



South East Queensland
WATER CORPORATION
LIMITED

ABN 14 088 729 766

EMERGENCY ACTION PLAN

WIVENHOE DAM AND SOMERSET DAM

FOR STAFF OF

SOUTH EAST QUEENSLAND WATER CORPORATION

AND HEADWORKS OPERATOR

Controlled Copy No. 13

**Issued to: Counter Disaster Manager,
Kilcoy Shire Council**

Approved: Robert Drury, Operations Manager, SEQWater

Sign:

Date:

TABLE OF CONTENTS

1	DISTRIBUTION, APPROVAL AND REVISION CONTROL	4
1.1	Distribution	4
1.2	Authorisation	4
1.3	Revision Status	5
2	FLOWCHART	6
3	REGISTER - CONTACT LIST FOR EMERGENCIES & FLOOD INFORMATION – WIVENHOE & SOMERSET DAMS	7
4	PURPOSE	9
4.1	Flooding	9
5	SCOPE	10
6	REFERENCES	11
7	MEANING OF TERMS	12
8	AGENCIES AND PERSONNEL AFFECTED, AND RESPONSIBILITIES	13
9	NOTIFICATION TO AGENCIES AND PERSONNEL	14
10	EMERGENCY EVENTS AND ACTIONS	15
10.1	General	15
10.2	Flooding	15
10.2.1	Wivenhoe Dam	16
10.2.2	Somerset Dam	19
10.3	Possibility of Overtopping	20
10.4	Increase in Seepage	20
10.5	Movement	21
10.6	Gate Malfunction	22
10.7	Contamination of Catchment Area or Reservoir	22
10.8	Earthquake	23
10.9	Explosion	23
10.10	Security Breach	24
10.11	Bloom of Algae	24
11	TECHNICAL DATA SHEET	25
11.1	Wivenhoe Dam	25
11.2	Somerset Dam	26
12	GENERAL	27
12.1	Safety	27
12.2	Communication	27
12.3	Release of Information	27
12.4	Operator's Log	27
12.5	Training	27

12.6	Updating of Plan	28
12.7	Review	28
12.8	Resources Sheet	28
13	MAP: BRISBANE RIVER – WIVENHOE DAM TO MT CROSBY	29
14	MAP: BRIDGES – WIVENHOE DAM	30
15	MAP: BRIDGES – SOMERSET DAM	31
16	RESOURCES SHEET	32
17	APPENDIX 1 FLOOD INUNDATION MAPS	33

1 DISTRIBUTION, APPROVAL AND REVISION CONTROL

1.1 DISTRIBUTION

Copy No.	Position	Location
1	Operations Manager, SEQWCO	SEQWCO Wivenhoe
2	Contractor's Manager (SunWater)	Ipswich
3	Dam Supervisor (SunWater)	Wivenhoe Dam
4	Dam Supervisor (SunWater)	Somerset Dam
5	Flood Operations Engineer (Sunwater)	Flood Operations Centre, William Buck Centre, 120 Edward St, Brisbane.
6	Director Dam Safety	Department of Natural Resources & Water, ANZ Centre, 324 Queen St, Brisbane.
7	Operations Supervisor	SEQWCO Wivenhoe Dam
8	Duty Officer/Police	Brisbane
9	Duty Officer/Police	Ipswich
10	Counter Disaster Manager	Brisbane City Council
11	Counter Disaster Manager	Ipswich City Council
12	Counter Disaster Manager	Esk Shire Council
13	Counter Disaster Manager	Kilcoy Shire Council
14	Duty Officer- Disaster Management Service Department of Emergency Services	Brisbane
15	Duty Officer/Police	Lowood

