WATER/RECYCLED – FIFM Complex Works Assessment Sheet

Project Title / Name _____

MAXIMO number: _____ **Case No:** _____

Criteria to identify complex FIFM for referral to Area Teams			**Comments**
1. Is entry into a hydraulic asset required?	Yes	No	
2. Is any safety residual risk rating less than 3? (i.e. are any site specific engulfment hazards present). Work requires:			
• Confined space entry as defined in HSP0001	Yes	No	
• Excavation 1.5m deep or greater	Yes	No	
• Open main 500mm diameter or greater	Yes	No	
• Entry to reservoir by divers or boats	Yes	No	
• Other	Yes	No	
3. Do you need to implement an existing contingency plan?	Yes	No	
4. Is supply to a PRV zone affected?	Yes	No	
5. Is rezoning and/or operation of DVs be required?	Yes	No	
6. Is critical, major, significant customer(s) be affected?	Yes	No	
7. Is an OCR required? (e.g. FIFM will impact reservoirs, WPSs, PRVs)	Yes		
8. Is specific SV sequencing for FIFM and/or recommissioning be required? (ie do assets need to be operated in a set order to maintain overall system performance?)	Yes	No	
9. Will the FIFM result in a change in Water Quality?	Yes	No	

If any of the above is yes then first discuss with Area Teams and refer the FIFM if required.

Overall Comments:

Is FIFM assessed as having low safety, customer & system risks?	**Yes**		**No**	
Initial assessment of method of FIFM as per W1 (circle relevant):	**W2**	**W3**	**W4**	**W5**

FIFM to be approved by (circle relevant): **Area Team** **Program Coordination**

Assessed by:

Print Name: **Signature:** **Date**

Appendix 1: Water/Recycled Workflow Checklist/Work Instruction

Task	Sub task	Checks/ Tools required	Checked
Assess Site Specific Engulfment Hazards	1. Is entry into a hydraulic asset required?	All of these are project specific and are identified by the Project Manager as part of their Form A submission. It may be necessary to discuss and clarify these with the Project Manager as part of this initial assessment. For entry to reservoir by divers or boats, use ASAM for asset related data such as whether screens on inlet / outlet are present	
	2. Is any safety residual rating less than 3? (ie any of the following site specific engulfment hazards present?): • Confined space entry as defined in HSP0001 • Excavation 1.5 m deep or greater • Open main 500 mm diameter or greater • Entry to reservoir by divers or boats • Other		
Assess Customer and / or System Impacts	3. Do you need to implement an existing contingency plan?	Check BMIS as detailed in IMS0081 - Searching for Contingency Plans in BMIS. https://elogin.ads.swc/BMIS/SWDocControl.nsf/0/C4DD16BEC66757D0CA257AEC001C15EB?opendocument	
	4. Is supply to a PRV zone affected?	Can be determined via Infoworks models, reservoir zone hardcopy maps, IICATS, HYDRA.	
	5. Is rezoning and/or operation of DVs be required?	Can be determined via Infoworks models, reservoir zone hardcopy maps, IICATS, HYDRA.	
	6. Is critical, major, significant customer(s) be affected?	Check BMIS whether affected zone has any major customer contingency plans	

Task	Sub task	Checks/ Tools required	Checked
Assess Customer and / or System Impacts	7. Is an OCR required? (e.g. FIFM will impact Reservoirs, WPSs, PRVs)	• Check Infoworks models, reservoir zone hardcopy maps, IICATS, HYDRA to determine whether any reservoirs, pumping stations or automatic valves will be affected. • OCRs can be prepared by either the Area or the Central team on agreement.	
	8. Is specific SV sequencing for FIFM and/or recommissioning be required? (ie do assets need to be operated in a set order to maintain overall system performance?)	• Check Infoworks models, reservoir zone hardcopy maps, IICATS, HYDRA to determine whether assets need to be operated in a set order to maintain overall system performance.	
	9. Will the FIFM result in a change in Water Quality?	• Water quality impacts may include change of chlorination regimes and/or significant increase in flow velocities • Review reservoir zone level chlorination regime spreadsheet	
Is FIFM assessed as having low safety, customer & system risks?	This decision is based on the criteria 1-9 stated in Appendix 3 as well as any discussions with the relevant Area Team	Need to update the Area Team contact list for reservoir zones post reform	
Initial assessment of method of FIFM	• Determine the initial method of FIFM.	• Assessed using the W1 as per the assessment of site specific engulfment hazards • This initial assessment will be confirmed or modified after further investigation and the results of field trials	
Approval of FIFM	If the FIFM is assessed as having low safety, customer and safety risk, the plan will be approved by Program Coordination team. For all other projects, the plan will be approved by the Area Team.		

