

NORTH BURNETT REGION DISASTER MANAGEMENT PLAN

Sub Plan 12 – Dam Failure

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References:

A. SunWater Emergency Action Plans - Paradise Dam/Wuruma/Cania/Boondooma

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Purpose of this Sub Plan

The purpose of this sub plan is to summarise the arrangements that apply for the safety of people downstream from major dams throughout the region. Note this Sub Plan provides only an overview and summary of these arrangements and should be read in conjunction with the relevant SunWater Dam Emergency Action Plans.

Maintenance of this Sub Plan

The Local Disaster Coordinator is responsible for this Sub Plan. Changes to this Sub Plan require the endorsement of the LDMG and the approval of the LDC. This Sub Plan shall be exercised annually.

Responsibilities during a Dam Emergency Event

The Dam Owner/Operator is responsible for providing warnings to downstream residents during dam safety events. Details of the triggers and warnings are specified in each Dam Emergency Action Plan.

The LDMG is responsible for assisting in the provision of warnings as required and for coordinating community responses to any threat.

Dam Emergency Action Plans

Heavy rains may cause dams to overflow and cause downstream flooding. A failure of the dam may also cause rapid downstream flooding. Dams that pose a risk to downstream communities in the event of failure are required by legislation to maintain a plan setting out management responsibilities and procedures based on possible dam failure events. These are called Dam Emergency Action Plans and are maintained by the Dam owner/operator. North Burnett Regional Councils holds copies of the following Dam Emergency Action Plans provided by SunWater.

- Boondooma Dam,
- Cania Dam,
- Paradise Dam,
- Waruma Dam.

Other smaller dams in the region may pose risks to landowners and are not considered further in this plan.

Responding to a Dam Emergency Event

Dam Emergency Action Plans provide for three action levels. They detail SunWater's responses to an escalation of threat: These Action Levels are:

- Level One Actions provide for internal SunWater responses to an emergency condition or incident reported by staff or the public. The LDMG is not notified or activated.
- Level Two Actions provide for internal SunWater responses including provision of advice to affected downstream residents and the LDMG when dam failure is possible but not considered highly likely. The

LDMG may choose to activate appropriately to coordinate community responses.

- Level Three Actions occur when dam failure is highly likely. They detail the emergency communications to be made by SunWater to ensure public safety and rapid activation of the disaster management system. The LDMG would be activated immediately to coordinate immediate community responses.

It should be noted that the Dam Emergency Action Plans specify the SunWater actions in response to a dam emergency event. While SunWater are responsible for providing warnings to downstream communities and for keeping the LDMG informed on issues relating to the safety of downstream residents, they are not responsible for coordinating the community response to any dam failure. This responsibility remains with the LDMG. The LDMG should ensure that they receive timely and relevant information on Dam emergency issues in order to coordinate any community response.

Paradise Dam

Paradise Dam is situated on the Burnett River at AMTD 131.4 km. It is located approximately 40km southwest of Childers. The main dam consists of roller compacted concrete spillway & abutments and zoned earth embankment on the right bank ridge. It was completed in 2005 and is used for irrigation and recreational purposes. It has a storage capacity of 300,000 mega litres. The dam is owned by Burnett Water Pty Ltd (a subsidiary of Sunwater) and is operated by SunWater.

The population at risk (PAR) (Biggenden only) is assessed by SunWater as 24.

Wuruma Dam

Wuruma Dam is a mass concrete gravity dam located on the Nogo River at AMTD 23.0 km. The Nogo River is a tributary of the Burnett River in north west of the basin. The dam is situated approximately 48 km north west of Eidsvold and it was completed to its full height in 1968. The dam is used for irrigation, flood mitigation and town water supply.

The population at risk is assessed by SunWater at 114.

The flooding impact of Wuruma Dam releases may be assessed by the flooding effects at key locations:

Description	AMTD (km)	Streambed Elevation (m AHD)	Bridge Deck Level (m AHD)
Wuruma Dam	23	191.72	-
Burnett River Bridge at Ceratodus (Burnett Highway)	320.5	157.36	170
Kirar Wier	300.4	142.70	-
Jack Parr Bridge – Coonambula Road	257.3	112.56	116.21

Mundubbera Township	240	100.98	-
Dimitrios Bridge – Mundubbera-Durong Road.	329.5	101.31	120.2

Table 1 – Key Locations for the Waruma Dam Break Flood Analysis

(Source: Emergency Action Plan- Waruma Dam, Oct 11, Issue 3)

An estimate of flooding impact and timeframes for a failure of Wuruma Dam is provided in the table below:

Failure Type		WURUMA	CANIA
Probable Maximum Precipitation Flood	Max Flood Above Lowest Part of Town (122AHD)	12.54 m	11.89 m
Probable Maximum Precipitation Flood	Time before Flooding begins of lowest Part of town	26:50 hours	31:15 hours
Dam Crest Flood (Impending Failure Flood)	Time before Peak	13:20 hours	31:15 hours
All Failures	Flooding Stops	82:40 hours	17.15 hours

Table 2 – Wuruma Dam Failure – Flood Impact/Timings

(Source: NBRC Disaster Management Plan 2009)

Cania Dam

Cania Dam is situated on the Three Moon Creek at AMTD 110.1 km. It is an earth and rockfill embankment dam located approximately 40 km north west of Monto. The dam was completed in 1982 mainly to supply irrigation water.

