrograph to maximise the ecological benefits for the river.
  - This year there will be two winter and one spring water releases, reflecting the natural timing of expected high-flow events.
  - The timing and duration of high-flow events varies from year to year, based on inflow sequences to the Snowy catchment.
  - These high-flow water releases are designed to better mimic the natural flow characteristics that are seen in Snowy Mountain rivers, with the aim of improving the long-term health these river systems.
  - The release of environmental water into the Snowy montane rivers over a series of high-flow events has been successfully trialled since 2011.
  - The Snowy Advisory Committee supports the approach of delivering a series of high-flow environmental water releases to improve the health of the Upper Murrumbidgee River.
  - Downstream landholders are encouraged to make appropriate plans ahead of the water releases, including securing watercraft and moving stock, pumps and infrastructure to higher ground.
  - This flow pattern includes a higher degree of daily and seasonal flow variability, but still maintaining the need to ensure high-flow events occur in the Upper Murrumbidgee River, allowing the river to be reworked to improve the in-stream habitat.
  - A pattern of several smaller flow releases has been demonstrated to make better use of the available water to establish a new smaller channel, wet the riparian zone and promote the establishment of aquatic and riparian vegetation.
  - Environmental water releases to the Snowy montane rivers are mandated under the *Snowy Water Inquiry Outcomes Implementation Deed 2002*, a tri-government agreement between the Australian, New South Wales and Victorian Governments, to achieve significant improvements in river health.

## Supporting materials

- **Fact sheet: Frequently Asked Questions** – provides overview of the high-flow water release events with details on anticipated river level rises at key locations down-stream of Tantangara Dam.
- **Snowy Montane Rivers Increased Flows: Snowy Montane Rivers Increased Flows: Safety Management Plan 2022-2027**– identifies risks associated with the high-flow water release events and outlines the management of these risks for both the general public and staff.

- 
- **Rising River Alerts** – provides specific details for each of the three high-flow events in relation to timing, volume and anticipated river level heights down-stream of Tantangara Dam for the duration of each of the water releases.



## Agency responsibilities for high-flow events

Agency	Responsibility
<b>NSW Department of Planning and Environment</b>	<ul style="list-style-type: none"> <li>• Development of the environmental water management strategy.</li> <li>• Lead implementation of the Stakeholder and Community Engagement Plan and Safety Management Plan.</li> <li>• Ensure down-stream landholders and stakeholders are aware of the three planned high-flow events.</li> <li>• Media engagement / contentious issues / enquiries.</li> <li>• Provide technical information to the team as required.</li> <li>• Approve relevant communication material and media releases / responses.</li> </ul>
<b>Snowy Hydro Limited (SHL)</b>	<ul style="list-style-type: none"> <li>• Provide technical information to the department's project team as required.</li> <li>• Operate infrastructure to make releases to the Snowy River.</li> <li>• Provide advice and feedback on communication materials as necessary.</li> </ul>
<b>Snowy Monaro Regional Council</b>	<ul style="list-style-type: none"> <li>• Provide technical information to the department's project team as required.</li> <li>• Provide advice and feedback on communication materials as necessary.</li> </ul>
<b>NSW Roads and Maritime Services</b>	<ul style="list-style-type: none"> <li>• Provide technical information to the department's project team as required.</li> <li>• Provide advice and feedback on communication materials as necessary.</li> </ul>
<b>National Parks and Wildlife Service</b>	<ul style="list-style-type: none"> <li>• Provide technical information to the department's project team as required.</li> <li>• Provide advice and feedback on communication materials as necessary.</li> </ul>
<b>State Emergency Service (SES)</b>	<ul style="list-style-type: none"> <li>• Provide technical information to the department's project team as required.</li> <li>• Provide advice and feedback on communication materials as necessary.</li> <li>• Undertake on-ground assistance in public notification in the event of high-flow events posing any impact/danger down-stream.</li> </ul>
<b>NSW Police –Cooma</b>	<ul style="list-style-type: none"> <li>• Provide technical information to the department's project team as required.</li> <li>• Provide advice and feedback on communication materials as necessary.</li> <li>• Undertake on-ground assistance in public notification/management in the event of high-flow events posing any impact/danger down-stream.</li> </ul>
<b>Local Land Services</b>	<ul style="list-style-type: none"> <li>• Provide technical information to the department's project team as required.</li> <li>• Provide advice and feedback on communication materials as necessary.</li> </ul>

