



**Statement of Response April 2017**  
**To**  
**Draft Drought Plan October 2016**

**Main Report**

## Executive Summary

Water companies in England and Wales are required to produce a Drought Plan under Section 39B of the Water Industry Act 1991, as introduced by the Water Act 2003. The Drought Plan sets out the actions that a water company will take to protect water supplies and the environment during a drought period.

In October 2016 Thames Water published its draft Drought Plan. The draft Drought Plan replaced the previous Drought Plan published in 2013 and incorporates:

- New information to demonstrate how Thames Water has tested its Drought Plan against a range of droughts of greater severity than in the historic record; and
- Information to improve the Environmental Assessment Reports (EARs) for the Drought Permits included within the Drought Plan. For example the EARs have been updated to take into account the baseline environmental monitoring data that has been collected since the publication of the last Drought Plan.

Water companies are required to publish and undertake public consultation on their draft Drought Plans and on 6 January 2017 we published our draft Drought Plan for consultation. The public consultation ran for a 6 week period and closed on 17 February 2017. We wrote to statutory consultees as prescribed in the Drought Plan Regulations 2005 (the Regulations”), published information on our website [www.thameswater.co.uk/drought](http://www.thameswater.co.uk/drought) and made a paper copy of the draft Drought Plan available to view at our offices, by appointment. We invited representations on the draft Drought Plan to be sent to the Secretary of State.

This report, the Statement of Response (SoR), has been prepared by Thames Water to comply with the Regulations. This statement explains:

- the consideration given to the representations received as part of the public consultation on the draft Drought Plan;
- the changes made to the draft Drought Plan as a result of the consideration of the representation and the reasons for the changes; and,
- where we have not made any changes to the draft Drought Plan, as a result of consideration of the representation, the reasons for this.

This Statement will be available on our website at [www.thameswater.co.uk/drought](http://www.thameswater.co.uk/drought) and has been sent to all consultees who submitted a representation.

In total we received 11 responses to the consultation on the draft Drought Plan. The Environment Agency submitted a comprehensive and detailed response and the remainder were received from a broad cross-section of stakeholders. To aid clarity the responses were divided into two categories:

- Stakeholders (10 respondees) from which 16 representations on individual aspects of the draft Drought Plan were received.
- Environment Agency from which 9 representations on individual aspects were received. Of these, 2 were concerned with environmental assessment reporting on drought permit options. In relation to the Drought Permit Environmental Assessments reports a draft

high level programme has been provided to the Environment Agency for their update following publication of the revised draft Drought Plan on the 21 April 2017. This programme will be refined to develop a greater level of detail following consultation with the Environment Agency after submission of the revised draft Drought Plan. This high level programme is included in Appendix 4 of the SoR and in Appendix C of the Drought Plan.

Of the 15 Stakeholder representations, most resulted in a change to provide either further clarity or additional information. No changes were made in response to 8 representations on specific aspects of the draft Drought Plan.

Of the 9 representations from the Environment Agency's response, 2 of Thames Water's considerations were largely concerned with either clarifying or providing additional information on the on-going progress towards updating the pre-existing environmental assessment reports on the possible drought permit options. In regard to the environmental assessment reporting no changes are currently planned to the draft Drought Plan, but on completion of the Environmental Assessment Reports in line with the programme in Appendix 4, the need for any changes will be discussed with the Environment Agency. The rest of the changes were made to the Main Report or Appendices, providing further clarity or additional information. No material changes were made to the draft Drought Plan as a result of the Environment Agency's response.

This Statement of Response will be published on Thames Water's web site and those who have made representations will be notified.

Thames Water will prepare the revised draft Drought Plan taking into account any directions received from the Secretary of State. The Environment Agency will scrutinise the revised draft Drought Plan to ensure it complies with the Secretary of State's directions, if any. The final Drought Plan will be published thereafter to the same requirements as the draft Drought Plan.