Appendix 2: Water/Recycled – Preparation of FIFM Checklist

WATER/RECYCLED - Preparation of FIFM

Project Title / Name _____

MAXIMO number: _____ **Case No:** _____

		Comments
1. Distribution System:		
2. Reservoir Zone:		
3. Networks Area:		
4. Properties Affected?	Y / N	
• Residential		
• Commercial / Industrial		
• Total		
• Affected for greater than five hours?	Y / N	
• Potential Rebate	$	
5. Will the FIFM require operation of an energy managed WPS to maintain the continuity of supply during the shutdown?	Y / N	
6. Trial Required?	Y / N	
7. OCR for trial required?	Y / N	OCR No:
8. Alternate Supply?	Y / N	
• Rezoning?	Y / N / Investigate-Confirm during trial	
• Portable PRV required?	Y / N / Investigate-Confirm during trial	
• Tanker?	Y / N / Investigate-Confirm during trial	
• Hydrant to Hydrant?	Y / N / Investigate-Confirm during trial	
9. Estimate of discharge volume (KL):		
10. Dechlorination required during discharge?	Y / N	
11. Will FIFM require isolation of main 375mm or greater for in excess of 24 hours or reservoir for greater than 48 hours?		Y / N
12. Does project work involve welding or extended isolation of pre-1987 steel main?		Y / N
13. Is monitoring of system performance required during trials, prior to handover and during project work?		Y / N

Trial successful?	**Y / N**				
Is retrial shutdown required?	**Y / N**				
Retrial successful?	**Y / N**				
Assessed of method of FIFM as per W1 (circle relevant)		**W2**	**W3**	**W4**	**W5**
OCR for FIFM required?	**Y / N**	OCR No:			

FIFM Prepared by:

Print Name: **Signature:** **Date:**

Appendix 3: Water/Recycled – Preparation Of FIFM Checklist/Work Instruction

1. **Distribution System**

Based on the location of the works and identified via asset attribute in HYDRA.

2. **Reservoir Zone**

Based on the location of the works and identified via asset attribute in HYDRA.

3. **Networks Area**

Based on the location of the works and identified via asset attribute in HYDRA.

4. **Properties Affected**

- Can be determined via Infoworks models and HYDRA as to whether assets affected by the FIFM directly serve customers.
- Use Property Count HYDRA report (standard report) to determine number and types of properties affected
- The duration of the works as specified on Form A will determine whether properties will be affected for greater than five hours.
- The potential rebate is a function of the quarterly water availability charges and is based on the meter size. An order of cost can be estimated by using the total property number from the Property Count HYDRA report x $30.

5. **Will the FIFM affect an energy managed WPS?**

- Check Infoworks models, reservoir zone hardcopy maps, IICATS, HYDRA to determine whether any energy managed stations or automatic valves will require specific operation.
- Project manager needs to take into account any energy management at a WPS at the planning stage for the project/planned work to minimise this increased costs or at least take it into consideration when costing the options for the work.

6. **Trial Required?**

- This assessment is made based on whether the assets involved have been recently shutdown, based on the shutdown spreadsheets and any initial discussions with the Area Teams. The potential project cost of a failed shutdown also needs to be discussed with the Project Manager if we intend not to trial prior to project works.