## Direct actions for high-flow events

Action item	Responsibility	Comment
<b>Provide FAQ's factsheet</b>	NSW Department of Planning and Environment	The factsheet will be made publicly available via the department's website, emailed directly to downstream landholders (those with listed contact details) and via the working group.
<b>Provide updates on the down-stream landholder and key stakeholders contact list to DPE</b>	All	<p>Opt-in list data is collected by DPE-EHG, via website</p> <p>This information is input directly into a contact list held by the Snowy Licence Team.</p> <p>SMS contacts added to Borealis by Snowy Licence Team and Email contacts forwarded to Comms Team for inclusion on their list.</p> <p>Media contacts maintained by Media Team, including interstate</p> <p>Amendments made following requests from individuals, or following bump back on emails</p> <p>Other agencies submit direct request to DPE-EHG or the departments, for removal or inclusion of representatives</p>
<b>Advise Local Police and SES of the planned high-flows and seek comment on any issues they perceive</b>	NSW Department of Planning and Environment	Act on any issues identified.
<b>Email landholders below Tantangara Dam along the Upper Murrumbidgee River (those with listed contact details) and key stakeholders advising of the timing and magnitude of the flows</b>	NSW Department of Planning and Environment	The department to make direct contact with downstream landholders (those with listed contact details) and key stakeholders approximately 4 to 6 weeks prior to first high-flow event – then ongoing as required.
<b>Distribute 2023 Snowy montane rivers high-flows FAQs to relevant SES offices for display</b>	NSW Department of Planning and Environment	The department to prepare FAQs in PDF format and distribute to working group members and appropriate stakeholders – further copies will be emailed to external contacts as required.

Action item	Responsibility	Comment
<p>Issue a total of four separate media releases/notices including three rising river alerts approximately seven days prior to the respective flow release to inform the affected communities</p> <p>Media outlets to be targeted:            Snowy Shire Council – e-news            Shire Wire            Snowy Magazine            Jindabyne Summit Sun            Monaro Post            XL FM            Snow FM            ABC Radio South East</p>	NSW Department of Planning and Environment	Media release providing ‘overview’ of the high-flow water releases issued late May 2023 - and then ‘Rising river alerts’ to be issued 7 days before the planned releases.
Advise Minister for Water of planned flows.	NSW Department of Planning and Environment	Minister’s Office to be advised of the timing of the flows prior to issuing of ‘overview’ media release – late May 2023, when BN is approved.
Advise Commonwealth government of the planned flows – timing and magnitude and seek interest regarding involvement.	NSW Department of Planning and Environment	Commonwealth Government advised of the timing of the flows – May 2023.
Provide Departmental ‘Customer Experience’ staff with all up-to-date information to answer any requests received	NSW Department of Planning and Environment	‘Customer Experience’ staff to be provided with all relevant information – June 2023.
Release the ‘Public Safety Management Plan’ – to be placed on the department’s website and sent to members of the inter-agency working group	NSW Department of Planning and Environment	<p>Updated ‘Public SMRIF Safety Management Plan’ provided to interagency working group members – May (TBC) 2023.</p> <p>Updated ‘Public Safety Management Plan’ uploaded to DPE website – May (TBC) 2023.</p>
Update the department’s website to ensure it contains the latest information on the Tantangara Dam environmental releases – will need to create a new ‘Tantangara Dam’ website landing page	NSW Department of Planning and Environment	<p>‘Snowy Montane Rivers Increased Flows’ website (Tantangara Dam landing page) updated to coincide with the issuing of the ‘overview’ media release.</p> <p>Overview media release to be issued on late May 2023.</p>

---

## Evaluation

The following qualitative data will be used to indicate if this plan has successfully achieved its objectives.

Objective	Key indicators of success
<b>Identify and define the best approach to engage key target groups to better inform them of planned high-flow water releases.</b>	<ul style="list-style-type: none"><li>▪ media coverage resulting from the ‘overview’ media release issued announcing the planned winter-spring high-flow water releases</li><li>▪ the number of media requests for interviews received</li><li>▪ the amount of positive/negative/incorrect media coverage (through media monitors)</li><li>▪ stakeholder and landholder comments in both traditional and social media</li><li>▪ direct feedback from down-stream landholders as a result of the outlined notification process for planned high-flow water releases during winter-spring</li><li>▪ visits to the department’s website for information on the Snowy River environmental water releases</li></ul> feedback from inter-agency members

---

---

## Appendix C

# Term of Reference for the Snowy and Tantangara Safety Technical Advisory Group

*Endorsed May 2022 – Amended July 2022*

The Snowy River and Tantangara Safety Technical Advisory Group (SSTAG) “Terms of Reference” are the guiding principles and functions for assisting the NSW Department of Planning and Environment (DPE) - Water in the implementation of the Snowy River and Upper Murrumbidgee Safety Management Plans.