## Contents Page

1.	Introduction.....	6
1.1.	Overview of the Drought Plan.....	6
1.2.	Overview of the public consultation and purpose of this report.....	6
1.3.	Summary of representations .....	7
1.4.	Overview of the main issues.....	10
2.	Stakeholder responses to the Consultation and Thames Water consideration.....	11
2.1.	S1 – Affinity Water .....	11
2.2.	S2 – Port of London Authority (PLA) .....	13
2.3.	S3 – RWE Generation UK.....	14
2.4.	S4 City of London Corporation .....	15
2.5.	S5 – Consumer Council for Water (CCWater) .....	17
	<i>Implementation of Drought Orders.....</i>	<i>21</i>
	<i>Revision or change of TUBS or other Drought Measures .....</i>	<i>21</i>
2.6.	S6 Waterlevel Limited .....	22
2.7.	S7 Action for the River Kennet (ARK).....	23
2.8.	S8 West Berkshire Council.....	25
2.9.	S9- Natural England (NE).....	27
2.10.	S10- National Farmers Union (NFU) .....	30
3.	Consideration of Environment Agency Response .....	33
3.1.	EA1- Compliance with relevant legislation.....	33
3.2.	EA2- Recommendations – Drought Permit/Order application readiness (See also Appendix 1 Evidence report Reference Recommendation 1.1 & 1.3).....	33
3.3.	EA3- Recommendation 2- Actions in severe and extreme drought scenarios (See also Appendix 1 Evidence report Reference Recommendation 2.1 and 2.2).....	38
3.4.	EA4- Strategic Environmental Assessment mitigation (See also Appendix 1 Evidence report Reference Recommendation 3 – Strategic Environmental Assessment mitigation).....	39
3.5.	EA5- Deployable output benefit of strategic schemes (See also Appendix 1 Evidence report Reference Recommendation 4.1 & 4.2) .....	41
3.6.	EA6- Representation period for temporary use restrictions (See also Appendix 1 Evidence report Reference Recommendation 5 Representation period for temporary use restrictions) .....	43
3.7.	EA7- Improvements – Improvement 1 – Strategic Environmental Assessment Environmental Report (See also Appendix 1 Evidence report Reference Improvement 1 – Strategic Environmental Assessment Environmental Report).....	44

3.8. EA8- Improvements – Improvement 2 – Merton Groundwater recommissioning (See also Appendix 1 Evidence report Reference Improvement 2 – Merton groundwater recommissioning) .....	49
3.9. EA9- Appendix 1- Evidence report- Issue ref.1.2 – Drought Permit/Order application readiness .....	50
4. Summary and Conclusions .....	51
4.1. Changes to draft Drought Plan .....	51
4.2. Concluding statement.....	53
5. Next steps .....	53

## List of Tables,

**Nb this list only covers tables of this summary not tables referenced from other sources.**

Table 1 Responses by sector .....	7
Table 2 Representations from Stakeholders .....	8
Table 3 Representations from the Environment Agency .....	8
Table 4 Overview of the main points raised by Stakeholders and the Environment Agency .....	10
Thames Water has included a summary table to section 3.6 of the revised draft plan on AIM as set out below: .....	24
Table 2 AIM Sources .....	24
Table 5 Summary of aspects of draft Drought Plan for which changes have been made .....	52

## 1. Introduction

### 1.1. Overview of the Drought Plan

Water companies in England and Wales are required to produce a Drought Plan under Section 39B of the Water Industry Act 1991, as introduced by the Water Act 2003. The Drought Plan sets out the actions that a water company will take to protect water supplies and the environment during a drought period.

In October 2016 Thames Water published its draft Drought Plan. The draft Drought Plan replaced the previous Drought Plan published in 2013 but retains the same basis and strategy, although in addition it incorporates:

- New information to demonstrate how Thames Water has tested its Drought Plan against a range of droughts of greater severity than in the historic record; and
- Information to improve the Environmental Assessment Reports (EARs) for the Drought Permits included within the Drought Plan. For example the EARs have been updated to take into account the baseline environmental monitoring data that has been collected since the publication of the last Drought Plan.