1.2 AUTHORISATION

Approved for Issue by: _____

Date: _____

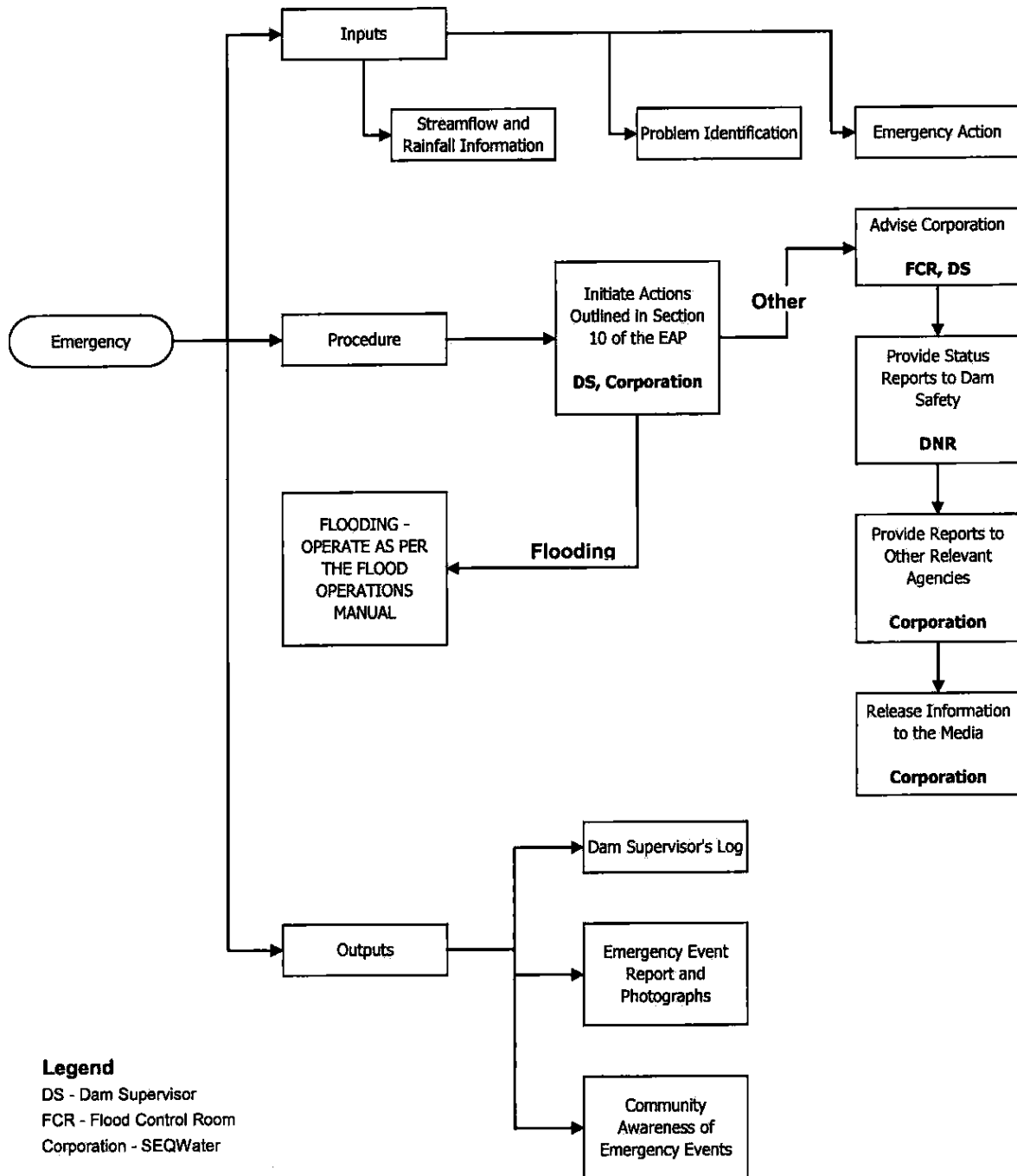
Operations Manager

1.3 REVISION STATUS

Rev No.	Date	Revision Description
0		Original
1	15 October 1998	Issued as Controlled Document
2	28 January 1999	Amendment to the Emergency Notification List on pages 5 & 6
3	11 February 2000	Amendment to the Emergency Notification List on pages 5 & 6
4	11 October 2001	Issued as Corporation Document
5	05 February 2003	Revision
6	19 December 2005	Update of Register – Contact List (on pages 5 & 6)
7	20 June 2007	Update of Register and the document to reflect Wivenhoe Upgrade

2 FLOWCHART

WIVENHOE DAM & SOMERSET DAM EMERGENCY ACTION PLAN FLOWCHART



3 REGISTER - CONTACT LIST FOR EMERGENCIES & FLOOD INFORMATION – WIVENHOE & SOMERSET DAMS

Ref. Sections 3 & 9 of Emergency Action Plan; and Section 6 of Manual of Operational Procedures for Flood Mitigation

Agency	Position	Working Hrs Priority	Out of Hrs Priority	Name	Work Ph	Fax	Pager	Mobile	After Hrs	Contacted By
SEQWater	Operations Manager	1	1	Robert DRURY*						SEQWater/FCC
	Operations Engineer	2	2	Barton Maher						
	Chief Executive Officer	3	3	Peter BORROWS						
	Chairman	4	4	Annabelle CHAPLIN						
	Operations Supervisor	1	1	Bob EISENTRAGER						
	Somerset Ranger	2	2	Rohan THOROGOOD						
	Other on-call Staff		3			Call-service identifies 'on-call' staff				
Department of Natural Resources & Water	Director, Dam Safety	1	1	Peter ALLEN						SEQWater/FCC
	Director, Water Industry Asset Management & Standards	2	2	Peter ARTEMIEFF						
	Dam Safety Engineer	3	3	Ron GUPPY						
Flood Control Centre (operated by SunWater)	Senior Flood Operations Engineer	3	3	Rob AYRE						SEQWater/FCC
	Senior Flood Operations Engineer	4	4	John RUFFINI*						
	Flood Operations Engineer	5	5	Terry MALONE						
	Flood Operations Engineer	6	6	John TIBALDI						
	Flood Control Room, operational	1	1	General Phones						
	Flood Control Room, operational									
	Flood Control Room, operational									
	Flood Control Room – when non operational	2	2			Recorded message identifies 'on-call' engineer				
Back up GCC (Mineral House)										
Headworks Operator (of Dams) undertaken by SunWater	Contracts Manager Ipswich Office	1	1	Colin BENDAL*						SEQWater/FCC
	Service Co-ordinator	2	2	Rob GORIAN						
	Maintenance Engineer	3	3	Wayne HAMBLETON						
	Dam Supervisor Wivenhoe	1	1	Doug GRIGG						
2		2	Allan GEORGE							
Headworks Operator (Dams) undertaken by SunWater	Dam Supervisor Somerset	1	1	Anthony DAGAN						SEQWater/FCC
		2	2	Glenn Patterson						
Brisbane City Council and Brisbane City Counter Disaster Committee	Principal Engineer – Floodplain	1	1	Ken MORRIS*						SEQWater/FCC
	Disaster Management Coordinator	2	2	Greg SCOPE						
	SES Local Controller	3	3	John BUTLER						
	Manager, Waterways Program	4	4	Barry BALL						
	Call Centre (24hrs)	5	5							
Esk Shire Council and Counter Disaster Committee	Operations Manager	1	1	Vin BALACHANDRAN						SEQWater/FCC
	Council Overseer	2	2	Rob BOURCHIER						
	SES Controller	3	3	Andy BICKERTON*						
	Works Engineer	4	4	Tony JACOBS						
Kilcoy Shire Council and Counter Disaster Committee	Chief Executive Officer	3	3	Ken TIMMS						SEQWater/FCC
	Mayor	4	4	Terry DREDGE						
	Manager-Works & Services	1	1	Gary BOWTELL						