7. **Is an OCR for trial required?**

- Check Infoworks models, reservoir zone hardcopy maps, IICATS, HYDRA to determine whether any reservoirs, pumping stations or automatic valves require specific operation for the trial or will be affected for an extended period sufficient to require prior notification to HSS.
- The timing and content of OCRs need to be reviewed by the relevant Area Team SDO prior to submission to HSS (OCR process for Programs Coordination / Area Teams needs to be developed).
- Trials can be fill-in / discretionary work for our Network Techs. Requiring an OCR for a trial requires us to schedule for a specific day and time which reduces our flexibility in balancing Network Tech workloads.

8. **Alternate Supply?**

- Check Infoworks models, reservoir zone hardcopy maps and HYDRA to determine whether properties affected can be supplied via an alternate source during the FIFM.
- The cost of alternate supply needs to be balanced against number of properties affected and the reduction in potential rebate for the FIFM.
- If an alternate supply is available and assessed as cost effective, a field investigation needs to be carried out in parallel with the FIFM trial. If rezoning via DV or via a flat hose from hydrant to hydrant, or portable PRV is identified for the FIFM actual works,, then testing and monitoring of these needs to be included in the trial. (which team is responsible for installation of temporary pressure recording gauges during the trial) If use of a tanker or installation of a temporary above ground service by the Project Manager is identified, suitability of location needs to be assessed in parallel with the FIFM trial. There is no point is specifying a tanker to supply 200 properties during a night time FIFM if the noise generated by its operation impacts on residential properties
- The aim is to minimise the number of visits to the site for trialling and alternate supply investigations.

9. Estimate of discharge (KL):

- Calculate based on length and diameter and the profile of the main to be dewatered

10. Dechlorination required during discharge

- As per Discharge Protocols, dechlorination is required if discharge volume is 1.0 ML or greater.

11. Will FIFM require isolation of main 375mm or greater for in excess of 24 hours or reservoir for greater than 48 hours?

- For all watermains 375mm and greater, include a hold point in the recommissioning procedure specifying that water quality testing is to be completed by a Networks Water Quality Scientist or nominated standby person in accordance with WPIMS5174 (eg chlorine, turbidity, odour and taste) prior to returning the recharged main to supplying customers. This may also apply to any watermain less than 375mm that are assessed as having an elevated level of water quality risk such as: submarine or single feed water mains, or areas with a history of issues (see heat map analysis of Dirty Water complaints in Maximo).
- For reservoirs that have been dewatered and/or relined, include a hold point in the FIFM recommissioning procedure confirming that the reservoir was cleaned and disinfected prior to refilling.
- For reservoirs that have been either dewatered or isolated for greater than 48 hours, include a hold point in the recommissioning procedure specifying that water quality testing is to be completed by a Networks Water Quality Scientist or nominated standby person in accordance with WPIMS5261 (eg chlorine, turbidity, odour, taste and/or organics) prior to returning the reservoir to supplying customers.

12. Does the project work involve welding or extended isolation of pre-1987 steel main?

- This is determined through asset attributes in HYDRA (tagging mains as 'SCL IBL' – Steel Cement Lined Internal Bituminous Lining) and the description of project work submitted as part of Form A. Stagnant water in the isolated section exposed to bitumen lining may lead to water quality issues.

13. Is monitoring of system performance required during trials, prior to handover and during project work?

- If trials are required, specify as part of Form E if any actions other than depressurisation is required (ie partial / full dewatering of assets and duration of proving and period for monitoring trial). Identify if the trial needs to be conducted at a specific time of day or specific day.

- Identify critical monitoring points within the system surrounding the assets to be isolated and other affected systems. This may include existing IICATS gauges or temporary gauges to be installed as part of the isolation works. Specify expected system pressures at these locations prior to the isolation and expected pressures during the isolation. Include acceptable limits (ie minimum / maximum pressure) and actions if system performance is outside these limits (eg contact Water Networks, operate DVs, cancel work etc).