Water companies are required to publish and undertake public consultation on their draft Drought Plans.

### 1.2. Overview of the public consultation and purpose of this report

On 6 January 2017 Thames Water published its draft Drought Plan for consultation. The public consultation ran for a 6 week period and closed on 17 February 2017. We wrote to 85 statutory consultees and 55 non-statutory consultees (Appendix 5) as prescribed in the Drought Plan Regulations 2005, published information on our website [www.thameswater.co.uk/drought](http://www.thameswater.co.uk/drought) and made a paper copy of the draft Drought Plan available to view at our offices, by appointment. We invited representations on the draft Drought Plan to be sent to the Secretary of State.

This report, the Statement of Response (SoR), has been prepared by Thames Water to comply with the Regulations. This statement explains:

- the consideration given to the representations received as part of the public consultation on the draft Drought Plan;
- the changes made to the draft Drought Plan as a result of the consideration of the representation and the reasons for the changes; and
- where we have not made any changes to the draft Drought Plan, as a result of consideration of the representation, the reasons for this.

This Statement will be available on our website at [www.thameswater.co.uk/drought](http://www.thameswater.co.uk/drought) and has been sent to all consultees who submitted a representation.

### 1.3. Summary of representations

In total we received 11 responses to the consultation on the draft Drought Plan. The Environment Agency submitted a comprehensive and detailed response and the remainder were from a broad cross-section of stakeholders. Table 1 shows the breakdown of respondents by sector.

**Table 1 Responses by sector**

Sector	Responsees
Government Agency or sponsored body	3
Local or regional government	2
Trade association	1
Business	3
Voluntary or environmental organisation	1
Individual	0
Other	1
Total	11

To aid clarity we have divided the representations into two categories:

Stakeholders (10 responsees)

Environment Agency

Total – 11 responsees

Table 2 provides an overview of the representations received from Stakeholders giving the main points of their representations, the relevant aspect in the draft Drought Plan and the section in this report where it is considered.

Where representations cover the same issue or technical point these have been grouped together for convenience.

**Table 2 Representations from Stakeholders**

Ref	Stakeholder	Main points in Representation	Relevant section of the draft Drought Plan	Section in SOR
S1	Affinity Water	Bulk Supply Agreements	Bulk Supplies S2.6)	2.1
S2	Waterlevel	In Extremis options	In extremis options S6.7	2.2
S3	Port of London Authority (PLA)	Statutory duty to maintain water level behind Richmond Lock and weir.	Other Key Stakeholders for the Water Industry 7.4.2	2.3
S4	City of London Corporation	DD11 – suppression of dust	Drought Direction 2011 S5.6	2.4
S5	CCWater	a) Temporary Use Restrictions. b) Customer Preferences. c) Customer Communications and Engagement. d) Emergency Drought Orders	a) TUB (5.5) b) Customer preferences (7.4.2) & Appendix L2 c) Communication strategy Section 7.4.1 d) Emergency Restrictions Section 5.7.1	2.5
S6	RWE Generation UK	Impact of Drought Options on RWE abstraction licence	Supply side options - Drought Permits – SWOX (6.1.4)	2.6
S7	Action for the River Kennet	Drought permits at Axford and Ogbourne - impact on groundwater levels and the River Kennet	EARS	2.7
S8	West Berkshire Council	a) Operation of Holy Brook control structure. b) Operation of other structures with liaison with Canal & Rivers Trust c) Coordination of responses with other agency responses	Protocol for Kennet Valley WRZ 4.5	2.8
S9	National Farmer's Union (NFU)	Support of abstractors affected by supply side drought measures	Supply side options - Drought Permit 6.1.4	2.9
S10	Natural England (NE)	a) Habitats Regulations Assessment – NE support. b) Environmental Assessment Reports (EARs) information to be permit ready in relation to SSSIs. More information requested for mitigation and monitoring c) Recognition of potential to impact Marine Conservation Zones (rMCZs) along the Thames Estuary d) EAR for the West Berkshire Groundwater Scheme.	a)HRA b) Drought Permit Environmental Assessments c) HRA d) NA	2.10

Table 3 provides an overview of the main points set out in the representation received from the Environment Agency.