Emergency Action Plan – Wivenhoe Dam & Somerset Dam

Agency	Position	Working Hrs Priority	Out of Hrs Priority	Name	Work Ph	Fax	Pager	Mobile	After Hrs	Contacted By
	Overseer	2	2	Dan HALL						
Ipswich City Council and Counter Disaster Committee	Deputy Works Manager	1	1	Andrew UNDERWOOD					(leave message)	SEQWater/FCC
	Deputy Works Manager	2	2	Tony DILEO					(leave message)	
	SES Local Controller	3	3	Arie van den ENDE					(leave message)	
Main Roads Metropolitan (Brisbane Redcliffe, Pine Rivers, Redlands, Logan, Ipswich)	Principal Engineer	3	4	Position TBA Contact Andrew NGUYEN						SEQWater
	Senior Engineer	4	5	Andrew NGUYEN						
	Manager Infrastructure Delivery	1	2	Jenny MCMILLAN						
	Senior Engineer	2	3	Paul MCCORMACK						
	Emergency Number		1	Traffic Mgmt Centre						
Port Control	MUTM			Hooked up on to rota						SEQWater
	Vessel Traffic Services Operators									
	Any of these numbers 24 hrs									
Wivenhoe Power Station (Tarong)	Wivenhoe Power Station Manager	1	2	Sorin Lupulescu			Office Hrs only			SEQWater
	On call officer – rotational	2	1	Contact Tarong Shift Co-ordinator		or				
Wivenhoe Small Hydro (Stanwell)	Site Manager	1	1	Scott HANNAY						SEQWater
	Wind and Hydro Manager	2	2	David PHILLIPS						
	GM Operations & Maintenance	3	3	Brett SMITH						
Police	Duty Officer * (24hrs)	1	1							SEQWater
Bureau of Meteorology	Engineer in Charge Flood Warning*	1	1							FCC
	Meteorologist in Charge (24 hrs)	2	2							
Department of Emergency Services Disaster Operations	Duty Officer* (24 hrs)	1	1	Rostered			(not manned all the time)			SEQWater/FCC
Notes:	<p>Contact with an agency is to be made via position with highest priority. That person contacted is then responsible to forward notification to other relevant persons within the agency.</p> <p>* = contact person nominated by agency as contact point for amendments.</p> <p>Agencies to provide notification of updated contact details to Rob Drury of SEQWater PH: 54278131 or Fax: 54261097</p> <p>Updated register to be issued to holders of controlled copies of Emergency Action Plan as well as contact person nominated by agency as contact point for receipt of updated register (indicated by *)</p> <p>FCC = Flood Control Centre (for issue of Flood Information only)</p> <p>SEQWater = South East Queensland Water Corporation</p>									

4 PURPOSE

To define the actions to be taken for an event which could lead to collapse or failure of Wivenhoe Dam or Somerset Dam, or contamination or loss of water supply.

Such events include:

- Occurrence of a larger flood than the flood used for the design of the dam;
- Occurrence of a series of large storms in a short period;
- Failure of gates during a flood;
- Development of a pipe through the embankment;
- Damage to the dam from earthquake;
- Explosion in area;
- Toxic contamination of lake or catchment area;
- Security breach.

4.1 FLOODING

The dams are designed to safely withstand very severe flooding under normal gate operations as defined in the Manual of Operational Procedures for Flood Mitigation for Wivenhoe Dam and Somerset Dam. Thus severe flooding can occur which necessitates emergency responses by other agencies, but which does not threaten the safety of the dams.

Actions required of the staff of the Corporation and Headworks Operator under these circumstances, including notification to other agencies, are detailed in the Manual of Operational Procedures for Flood Mitigation for Wivenhoe Dam and Somerset Dam.

5 SCOPE

This plan applies to Wivenhoe Dam and Somerset Dam and is used by staff of the South East Queensland Water Corporation and the Headworks Operator.

6 REFERENCES

- Sets of drawings
 - Wivenhoe Dam copies are held by the Corporation, Headworks Operator and Wivenhoe Dam Site Office.
 - Somerset Dam copies are held by the Corporation, Headworks Operator and Somerset Dam Site Office.
- Manual of Operational Procedures for Flood Mitigation for Wivenhoe Dam and Somerset Dam. (Document FM QD1.1 check revision??).
- Standard Operating Procedures:
 - Doc DM QD 4.1 – 01 to 19
 - Doc DM QD 4.2 – 01 to 19

7 MEANING OF TERMS

Corporation	Means the South East Queensland Water Corporation.
Chairperson of Corporation	Means Chairperson of Board of Directors of South East Queensland Water Corporation.
Chief Executive NRM	Means the Chief Executive or Director General of the Department of Natural Resources and Water.
Chief Executive Officer (CEO)	Means the officer of the Corporation holding this position.
Operations Manager	Means the officer of the Corporation holding this position.
Operations Engineer	Means the officer of the Corporation holding this position.
Water Quality Manager	Means the officer of the Corporation holding this position.
Dam Supervisor	Means the senior on-site officer of the Headworks Operator at Wivenhoe or Somerset Dam as the case may be.
Flood Operations Engineer	Means the person designated at the time to direct the operations of the dams under the general direction of the Senior Flood Operations Engineer and in accordance with the Manual of Operational Procedures for Flood Mitigation for Wivenhoe Dam and Somerset Dam.
Headworks Operator	Means the agency with which the Corporation has entered into a contract or arrangement with respect to the operation and maintenance of the dams.
Director Dam Safety	Means the officer of the Department of Natural Resources and Water holding this position.
Senior Flood Operations Engineer	Means the senior person of the Headworks Operator designated at the time to provide overall direction for dam operations during flood releases in accordance with the Manual of Operational Procedures for Flood Mitigation for Wivenhoe Dam and Somerset Dam.

8 AGENCIES AND PERSONNEL AFFECTED, AND RESPONSIBILITIES

Agency	Responsibility
Brisbane City Counter Disaster Committee	Is, by legislation, the primary response agency for the community within the City of Brisbane.
Chief Executive Officer	To direct the actions of the staff of the Corporation and Headworks Operator with respect to the operation of the dams during an emergency to protect life and property to the maximum extent considered possible under the prevailing conditions and with the resources available.
Operations Manager	To liaise between SEQWater and the Senior Flood Operations Engineer to arrange for resources to be available to take remedial action to protect Corporation assets.
Esk Shire Counter Disaster Committee	Is, by legislation, the primary response agency for the community within the Shire of Esk.
Flood Operations Engineer	To advise Local Government Counter Disaster Committees, the Corporation, Department of Natural Resources & Water and other relevant agencies of the estimates of flow rates and water heights at key reference locations.
Headworks Operator	To provide suitably qualified and experienced staff to operate the dams.
Ipswich City Counter Disaster Committee	Is, by legislation, the primary response agency for the community within the City of Ipswich.
Kilcoy Shire Counter Disaster Committee	Is, by legislation, the primary response agency for the community within the Shire of Kilcoy.
Director Dam Safety	Only on delegation from the Chief Executive at the time of each event, to act for and on behalf of the Chief Executive during the emergency.
Senior Flood Operations Engineer	<p>As provided for in the Manual of Operational Procedures for Flood Mitigation for Wivenhoe Dam and Somerset Dam, is authorised to adopt such dam release procedures as considered necessary to ensure the structural safety of the dam, provided he/she first consults with such of the following persons as are available at the time that this discretion has to be exercised:</p> <ul style="list-style-type: none"> • the Chairperson of the Corporation; and • the Chief Executive.
South East Queensland Water Corporation	As owner of the dams, to be the initial primary response agency for the emergency, to keep Local Government Counter Disaster Committees, Department of Natural Resources & Water and other agencies informed, and to call upon agencies for assistance as appropriate.