## Background

The Snowy and Tantangara Safety Technical Advisory Groups are an advisory committees established to assist DPE-Water to:

- implement the safety management processes for the waterways below the Jindabyne and Tantangara Dam.
- creates the opportunity for the views of key stakeholders to be identified and captured through the implementation of the safety management plan, and
- acts as a consultative forum for the development and implementation of the safety management plan.

## Purpose

The SSTAG is established to review safety matters associated with high-flow releases. It provides advice as requested by DPE-Water to assist the safety management process. The SSTAG has an advisory role and will not have a formal role in decision making, policy direction or delegating additional work to be carried out by DPE-Water.

The purpose of the SSTAG is to provide specific advice in relation to how to:

- reduce the probable impact of flooding and flood liability on the community from high flow releases
- reduce and prevent private and public losses resulting from high flow releases

## Establishment and membership

### The Committee

The Committee comprises representatives from various Federal, State and Local Government departments / authorities / corporations and Snowy Hydro Ltd.

Membership of the advisory committee shall comprise of one representative from:

Departments / Authorities / Corporations	Jindabyne Release	Tantangara Release
Department of Planning and Environment (DPE-Water)	x	x
Department of Planning and Environment (DPE-EHG)	x	x
NSW National Parks and Wildlife	x	x
WaterNSW	x	x
East Gippsland Catchment Authority	x	
NSW State Emergency Service	x	x
Victoria State Emergency Service	x	
ACT State Emergency Service		x
Bureau of Meteorology (BoM) - Hazard Prediction and Response (HPR) South	x	
Bureau of Meteorology (BoM) - Hazard Prediction and Response (HPR) East		x
Snowy Hydro Limited (Snowy Hydro)	x	x
Snowy Monaro Regional Council	x	x
East Gippsland Shire Council	x	

From time to time, other people who have clearly defined interest in topics being pursued by the Committee, may be invited.

### Chairperson

The committee shall be chaired by the DPE-Water, Director Asset Management and Performance. If the nominated staff is not available the replacement Chair shall be the alternate from DPE-Water, or if unavailable, a committee member agreed upon by the majority of members.

### Acting members

Each of the Agencies can nominate an alternative person to act as their Committee member representative, including the Chair.

### Secretariat support

To enable the committee to operate effectively DPE-Water shall provide:

- any relevant and available data, technical/management studies and mapping
- expert advice from DPE-Water staff as required
- as agenda items relevant draft documents, and the opportunity to discuss open and transparent communication; and
- secretariat services and venues for meetings

---

## Tenure

This Terms of Reference is effective from the establishment of the SSTAG and will be ongoing as required.

## Other meeting participants

- Relevant technical and policy staff may attend meetings and provide advice as appropriate. Committee members should notify the Chair of additional attendees in advance of the meeting.
- Committee members may invite representatives of Snowy Hydro Limited and other agencies to attend and participate in meetings as required.
- Invited staff and other representatives will not be authorised to vote on matters to be decided by the Committee.

## Amendment modification or variation:

This Term of Reference may be amended, modified, or varied in writing after consultation and agreement by the Committee.

## Responsibilities and scope

The SSTAG shall provide:

- Technical support to DPE-Water in the decision-making concerning the safe planning and implementation of environmental releases (SRIF) from Jindabyne Dam and (SMRIF) from Tantangara Dam, particularly where it is possible that they could contribute to flooding impacts
- The scope of the SSTAG covers planned and modified planned SRIF releases only, as described in the Safety Management Plan
- Contribute to and provide expertise and guidance regarding risks due to river rises and methods for mitigation risks
- Provide a forum for discussion of issues related to flood risks
- To provide input into known flood behaviour

## Bureau of Meteorology (BoM)

The Bureau of Meteorology (BoM) provides input to the Snowy River and Tantangara Safety Technical Advisory Group, relating to weather conditions. The level of input is determined by the availability of information, for Tantangara Dam releases this is limited to rainfall forecasts only. However, for Jindabyne Dam releases, hydrological modelling and rainfall forecasts can be provided.

Note: The BoM are not involved in the making of recommendations regarding dam management or releases, they only provide information to allow informed decisions.



## Operating protocols

### Convening meetings

- The Committee will meet as required to satisfy its responsibilities and will have at least one meeting in each calendar year.
- Meetings may be called at short notice, due to deteriorating conditions.
- Meetings may be arranged at the request of one or more Committee members, through the Chairperson.
- Meeting locations will be agreed upon by Committee members and can be face-to-face or by video/teleconference.
- All attendees will meet the costs of their own travel and accommodation.
- The Chair is responsible for deciding to reschedule meetings should the need arise.