**Table 3 Representations from the Environment Agency**

Ref	Main points in Representation	Relevant section of the draft Drought Plan	Section in SOR
EA1	Compliance with relevant legislation - Drought Plan (England) Direction 2016.	Drought Management Methodology- Drought Event Level and Governance. (4.3.3)	3.1
EA2	Recommendations – Drought Permit/Order application readiness	Supply-side options- Drought Permits. EARs 6.1.4	3.2
EA3	Actions in severe and extreme drought scenarios	London Methodology Section 8.2.2	3.3

Ref	Main points in Representation	Relevant section of the draft Drought Plan	Section in SOR
EA4	Strategic Environmental Assessment mitigation	SEA Environmental Report	3.4
EA5	Deployable output benefit of strategic schemes	Table C and section 6.2.1	3.5
EA6	Representation period for temporary use restrictions	Implementation Policy Section 5.5.2	3.6
EA7	Improvements – Improvement 1 – Strategic Environmental Assessment Environmental Report	SEA Environmental Report	3.7
EA8	Improvements – Improvement 2 – Merton Groundwater recommissioning	London WRZ Section 6.2	3.8
EA9	Evidence report- Issue ref.1.2 – Drought Permit/Order application readiness	Supply-side options- Drought Permits EARs	3.9

The full representations received from Stakeholders have been reproduced and provided in Appendix 1. The full response received from the Environment Agency is provided in Appendix 2.

## 1.4. Overview of the main issues

Table 4 presents an overview of the main issues raised in the representations received from Stakeholders (15) and the Environment Agency (9). Alongside each issue we have noted the number of representations which mentioned each of these issues.

**Table 4 Overview of the main points raised by Stakeholders and the Environment Agency**

Aspect of Plan	Stakeholder	Environment Agency
Compliance with legislation		1
DD11-exemptions	1	
Communications Strategy	2	
Drought Permits- SWOX	1	
Drought Permits-Environmental Assessment	2	2
West Berkshire Groundwater Scheme	1	
Drought Management Methodology - timing of measures	3	1
Bulk Supplies	1	
In extremis options	1	
Customer Preferences	1	
Emergency Drought Order	1	
HRA	1	
SEA		2
Extreme Droughts		1
Strategic Schemes		1
Groundwater recommissioning		1

The following section of this report sets out our consideration of each representation and the changes made to the draft Drought Plan, where appropriate.

## 2. Stakeholder responses to the Consultation and Thames Water consideration

### 2.1. S1 – Affinity Water

#### 2.1.1. Consultee representation

Affinity Water (AW) highlighted inconsistencies in the volumes specified for Bulk Supply Agreements between Thames Water and Affinity Water.

- Table D and Table 22 – Current Bulk Supply Agreements – These quote a volume of 11.8 MI/d for export to Affinity via Fortis Green. These should specify a maximum volume of 27 MI/d, which is the existing agreed entitlement. The text on page 116 does state a volume of 27 MI/d, however we would expect the volumes quoted to be consistent throughout the Thames Water Drought Plan.
- The plan does not mention the bulk transfer agreement of a maximum of 2.2 MI/d from Ladymeade via Park Barn. As this is an agreed transfer from Thames Water to Affinity we would expect this to be represented.

As a courtesy we also wanted to draw attention to the use of our company name, on page 32 we are referred to as Veolia Water Central, this should now be Affinity Water.

For full Affinity Water response see Appendix 1.