The population at risk from dam failure is assessed by SunWater to be in excess of 100.

The flooding impacts of Cania Dam releases may be assessed by the flooding effects at key locations as depicted in the table below.

AMTD (km)	Location	Streambed Elevation (m AHD)	Crossing or Site Elevation (m AHD)	Principal Key Location
110.10	Cania Dam	291.00	338.00	Y
109.72	1 st Culvert Crossing	289.95	289.95	Y
108.10	d/s Cania Dam Spillway	285.75		Y
105.55	2 nd Culvert Crossing	281.44	281.44	
95.60	Cania Rd Bridge (Cedar Ck)	264.76	272.06	
93.70	Junction with Spring Creek	261.80		
88.00	Cania Road Bridge (Homestead Ck)	252.62	263.23	
87.95	Moonford Township	252.53	265.00	Y
70.30	Youlambie Weir	231.82	235.58	
67.70	Junction with Monal Creek	228.25		
64.80	Monto Weir	224.18	226.74	
64.60	Burnett Highway Bridge	223.86	227.76	Y
64.20	Monto Township	223.22	235.28	Y
62.80	Monto Airport Road Crossing	221.58	221.52	
62.10	Gayndah-Monto Br. Railway Bridge	220.71	231.00	
60.20	Monto Airport	219.25	223.00	Y
58.70	Bazley Weir	217.59	221.50	
58.00	Gayndah-Monto Br. Railway Bridge	216.97	223.70	
57.40	Gayndah-Monto Br. Railway Bridge	216.45	222.18	
55.40	Gayndah-Monto Br. Railway Bridge	214.18	223.00	
53.50	Gayndah-Monto Br. Railway Bridge	212.67	226.00	
52.50	Gayndah-Monto Br. Railway Bridge	211.79	229.00	
50.00	Gayndah-Monto Br. Railway Bridge	208.87	220.00	
48.50	Mulgildie Township	207.39	220.00	Y
46.80	Avis Wier	205.63	210.05	
46.60	Gayndah-Monto Br. Railway Bridge	205.45	223.00	
45./00	Gayndah-Monto Br. Railway Bridge	203.54	241.00	

Table 3 – Key Locations Along Three Moon Creek
(Source: Emergency Action Plan – Cania Dam, Oct 11, issue 3)

An estimate of flooding impact and timeframes for a failure of Cania Dam is provided in the table below:

Failure Type	Consequence	CANIA
Probable Maximum Precipitation Flood	Max Flood Above Lowest Part of Town (122AHD)	12.54m
Probable Maximum Precipitation Flood	Time before Flooding begins of lowest part of town	26.50 hours
Dam Crest Flood (impending Failure Flood)	Time before Peak	13.20 hours
	Flooding Stops	82.40 hours

Table 4 – Cania Dam Failure – Flood Impact/Timings
 (Source: NBRC Disaster Management Plan 2009)

Boondooma Dam

Boondooma Dam is located on the [Boyne River](#) below its [confluence](#) with the [Stuart River](#) approximately 50 km North-West of Wondai in the [South Burnett Region](#). It was constructed in 1983 to supply water to the [Tarong Power Station](#) and for irrigation. It has a capacity of 204,200 ML.

While the dam itself is not located in the North Burnett Region, any dam failure would impact in the North Burnett Region and in Mundubbera in particular.

The flooding impacts of Cania Dam releases may be assessed by the flooding effects at key locations as depicted in the table below.

AMTD (km)	Location	Streambed EL (m AHD)	Crossing or Site EL (m AHD)	Principal Key Location
86.7	Boondooma Dam	232.4		
41.0	Munbooree township		~157.0	Y
40.5	Dunollie Bridge – Boondooma Road		148.2	
40.1	Dunollie Gauge GS136303A			
31.4	Cooranga Measuring Weir GS136319A		136.5	
31.3	Low level timber bridge – Cooranga			
30.0	Cooranga Crossing			
28.0	Cooranga Township		~149.9	Y
24.6	Bradley’s Crossing – low level			
18.2	Vicarys Crossing			
14.0	Crossing low level			
10.8	Reinkes Crossing – low level			
6.4	Derra Measuring Weir GS 136318A		113.4	
6.2	John Peterson Bridge – Durong Road		112.2	Y
3.7	Dykehead Crossing – culvert		111.2	Y
AU4.5	Auburnvale Bridge – Auburn River Road		115.2	
251.4	Coopers Crossing – culvert		110.2	

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LA1.3	Lacon Ck Crossing – Kerles Road		111.4	
241.7	Dahtlers Crossing – Lacon Ck		110.2	
240.1	Jones Weir		110.0	
240.0	Mundubbera Township		~135.0	Y
240.0	Rail in Mundubbera		122.5	
239.2	Dimitrios Bridge – Mundubbera-Durong Rd		120.2	Y
239.0	Killala Ck Railway Bridge		120.1	

Table 5 - Key Locations for the Boondooma Dam Break Analysis
(Source: *Emergency Action Plan – Boondooma Dam, Oct 11, issue 3*)