Table C-1: Process for the SSTAG input

Timing	Process
<p><b>When Snowy River Increased Flows (SRIF) flow plan for the coming year is released</b></p>	<p>Snowy River and Tantangara Safety Technical Advisory Group (SSTAG/Snowy River) may meet to:</p> <ol style="list-style-type: none"> <li>1. discuss the coming years planned releases</li> <li>2. Review the Safety Management Plan, including any triggers that would cause SRIF to be ceased</li> <li>3. Review the SSTAG ToR</li> <li>4. Determine any safety issues with the planned timing, duration, and size of planned SRIF releases</li> </ol>
<p><b>Approximately 5-7 days prior to commencement of SRIF release</b></p>	<ol style="list-style-type: none"> <li>1. DPE-Water notifies BoM flood desk of upcoming release. BoM and DPE-Water review any likely weather event or triggers during the planned release</li> <li>2. BoM / DPE-Water undertake rainfall and flood forecasting (Snowy River only) to determine impact</li> <li>3. DPE-Water informs SSTAG of upcoming planned release and makes any required meeting arrangements</li> <li>4. SSTAG reviews planned releases along with the BoM's weather predictions, climatic risks and/or flood forecasting. SSTAG<sup>2</sup> reviews risks and mitigation measures and determines whether the release will be recommended to proceed.</li> <li>5. Decision-making process in flow chart followed</li> </ol>

Timing	Process
<p>Approximately 2-3 days prior to commencement of each SRIF release</p>	<ol style="list-style-type: none"> <li>1. BoM and DPE Water undertake final assessment of weather events</li> <li>2. Decision made if SSTAG requires face to face meeting</li> <li>3. SSTAG considers updated rainfall and flood forecasting (Snowy River only) and any final safety issues/actions required</li> <li>4. Review planned releases, risk and proposed mitigation / communication</li> <li>5. SSTAG<sup>2</sup> members confirm that they are comfortable that the risks of the impending flow event are known and have been mitigated to an acceptable level</li> <li>6. Where there is determined to be a high risk the SSTAG may reconvene 1 day prior to release and review</li> </ol>
<p>During release</p>	<ol style="list-style-type: none"> <li>1. DPE-Water maintains contact with BoM. BoM monitors weather and advises DPE-Water of any likely event that coincides with the full duration of the current release (takes approx. 4 days for flows to move down the Snowy catchment)</li> <li>2. If necessary, BoM / DPE-Water undertake flood forecasting (Snowy River only) to determine any potential impacts from any forecasted weather events</li> <li>3. If a risk arises, DPE-Water advises the SSTAG, and may call a SSTAG meeting</li> <li>4. Flow chart decision making process followed</li> </ol>

## Quorum

The quorum for a meeting of the Committee will be 50% of the current membership.

## Delegation

- The Committee is advisory in nature providing recommendations to DPE-Water.
- The Committee has not been delegated authority by DPE-Water.
- Any recommendations of the Committee must be ratified by resolution of DPE-Water and implemented by department staff with an appropriate delegation.
- The Committee does not have any power to incur expenditure or to bind the DPE-Water to any decision upheld by the Committee.
- Delegation on decision making rests with Level 3 Manager from within DPE-Water.

## Dissolution

The Committee may at any time be dissolved and disbanded by DPE-Water, after endorsement by the committee.

## Changing of the Terms of Reference

The Terms of Reference may only be amended by DPE-Water.

---

## Conflicts of Interest

Panel members must declare any conflicts of interest at the start of each meeting or before discussion of a relevant agenda item or topic. Details of any conflicts of interest should be appropriately minute.

## Committee member conduct

To enable the Committee to perform effectively, members will:

- Disclose interests on all matters brought before the Committee that could conflict with the proper performance of their functions.
- Respect the views and interests of other Committee members and their respective governments when considering matters brought before the Committee.
- Take all reasonable steps to gain a thorough understanding of the matters brought before the Committee.
- Participate to the full extent of their knowledge and expertise in deliberations of the Committee to ensure those deliberations are fully informed.
- Inform their respective Ministers of issues that may warrant ministerial level attention as these issues arise for discussion or decision by the Committee.
- Consult with other agencies and portfolios of their respective governments as required to ensure that the positions brought to the Committee have whole of government support.

## Contact officers

Each Agency shall appoint a contact officer to ensure a central point of contact for all Committee business and to coordinate responses from their respective governments on Committee matters. Contact officers should be copied into any correspondence sent directly to Committee members.