#### 2.1.2. Thames Water consideration

Thames Water agrees that the bulk supply agreement via Fortis Green is for a maximum of 27 MI/d. The volume of 11.8 MI/d quoted is the volume agreed that would be supplied from 2015 to 2018 as indicated on page 116 of the draft Drought Plan. This is set out in Thames Water's WRMP14 in section 4, page 12, Table 4-5. Thames Water will amend Table 22 of the Drought Plan to reflect the maximum amount and clarify that the lower figure is the amount agreed for 2015 to 2018.

Thames Water will include the bulk transfer agreement of a maximum of 2.2 MI/d from Ladymeade via Park Barn in its Drought Plan.

Thames Water will change the use of company name from Veolia Water Central to Affinity Water

#### 2.1.3. Changes to the Plan as a result of consultee representation

Thames Water has clarified the wording of the bulk supply via Fortis Green, which will be worded in the revised draft as follows:

*'11.8 MI/d treated water via Fortis Green (2015-2018) up to a maximum of 27MI/d'*

Thames Water has included the bulk transfer agreement of a maximum of 2.2 MI/d from Ladymeade via Park Barn in its Drought Plan in section 6.4.3 Bulk Supplies in Guildford WRZ, Table 24.

	Average daily MI/d	Maximum daily MI/d
Bulk transfer agreement Ladymeade via Park Barn	2.2MI/d	2.2MI/d

Thames Water has changed the name of Veolia Water Central to Affinity Water on page 32 of the draft Drought Plan.

#### **2.1.4.Reasons for changes**

Thames Water has made these changes to clarify the bulk supply agreements between Thames Water and Affinity Water and to amend the company name to Affinity Water.

## **2.2. S2 – Port of London Authority (PLA)**

### **2.2.1.Consultee representation**

The PLA has stated that its principle areas of interest in relation to the Drought Plan are how any changes to water levels or flow may impact on safety of navigation, use of the river and river ecology.

The PLA has a statutory duty to maintain a certain water height behind Richmond Lock and Weir under the Port of London Act 1968 (as amended). As part of this, the PLA has to apply to the Secretary of State for Transport if the level upstream of the Richmond sluices is to fall below that required. This PLA has highlighted that this process does not seem to have been taken into consideration within the draft Drought Plan.

For full PLA response see Appendix 1.

### **2.2.2.Thames Water consideration**

Thames Water acknowledges that the PLA has statutory duties in relation to navigation and will update the plan to take into account the requirement of the PLA. The PLA has to apply to the Secretary of State for Transport if the level upstream of the Richmond sluices is to fall below that required.

### **2.2.3.Changes to the Plan as a result of consultee representation**

Thames Water has amended the plan to recognise the statutory duty of the PLA in relation to water levels behind Richmond Lock and included the following text in the Drought Plan in Section 6.8, Table 25 and Section 7.4.2:

*‘Thames Water recognises that in the event of severe drought with very low flows over Teddington weir then the PLA has to apply to the Secretary of State for Transport if the level upstream of the Richmond sluices is to fall below that required. This may require an assessment of the impact of a lower level upstream of Richmond sluices’ to support the PLA’s application.*

### **2.2.4.Reasons for changes**

The draft Drought Plan has been changed to recognise the PLA’s statutory duties in respect of water levels behind Richmond weir.

## **2.3. S3 – RWE Generation UK**

### **2.3.1.Consultee representation**

RWE Generation UK has highlighted that the Didcot site is owned and operated by RWE Generation UK rather than RWE Npower.

RWE Generation UK also welcomed Thames Water's recognition that Didcot site abstraction licence would be materially derogated in certain conditions. They also welcomed inclusion in the plan of engagement with potentially affected industrial users and abstractors. RWE Generation UK also acknowledges the effective working relationship with Thames Water on water matters in the past and looks forward to its continuation.