- Include method of recording actual pressure (ie sections in Forms E, H, I or separate data sheet developed for the works). Include actions for Network Techs / Civil Delivery (i.e. contact Water Network, check specific SVs, do not proceed with work if issues cannot be resolved).

- Specify actions for SOC (ie via alarms specified for the isolation). These may include direct notification to field crew of low suction alarms, abnormal depletion of reservoirs, abnormal flows or any asset issues impacting the isolation.

- System monitoring associated with single or multiple shutdowns to be carried out by the Area team.

Other related jobs within the same shutdown

- Refer to the Water App for other related jobs with the same shutdown (future improvement project).

Appendix 4: Stormwater - FIFM Complex Works Assessment Sheet

STORMWATER – FIFM Complex Works Assessment Sheet

Project Title / Name _____

MAXIMO number: _____ **Case No:** _____

Criteria to identify projects complex stormwater FIFM works

1. Will the work activity/project take more than 14 hours?	**Yes**	**No**
2. Is removal of asset section, pump or in-line valve required?	**Yes**	**No**
3. Does the work have the potential to increase flooding impacts?	**Yes**	**No**
4. Are the proposed works located downstream of large water storages (eg reservoir, public swimming pool)?	**Yes**	**No**

If any of the above is Yes refer to Area Team to prepare a FIFM.

All other works are covered outside of the FIFM process.

Comments:

Assessed by:

_____

Print Name **Signature** **Date**

Appendix 5: Stormwater Checklist/Work Instruction

Task	Sub task	Checks/ Tools required	Checked
Assess Customer and / or System Impacts	1. Will the work activity/project take more than 14 hours?	This will be project specific and are identified by the Project Manager as part of their Form A submission. It may be necessary to discuss and clarify these with the Project Manager as part of this initial assessment. Complex works will always take more than 14 hours to complete, which requires some form of FIFM. Non-complex works will generally be completed in less than 14 hours.	
	2. Is removal of asset section, pump or in-line valve required?	Such conditions have the potential to significantly change the nature of the flow in the stormwater asset. The proposed works should be made clear by the Project Manager on their Form A submission. Therefore these works will be considered complex, and require a FIFM to be prepared.	
Is FIFM assessed as having low safety, customer & system risks?	3. Does the work have the potential to increase flooding impacts?	Depending on the nature of the work proposed, there may be a potential to increase flooding impacts. For example there is a potential for building material to wash and block a culvert downstream. This can be checked via HYDRA to identify the asset type. Again the proposed nature of the works should be made clear by the Project Manager of their Form A submission.	
Is FIFM assessed as having low safety, customer & system risks?	4. Are the proposed works located downstream of large water storages (e.g. reservoir, public swimming pool)?	This can be checked via HYDRA to identify if any water storages are located upstream of the work sites.	
Assess Initial assessment of method of FIFM	Assessed using the D1 as per the assessment of site specific engulfment hazards.		

Task	Sub task	Checks/ Tools required	Checked
FIFM to be approved by	FIFM's for complex work are to be approved by Stormwater Operations. For all other projects, the plan will be approved by Program Coordination team.		

BACKGROUND

FIFMs involving Stormwater assets are considered complex if:

1. Work requires entry into a hydraulic asset

   AND ANY OF THE FOLLOWING

2. The work activity/project will take more than 14 hours to complete
3. Is removal of asset section, pump or in-line valve required?
4. Does the work have the potential to increase flooding impacts?
5. Are the proposed works located downstream of large water storages (eg reservoir, public swimming pool)?

FIFMs with the either of the above or the client is not satisfied with the standard FIFM controls for safety will need to be discussed with the relevant Area Team.

These FIFMs will be carried out via Form B to K and require Stormwater Operations sign off.

All other works within Stormwater assets will be considered non –complex.

These works will follow the Stormwater Third Party Access procedure, which is separate to the FIFM process.

This process does not require Area Team input and will be approved by the Program Coordination Team.

Existing Tools / Information Systems required:

- Maximo
- HYDRA
- BMIS