9 NOTIFICATION TO AGENCIES AND PERSONNEL

A list of agencies and personnel who may need to be contacted in the event of an emergency is included in Section 3 on page 7. The plan specifies agencies to be contacted rather than persons to ensure against the unavailability of individuals. Once notification is made to a person within the agency on the list, it is that person's responsibility to notify other relevant persons within the agency. Generally attempts to contact an agency should be in the priority order outlined in the list. However discretion should be exercised if the gravity of the situation warrants.

10 EMERGENCY EVENTS AND ACTIONS

10.1 GENERAL

Whatever the event, if large discharges of water from either or both of the dams are a possibility, the Flood Control Room is to be notified.

10.2 FLOODING

⊗ **Flood originating in the catchment area**

The Senior Flood Operations Engineer shall

- ✓ Direct the overall flood operation of the dams, including notification to other agencies, in accordance with the Manual of Operational Procedures for Flood Mitigation for Wivenhoe Dam and Somerset Dam until after the event.
- ✓ Cause the Wivenhoe Dam and Somerset Dam site Supervisors to be alerted.
- ✓ Cause the Corporation to be alerted.

The Dam Supervisors shall

- ✓ Ensure that gate control systems are active, and that emergency power and other backup systems are checked.
- ✓ Check gallery sump pumps to ensure they are operational to prevent build up of water in gallery.
- ✓ Monitor and record water levels and advise Flood Operations Engineer as requested.

The Headworks Operator shall

- ✓ Contact all staff and contractors involved in the operation and/or maintenance of the dams, and assess their availability over the following few days.

⊗ **Flood releases are likely**

The Operations Manager shall

- ✓ Establish the Flood Information Centre at Wivenhoe Information Centre as a contact point for local area Councils, Police, and Emergency Services.

- ✓ Notify the Chief Executive Officer and Chairperson.

10.2.1 Wivenhoe Dam

⊗ Flood releases to occur under normal operating conditions, i.e. reservoir level of Wivenhoe Dam is above full supply level of EL 67.0 m and the gates are open.

No indication that any emergency conditions to threaten the safety of the dam are developing.

The Dam Supervisor shall undertake the following precautionary measures:

- ✓ Visually observe gates and spillway, visually check structure for leaks, movement, check and record seepage.
- ✓ Inspect the fuse plug embankments at hourly intervals and if necessary liaise with the Corporation Operations Manager for additional resources to ensure the fuse plugs are regularly monitored.

The Senior Flood Operations Engineer shall

- ✓ Notify all agencies as listed in this manual under Emergency Notification List.
- ✓ Advise the Corporation Operations Manager at Wivenhoe Information Centre of the flood gate operations and its impact downstream.
- ✓ Advise the Corporation Operations Manager at Wivenhoe Information Centre of the expected peak dam level and its impact upstream.

The Operations Manager shall

- ✓ Disseminate a media release on expected dam releases.

⊗ Reservoir level of Wivenhoe Dam reaches EL 74.0 m (5 m below crest of embankment)

The Dam Supervisor shall

- ✓ Visually observe gates and spillway, visually check structure for leaks, movement, check and record seepage.
- ✓ Inspect the fuse plug embankments at half hourly intervals and if necessary liaise with the Corporation Operations Manager for additional resources to ensure the fuse plugs are regularly monitored.

The Senior Flood Operations Engineer shall

- ✓ Advise Department of Natural Resources & Water.
- ✓ Notify all agencies as listed in this manual under Emergency Notification List of a major flood situation.

⊗ Reservoir Level Reaches EL 75.7 m (Trigger Section Level for Fuse Plug 1)

The Dam Supervisor shall

- ✓ Visually observe secondary spillway to assess if the fuse plug 1 has been initiated. Notify the flood control centre once the fuse plug has been initiated.
- ✓ Notify the Corporations Operation Manager of the pending initiation of the fuse plug.

The Senior Flood Operations Engineer shall

- ✓ Advise Department of Natural Resources & Water.
- ✓ Notify all agencies as listed in this manual under Emergency Notification List of the initiation.

SEQWater Operations Manager shall

- ✓ Arrange for the monitoring of the secondary spillway to record the initiation of the fuse plugs.
- ✓ Ensure that the area downstream of the fuse plug is clear.

⊗ Reservoir Level Reaches EL 76.2 m (Trigger Section Level for Fuse Plug 2)

The Dam Supervisor shall

- ✓ Visually observe secondary spillway to assess if the fuse plug 2 has been initiated. Notify the flood control centre once the fuse plug has been initiated.
- ✓ Notify the Corporations Operation Manager of the pending initiation of the fuse plug.

The Senior Flood Operations Engineer shall

- ✓ Advise Department of Natural Resources & Water.

- ✓ Notify all agencies as listed in this manual under Emergency Notification List of the initiation.

SEQWater Operations Manager shall

- ✓ Arrange for the monitoring of the secondary spillway to record the initiation of the fuse plugs.

⊗ Reservoir Level Reaches EL 76.7 m (Trigger Section Level for Fuse Plug 3)

The Dam Supervisor shall

- ✓ Visually observe secondary spillway to assess if the fuse plug 3 has been initiated. Notify the flood control centre once the fuse plug has been initiated.
- ✓ Notify the Corporations Operation Manager of the pending initiation of the fuse plug.