RWE Generation UK also note that as a result of consideration within the abstraction reform engagement of electricity system resilience, DEFRA has indicated that power sector abstraction restrictions arising from hands off flows (HOFs) and standard catchment rules may be relaxed in capacity market warnings/(power) system stress events designated by National Grid. This may affect the modelling assumptions underpinning some aspects of the quantitative analysis of drought in these circumstances.

For full RWE Generation UK response see Appendix 1.

### **2.3.2.Thames Water consideration**

Thames Water acknowledges that the Didcot site is owned and operated by RWE Generation UK rather than RWE Npower and has amended the draft Drought Plan on p.121 section 6.2.7 and p.108 section 6.1.4 to reflect this.

### **2.3.3.Changes to the Plan as a result of consultee representation**

Thames Water has amended section 6.1.4 and 6.2.7 to reflect that the Didcot site is owned and operated by RWE Generation UK rather than RWE Npower. No further changes are required.

### **2.3.4.Reasons for changes**

Clarification of RWE Generation UK correct name.

## **2.4. S4 City of London Corporation**

### **2.4.1. Consultee representation**

The City is concerned that the reliance on a more restricted range of water resources for the London WRZ may result in greater vulnerability given the uncertainties arising from climate change. The WRMP14 should be fully tested against up to date climate change projections.

The City is concerned that the DD11 measure – ‘suppressing dust’ is included in the legislation and that this could have a detrimental impact on air quality in the city.

### **2.4.2. Thames Water consideration**

Thames Water acknowledges the City’s concern regarding restriction of the range of water resources for London and potential vulnerability given the uncertainties arising from climate change. However this is an issue that will be addressed in Thames Water’s draft Water Resources Management Plan 2019 (WRMP19) and is not a consideration for the Drought Plan. The draft WRMP19 is expected to be issued for public consultation in January 2018.

Thames Water notes the City’s concern that the DD11 measure – ‘suppressing dust’ is included in the legislation and that this could have a detrimental impact on air quality in the city, however Thames Water is not able to amend the legislation. It is important to note that in relation to DD11 statutory health and safety exemptions apply to some categories of water use, including ‘suppressing dust’.

The legislation defines health and safety as including the following:

- a) removing or minimising any risk to human or animal health and safety; and
- b) preventing or controlling the spread of causative agents of disease.

Regarding clause a) and in respect to human health or safety, the risk can only be assessed on an activity/purpose. The Code of Practice guidance suggests that generally the real risk is quite low in most cases.

Thames Water will take into account the health and safety implications of the activities that it may ban in the event that a Drought Direction 2011 restriction is implemented.

### **2.4.3. Changes to the Plan as a result of consultee representation**

Thames Water has made no changes to the draft Drought Plan as a result of the City’s concern regarding a more restricted range of water resources for the London Water Resource Zone may result in greater vulnerability given the uncertainties arising from climate change.

Thames Water has made no change in relation to the City’s concern over the inclusion of suppressing dust in the DD11 legislation as it is not able to amend the legislation. However, the application of DD11 measures could exempt ‘dust suppression’ where health and safety was a potential concern.

#### **2.4.4.Reasons for no changes**

The concern raised by the City regarding a more restricted range of water resources for the London WRZ having the potential to result in greater vulnerability given the uncertainties arising from climate change is a matter for the Water Resource Management Plan and not the Drought Plan.

The City's concern regarding inclusion of the DD11 measure – 'suppressing dust' is specifically stated in the legislation. Any potential for detrimental impact on air quality in the city would be considered at the time of application and dependent on prevailing conditions. Should the risk be considered sufficiently high an exemption on health and safety grounds could be considered.

## 2.5. S5 – Consumer Council for Water (CCWater)

### 2.5.1. Consultee representation

The four main points for consideration made by CCWater were:

a) **Temporary Use Bans.** For imposition of Temporary Use Restrictions (TUBs) CCWater wants to ensure the company has followed the principles set out in the WaterUK UKWIR Code of Practice on TUBs and demonstrated an understanding of impact of any measures on different groups. CCWater considers Thames Water has considered the impact of Temporary Use Restrictions on different types of customers and taken this into account in the way it proposes to introduce restrictions and apply exemptions. In doing so it has proposed measures that appear proportionate to the prevailing drought situation.