## Committee members – confidentiality

From time to time, members may be required to review and comment on draft documentation that has not been formally considered by the DPE-Water's decision-making body. In these circumstances, it is crucial members understand the status of any documentation and the importance of maintaining confidentiality if they wish to have input at such a preliminary time. Similarly, discussion may take place on matters subject to state government protocols that need to be adhered to. Each member is required to agree to the confidentiality requirements of membership.

## Confidentiality of Snowy Hydro Limited related information and data

- All material dealt with by the Committee shall be treated as confidential unless otherwise identified by the Chair, after consulting with the NSW Department of Planning and Environment - Water member, or if tabled by a Committee member of the other Agencies.
- Where confidential information is provided to a Committee member or contact officer, care must be taken to ensure the information is kept secure, and that numbers of copies are kept to the minimum necessary. If such information is to be disposed of, it must be destroyed.
- The Department may, on behalf of and on terms acceptable to Snowy Hydro Limited, require Committee members or contact officers to sign a confidentiality agreement or deed in

---

regard to the use of Snowy Hydro Limited data or information it deems to be commercially sensitive.

Table C-2: SSTAG Agency representatives and alternatives, roles and contacts

Agency	Jindabyne Release	Tantangara Release	Role on SSTAG
DPE-Water	x	x	<ul style="list-style-type: none"> <li>Lead implementation of the Safety Management Plan</li> <li>Chair SSTAG</li> </ul>
DPE-Water	x	x	<ul style="list-style-type: none"> <li>All Public and Stakeholder communications prior to SRIF/SMRIF</li> <li>Contentious issues</li> <li>Enquires</li> </ul>
DPE-Water	x	x	<ul style="list-style-type: none"> <li>Provide Technical advice to team as required</li> <li>Provide secretariat support to SSTAG</li> </ul>
DPE-EHG	x	x	<ul style="list-style-type: none"> <li>Development of SRIF/SMRIF</li> <li>Provide Technical advice as required</li> </ul>
NSW National Parks and Wildlife Service – Jindabyne Office	x		<ul style="list-style-type: none"> <li>Provide technical information to the department's project team as required.</li> </ul>
NSW National Parks and Wildlife Service – Tumut Office		x	<ul style="list-style-type: none"> <li>Provide technical information to the department's project team as required.</li> </ul>
East Gippsland Catchment Authority	x		<ul style="list-style-type: none"> <li>Provide Technical advice as required</li> </ul>
Water NSW	x	x	<ul style="list-style-type: none"> <li>Provide support and technical advice</li> </ul>
Snowy Hydro Limited	x	x	<ul style="list-style-type: none"> <li>Provide technical information to the department's project team as required.</li> <li>Operate infrastructure to make releases to the Snowy River.</li> </ul>
Bureau of Meteorology (BoM) - Hazard Prediction and Response (HPR) South	x		<ul style="list-style-type: none"> <li>Provide weather forecasts</li> <li>Provide technical advice as required</li> </ul>
Bureau of Meteorology (BoM) - Hazard Prediction and Response (HPR) East		x	<ul style="list-style-type: none"> <li>Provide weather and rainfall forecasts</li> </ul>
NSW SES	x	x	<ul style="list-style-type: none"> <li>Provide technical advice as required</li> <li>Response agency in the event high-flow events pose any impact / danger downstream</li> </ul>
VIC SES	x		<ul style="list-style-type: none"> <li>Provide technical advice as required</li> <li>Response agency in the event high-flow events pose any impact / danger downstream</li> </ul>
ACT SES		x	<ul style="list-style-type: none"> <li>Provide technical advice as required</li> <li>Response agency in the event high-flow events pose any impact / danger downstream</li> </ul>

## Appendix D

### Enquiries and emergency contacts

Table D-1: Contacts (current as of March 2023)

Contact	Telephone Number
DPE-Water	1300 081 047
Police/Ambulance	000
State Emergency Service	132 500
RMS Transport Management Centre Incident Reporting Line	131 700
Snowy Monaro Regional Council	1300 345 345
Snowy Hydro Limited	<a href="https://www.snowyhydro.com.au/contact/">https://www.snowyhydro.com.au/contact/</a>

## Appendix E

### SMRIF Operations Plan

The annual Snowy Montane Rivers Increased Flows Operations Plan details the release strategy for each water year, and is published on the DPE-Water website:

[www.industry.nsw.gov.au/water/basins-catchments/snowy-river/initiative/snowy-montane-rivers/upper-murrumbidgee-river-increased-flows](http://www.industry.nsw.gov.au/water/basins-catchments/snowy-river/initiative/snowy-montane-rivers/upper-murrumbidgee-river-increased-flows).