The Senior Flood Operations Engineer shall

- ✓ Advise Department of Natural Resources & Water.
- ✓ Notify all agencies as listed in this manual under Emergency Notification List of the initiation.

SEQWater Operations Manager shall

- ✓ Arrange for the monitoring of the secondary spillway to record the initiation of the fuse plugs.

⊗ Reservoir level of Wivenhoe Dam reaches EL 79.0 m (crest of embankment)

The Dam Supervisor shall

- ✓ Secure the gates in the raised position, lock up the spillway area and evacuate the crest of the dam. Once safe, continue to monitor the dam crest from either abutment.
- ✓ Notify the Flood Control Centre of the evacuation of the dam crest.

Refer to Section 10.3.

10.2.2 Somerset Dam

⊗ **Flood releases are occurring over the spillway of Somerset Dam, EL 100.45 m.**

No indications of any emergency conditions to threaten the safety of the dam are developing.

The Dam Supervisor shall undertake the following precautionary measures:

- ✓ Visually observe gates and spillway, visually check structure for leaks, movement, check and record seepage.

The Senior Flood Operations Engineer shall

- ✓ Notify all agencies as listed in this manual under Emergency Notification List.
- ✓ Advise the Corporation Operations Manager at Wivenhoe Information Centre of the flood gate operations and its impact.
- ✓ Advise the Corporation Operations Manager at Wivenhoe Information Centre of the expected peak dam level and its impact upstream.

The Operations Manager shall

- ✓ Disseminate a media release on expected dam releases.

⊗ **Reservoir level of Somerset Dam reaches EL 104.5 m (3 m below crest of dam).**

The Dam Supervisor shall undertake the following precautionary measures:

- ✓ Visually observe gates and spillway, visually check structure for leaks, movement, check and record seepage.

The Senior Flood Operations Engineer shall

- ✓ Advise Department of Natural Resources & Water.
- ✓ Notify all agencies as listed in this manual under Emergency Notification List of a major flood situation.

10.3 POSSIBILITY OF OVERTOPPING

⊗ **As soon as it appears possible that either dam may be overtopped**

The Senior Flood Operations Engineer shall

- ✓ Notify Department of Natural Resources & Water.
- ✓ Notify the Corporation.

The Chairperson and the Chief Executive shall

- ✓ Confer as to the direction of operations and advice to other agencies and the public.

The Operations Manager shall

- ✓ Arrange for resources to be on standby under the control at all times of the Operations Manager.

⊗ **Water begins to overtop either dam.**

The Dam Supervisor shall

- ✓ ensure all people are well clear of any potential danger area.

Senior Flood Operations Engineer

- ✓ to notify Department of Natural Resources & Water.
- ✓ to notify the Corporation.
- ✓ to notify the Counter Disaster Committees and State Emergency Services.

10.4 INCREASE IN SEEPAGE

⊗ **Water seeping from spillway, embankments, abutments or saddle dams, or**

⊗ **Sudden increase in seepage in galleries, or pressure readings, or sudden increase in V notch weir flows**

The Dam Supervisor shall

- ✓ Notify the Corporation.
- ✓ Measure or estimate the rate of flow, take water samples and observe cloudiness in seepage water as frequently as circumstances warrant.

The Operations Manager shall

- ✓ Notify Department of Natural Resources and Water.
- ✓ Advise the Flood Control Room whether accelerated releases from Wivenhoe Dam or Somerset Dam are required.
- ✓ Notify the Chief Executive Officer and Chairperson.
- ✓ Arrange resources to take remedial action if deemed necessary.

10.5 MOVEMENT

⊗ Embankment or abutment slope has moved and/or cracks appear

The Dam Supervisor shall

- ✓ Notify the Operations Manager.
- ✓ Locate on site plan, measure width and length of cracks, and approximate shape of slump.
- ✓ If water exists, measure or estimate the rate of flow, take water samples and observe cloudiness in seepage water as frequently as circumstances warrant.

The Operations Manager shall

- ✓ Notify the Chief Executive Officer and Chairperson.
- ✓ Notify Department of Natural Resources & Water.
- ✓ Advise Flood Control Room whether accelerated dam releases are required.
- ✓ Arrange survey.
- ✓ Arrange resources to take remedial action if deemed necessary.

10.6 GATE MALFUNCTION

⊗ **Gate or gates are inoperable (open or closed position)**

The Dam Supervisor shall

- ✓ Advise the Flood Control Room.
- ✓ Advise the Headworks Operator.
- ✓ Advise the Operations Manager.
- ✓ Assess, if possible, the likely cause of the malfunction,
- ✓ Repair or arrange repair.

The Operations Manager shall

- ✓ Liaise with Flood Control Room and assess reservoir levels and downstream impact and notify Department of Natural Resources and Water and Local Government Counter Disaster Committees.
- ✓ Notify the Chief Executive Officer and Chairperson

The Headworks Operator shall

- ✓ Give direction, as required, to the Dam Supervisor on the manner of repair.

10.7 CONTAMINATION OF CATCHMENT AREA OR RESERVOIR

⊗ **Detection or notification of possible toxic or hazardous substance**

Corporation staff shall

- ✓ Notify Department of Emergency Services, Disaster Management Service.
- ✓ Notify Corporation Wivenhoe office/Operations Manager.
- ✓ Notify local Police.
- ✓ Visually observe the substance, colour and extent of spill.
- ✓ Observe effects of the contamination on fish, birds, land animals, etc.

- ✓ Take reasonable steps to isolate the spill or contaminant from the water supply.

The Operations Manager shall

- ✓ After conferring with the Water Quality Manager, order the shut off of all releases if the storage is suspected of being contaminated.
- ✓ Notify affected people.

10.8 EARTHQUAKE

⊗ **Earthquake felt or reported in area**

The Dam Supervisors shall

- ✓ Advise the Duty Flood Operations Engineer.
- ✓ Advise the Corporation.
- ✓ Immediately inspect dam structures, including saddle dams, for seepage, deformation, cracks, erosion etc.
- ✓ Check for gate mis-alignment in accordance with the Corporation's Standard Operating Procedure for Routine Dam Safety Inspections – DM QD 4.1-11.