CCWater notes that the only references to discussing and agreeing this approach appear to relate to meetings/liason in 2011. The company states “It is considered that the exemptions would also be acceptable to the rest of the companies in the South East, and consistent with the companies imposing similar exemptions.” However this statement doesn’t give the impression that TMS has actively sought to discuss and agree a consistent approach with its neighbouring companies more recently, as part of its review process. As we have yet to see neighbouring companies’ drought plans we are unable to confirm whether there is alignment.

b) **Customer Preferences.** CCWater wishes to see evidence that the company has taken account of customer’s preferences in relation to the actions that the company plans identifies, showing evidence of relevant research and how the results have been used.

CCWater states that Thames Water has relied on research into customer priorities and preferences conducted in 2011. While Thames Water is confident that this remains relevant we would hope that the company supplements this with further, more up to date, customer insight as it develops its Water Resources Management Plan. Non-household customers’ views, for example, may change once the non-household retail market opens this year. The progression of the company’s compulsory water metering programme may also have an impact on household customers’ views and expectations, as well as their response to future calls for water saving or the imposition of temporary restrictions.

c) **Customer Communications and Engagement.** CCWater wished to see evidence that the company has explained its strategy for engaging with domestic and non-domestic customers

CCWater is pleased to see that the company’s Drought Communications Plan has been updated in light of the experience from managing previous drought events. The plan explains clearly how the level of communications activity increases in line with drought severity and the arrangements put in place to work with all relevant stakeholders.

TMS has chosen to withdraw from the non-household retail market, all non-household customers will be receiving bills and other retail services from Castle Water from April 2017, or another retailer if/when they choose to switch. These new arrangements are not mentioned in the plan so it is not clear how they will impact the lines of communication with non-household customers over drought related matters. This would include:

- Offering advice and assistance for water dependant customers to be drought resilient/water efficient
- Communications/calls for water saving as drought risk increases
- Notification of restrictions and their implementation/policing (compliance checking)
- Applying and withdrawing exemptions

CCWater feels It would be helpful to have a clear explanation of the role and responsibilities of both the wholesaler (TMS) and the retailer (Castle) in relation to drought communications and management. The only time retailers appear to be mentioned in the plan is in reference to the possible future development of procedures for limiting or withdrawing water supplies from large commercial users in emergency drought situations.

d) **Emergency Drought Orders.** CCWater wishes to see the measures that Thames Water would take in an emergency Drought situation set out.

CCWater notes that although Thames Water's current levels of service state that emergency drought orders (Level 4) are never used, we think it is helpful that the company has indicated in its drought plan the steps it would take if this point was ever reached. Given the growing pressures on our water supplies and some of the outputs from the company's modelling and the Water UK Water Resources Long-term Planning Framework, we think customers would expect companies to have plans in place for all scenarios. The company notes that while emergency drought permits and orders would allow it to cope with drought events more severe than any on record, they would have a devastating impact on our environment and economy, particularly some water dependant businesses and sectors, if they were in place for extended periods. Planning and investing in our long-term security of supply will therefore become increasingly important as the pressures on our water services increase.

## 2.5.2.Thames Water consideration

a) **Temporary Use Bans.** Thames Water has followed the principles in the WaterUK UKWIR Code of Practice on TUBs and demonstrated an understanding of impact of any measures on different groups.

This is covered in section L2 of Appendix L of the draft Drought Plan which includes the following:

The Company has based its policy on the statutory requirements and the guidance given in the UKWIR Code of Practice (*'Code of Practice and Guidance on Water Use Restrictions'*, UKWIR). The Code of Practice (CoP) offers the following four principles to guide water companies when they are evaluating whether and how water restrictions will be implemented by them during times of drought:

- Ensuring a consistent and transparent approach;
- Ensuring that water user restrictions are proportionate;
- Communicating clearly with customers; and
- Considering representations in a fair way.