The Operations Manager shall

- ✓ Notify the CEO and Chairperson.
- ✓ Notify Department of Natural Resources & Water.
- ✓ Carry out detailed inspections of the dam structure, and analyse the incident with the Corporation's Consulting Seismologist.

10.9 EXPLOSION

⊗ **Explosion heard or felt in the vicinity of the dam**

The Dam Supervisor shall

- ✓ Notify Police.
- ✓ Investigate as for Earthquake.

10.10 SECURITY BREACH

⊗ **Breach of security has occurred or is suspected**

The Dam Supervisor shall

- ✓ Notify Police.
- ✓ Notify Operations Manager.
- ✓ Stay clear of area of the security breach and suspected intruders.
- ✓ Close and secure entrances.
- ✓ Obey any instructions from intruders if confronted.

10.11 BLOOM OF ALGAE

Corporation staff shall

- ✓ Maintain a visual inspection for presence of algae.
- ✓ If algae detected, advise the Corporations Water Quality Manager and Operations Manager.
- ✓ Undertake action as per the direction of the Corporations Water Quality Manager.

11 TECHNICAL DATA SHEET

11.1 WIVENHOE DAM

Catchment area	7,020 km
Capacity – water supply	1,150,000 ML
Submerged area – at full supply level (FSL)	10,820 ha
Stream bed level at structure	EL 23.0 m
Full supply level	EL 67.0 m
Embankment level	EL 79.0 m
Top of Concrete Parapet Wall	EL 80.1 m (minimum level)
Type of structure	Gated concrete spillway, earth and rockfill embankment with 2 saddle dams
Crest width	14 m
Length of wall	2.30 km
Maximum height	50 m
Shoreline	590 km
Capacity – flood storage	1,450,000 ML
Spillway gates	5 Radial 12.0 m W by 16.6 m H
Regulator valves	2 x 1.5 m diameter fixed dispersion cones
SADDLE DAM No 1	
Crest width	4 m
Length	200 m
Maximum height	6 m
Embankment material	Clay, gravelly clay
SADDLE DAM No 2	
Crest width	4 m
Length	270 m
Maximum height	7 m
Embankment material	Clays, sandy clays, weathered conglomerates

11.2 SOMERSET DAM

1.	DAM	
	Type of dam	Mass concrete gravity
	Length of dam at deck level	308 m
	Maximum height above foundation level	58 m
	Lowest foundation level	EL 54.77 m
	Dam crest level - bridge deck level	EL 112.34 m
	- non overflow crest level	EL 107.46 m
	- level of concrete spillway crest	EL 100.45 m
	Full supply level	EL 99.0 m
2.	SPELLWAY	
	Number of radial spillway gates	8
	Size of each radial spillway gate	7.9 m wide x 7.0 m high
	Top of gates when closed	EL 107.46 m
	Radius of spillway gates	7.0 m
	Centreline of trunnion bearing	EL 103.73 m
	Clear length of spillway	63.4 m
3.	SLUICE GATES	
	Number of sluice gates	8
	Size of each sluice gate	3.66 m high x 2.44 wide
	Invert level of sluice entrance	EL 71.2 m
	Top of stilling basin training walls	EL 73.0 m
	Stilling basin length	58.2 m
	Baffle height	3.0 m
	Stilling basin level	EL 60.83 m
4.	REGULATORS	
	Number of regulators	4
	Level of centreline of regulators	EL 70.0 m
	Type and size of regulators	2.3 m dia fixed cone dispersal valves
5.	STORAGE	
	Reservoir area at F.S.L.	4,400 ha
	Storage capacity at F.S.L.	369,000 ML

12 GENERAL

12.1 SAFETY

Staff are at all times to act with due regard to the safety of the public and themselves, and at the earliest time, to seek assistance and remain in contact with sources trained for the particular emergency.

12.2 COMMUNICATION

Site staff are to endeavour to remain in contact with external sources at all times during any emergency; for safety reasons and to allow earliest possible notification and description of changing conditions to combat agencies.

Detection of any unusual or sudden occurrence, or any event that could be a prelude to an emergency, whether included in this plan or not, is to be notified to a relevant agency or to the Corporation.

12.3 RELEASE OF INFORMATION

Release of information, other than to the appropriate combat agencies or as provided for in other approved plans or manuals, is only to be carried out by the Chairperson, Chief Executive Officer, or Operations Manager of the Corporation.

12.4 OPERATOR'S LOG

To improve the effectiveness in responding to future emergencies, staff involved in an emergency are to keep a comprehensive log of the events, actions taken, communications etc.

The Operations Manager shall carry out a debriefing session and have a report prepared of the effectiveness of responses to the incident within six weeks of the incident referred to.

12.5 TRAINING

The Headworks Operator is to ensure that operational personnel who may be required for emergencies receive adequate training in the various activities involved in responding to emergencies.

12.6 UPDATING OF PLAN

The Operations Manager is responsible for keeping the plan up to date and distributing amendments of the plan to holders of controlled documents.

Any changes to the plan of a more general nature, eg. affecting the general public or other agencies, are first to be approved by the Chief Executive Officer of the South East Queensland Water Corporation.

12.7 REVIEW

The Operations Manager is to have a review carried out as circumstances warrant or at intervals not exceeding 2 years. Such review shall include, but not be limited to, its effectiveness in any emergencies during the period since the last review, training requirements, how well changes to the plan, personnel list updates etc. have been made and incorporated into distributed copies of the plan.

12.8 RESOURCES SHEET

The resources sheet in Section 16 of this Emergency Action Plan is for use by staff of the South East Queensland Water Corporation and Headworks Operator.

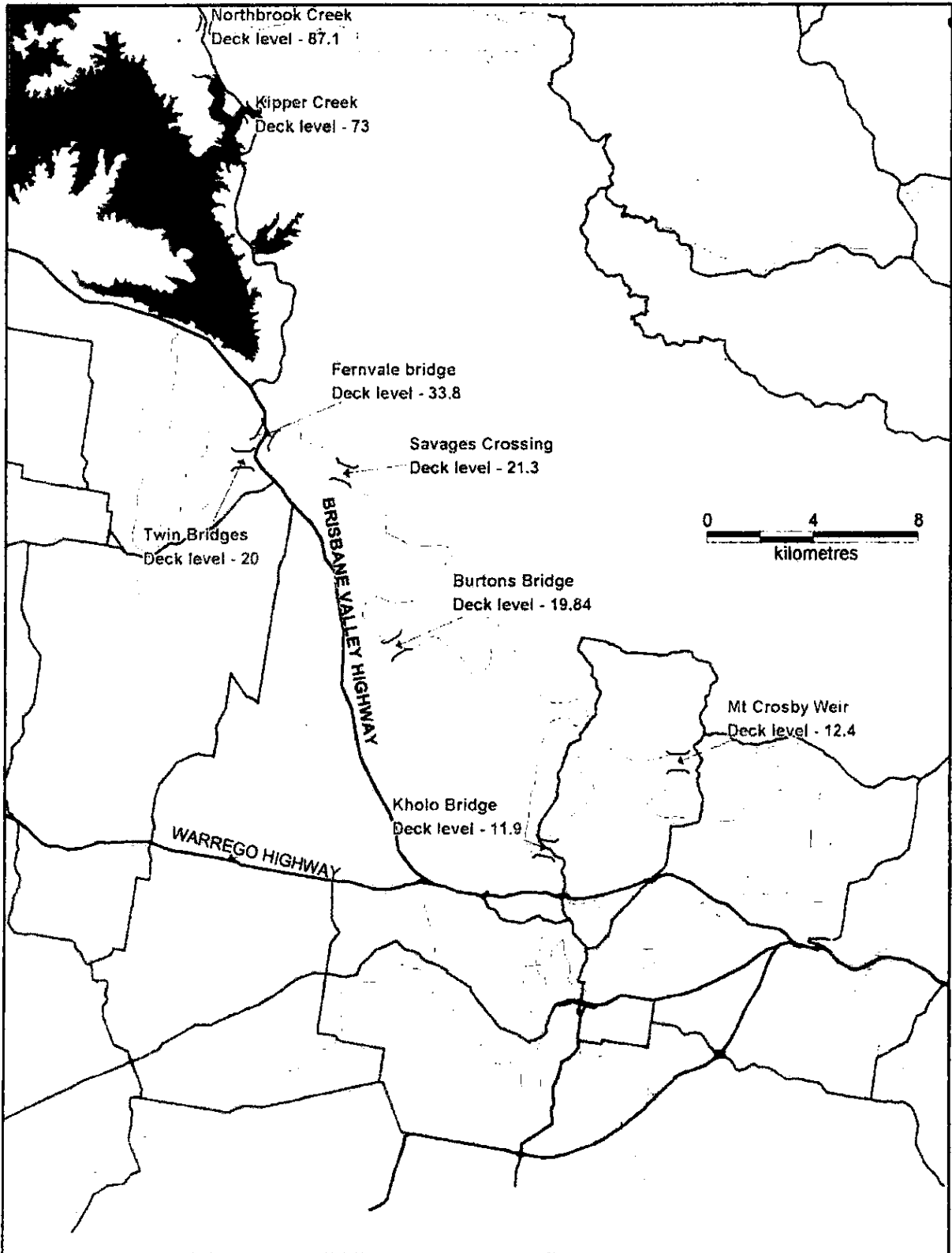
The sheet provides information on where resources can be obtained.

Typical resources include:

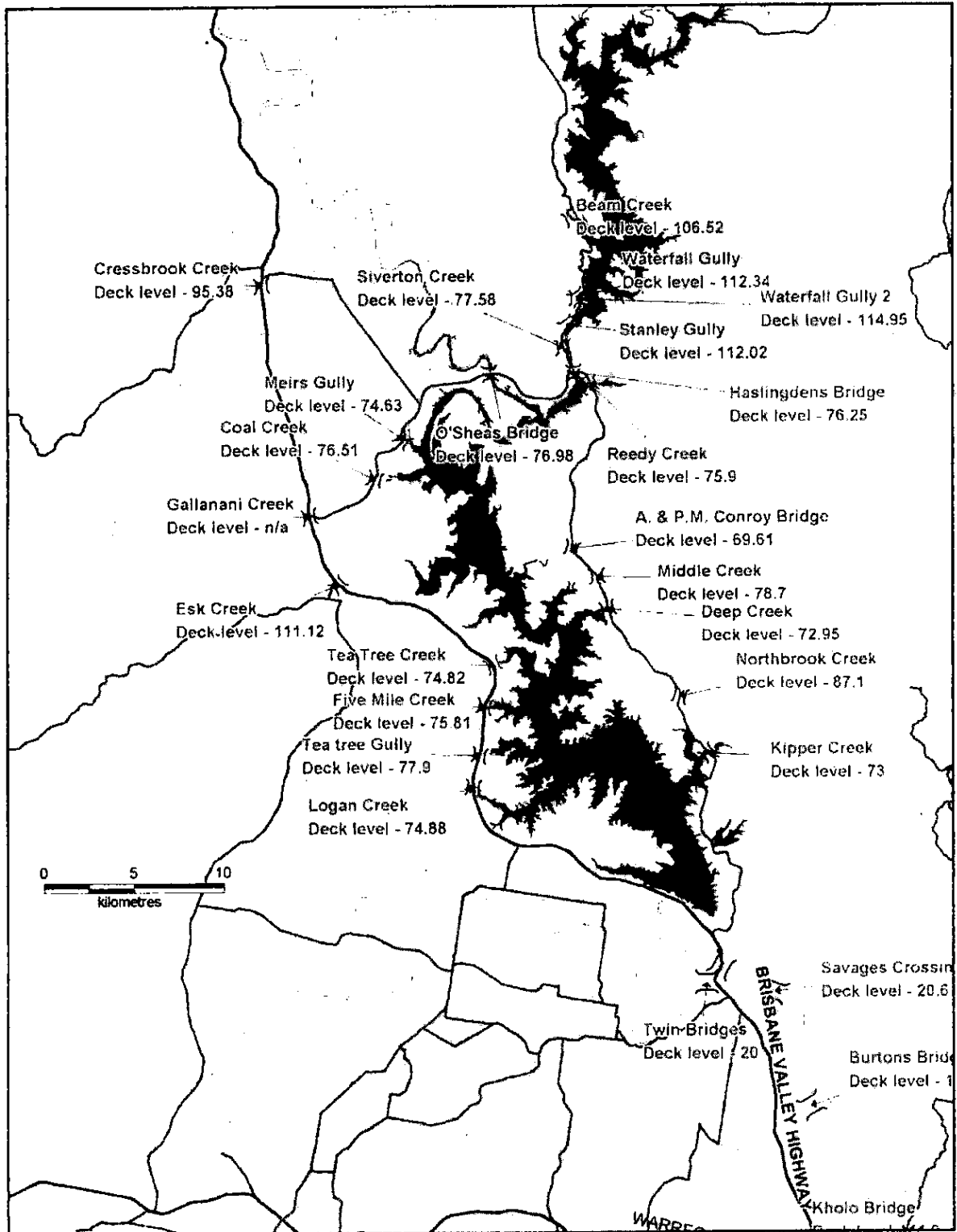
- Hospital, medical;
- Heavy plant and equipment;
- Rock;
- Sand, sand bags;
- Compressors and motors;
- Hydraulic pressure hoses; and
- Mobile cranes.

The Resources Sheet is therefore ONLY included in the controlled documentation to the Corporation, Headworks Operator and site offices.

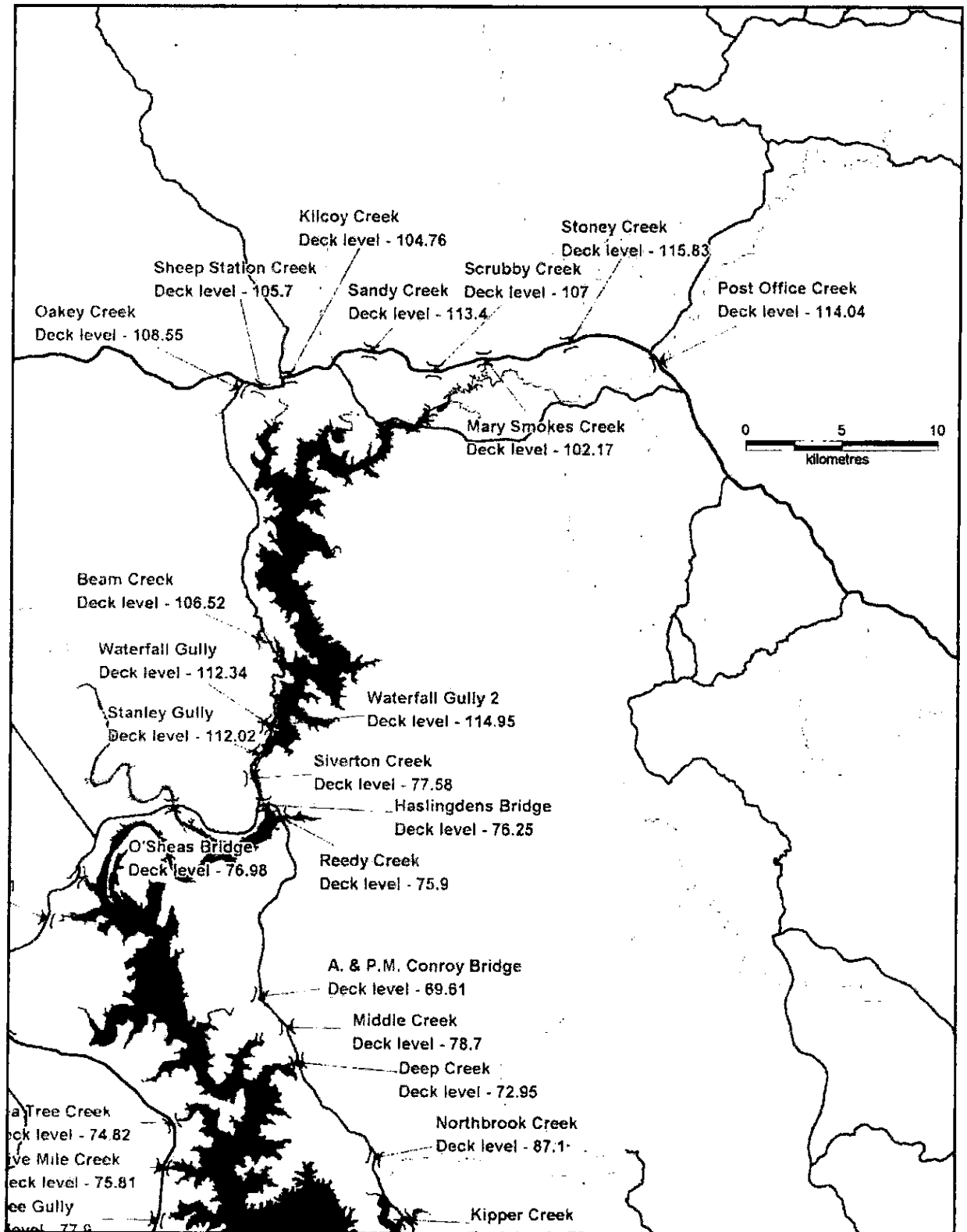
13 MAP: BRISBANE RIVER – WIVENHOE DAM TO MT CROSBY



14 MAP: BRIDGES – WIVENHOE DAM



15 MAP: BRIDGES – SOMERSET DAM



16 RESOURCES SHEET

Supplied only to staff of SEQWater and Headworks Operator.

17 APPENDIX 1 FLOOD INUNDATION MAPS

Supplied to Counter Disaster Organisations only

WIVENHOE DAM – ESTIMATED PEAK LAKE LEVELS

Average Recurrence Interval of Inflows (Years)	Normal Gate Operations (m AHD)	Flood Inundation Map Number
100	73.4	
1 000	74.9	
10 000	76.8	

SOMERSET DAM – ESTIMATED PEAK LAKE LEVELS

Average Recurrence Interval of Inflows (Years)	Normal Gate Operations (m AHD)	Flood Inundation Map Number
100	103.5	
1 000	104.5	
10 000	107.5	