In the task of setting out the Company's implementation policy, the 2<sup>nd</sup> principle of proportionality is the most immediately relevant of the four. In putting the 2<sup>nd</sup> principle into practice, the key points to bear in mind are:

- The nature and seriousness of the water supply situation.
- The water savings that will result from restricting the activity.
- Whether it is appropriate to introduce the restriction in a phased manner.
- Whether the restriction will result in a serious commercial impact.
- The health or safety and biosecurity implications of the restriction.
- Whether the restriction will impact on vulnerable customers or groups.
- Whether it is appropriate to offer any concessions to any individual or group of customers.

Although neighbouring water companies have been consulted about Thames Water's draft Drought Plan, the company has not sought to specifically discuss and agree a consistent approach with its neighbouring companies as part of its review process for the Drought Plan 2017. There are however, regular communications with other water companies as part of our ongoing drought communication process, but these have not resulted in a requirement to change the proposed implementations of TUBs included in the Drought Plan. This is because the legislation in relation to water restrictions (TUBs and DD11) has not changed since publication of our last Drought Plan and so we have no reason to expect that the views of our customers and neighbouring water companies have changed. As companies gain more experience of non-household competition, the communication strategy between companies, implemented during droughts, may have to be modified. It is not possible to include any potential changes, at this time, as a result of the non-household retail market opening up this year because at this stage we have had no feedback from new retailers in relation to our proposed use of restrictions as set out in the plan. We intend to discuss drought communications with the new retailers within the next 12 months.

b) **Customer Preferences.** Thames Water has taken account of customer's preferences in relation to the actions that the company plans to take and evidence of relevant research and how the results have been used is set out in Appendix L3 which includes the following:

Thames Water commissioned an independent market research company to conduct a survey for which the over-arching objective was to gain customer feedback (domestic and commercial) and views regarding key elements of the revised draft, specifically:

- Media campaign.
- New powers regarding Temporary Use Ban and options for exemptions and phasing .
- New powers regarding Drought Direction 2011.

In all, three surveys were conducted, the first two with domestic customers and the third with commercial customers. In regard to the domestic customers, a two-phase research programme was conducted starting with a qualitative phase of three online group discussions in the week beginning 13 June 2011, composed of:

- domestic customers with private garden and / or allotment – 7 participants;
- domestic customers with private garden and / or allotment – 8 participants;
- domestic customers without private garden or allotment – 9 participants.

Participants were recruited from the Thames Water customer panel. Within each group a mixture of consumers was surveyed by age, socio-economic group, ethnicity, location (London and Thames Valley), garden/allotment ownership and presence of a water meter.

A second domestic survey was conducted between 24 June and 3 July in the form of an online quantitative phase in which 1299 domestic customers were emailed and invited to participate, from which a good response rate of 62% (804) was achieved.

Appendix L sets out the findings of the surveys and describes how the findings were used.

Thames Water has not undertaken any further research since 2011 specifically on its Drought Plan. This is because the legislation in relation to water restrictions (TUBs and DD11) has not changed and so we have no reason to expect that the views of our customers have changed. However, qualitative customer research undertaken for our WRMP19 in autumn 2016 indicated that customers largely support Thames Water's current levels of service and would be prepared to see bills rise to reduce the risk of occurrence of Emergency Drought Orders. It is not possible to include any potential changes, at this time, as a result of the non-household retail market opening up this year because at this stage we have had no feedback from new retailers in relation to our proposed use of restrictions as set out in the plan. Modifications may be required following increased experience of non-household competition. Also it is too early to include any changes that may occur as a result of the progression of the company's progressive water metering programme because we have not experienced a drought since the progressive metering programme was commenced.

c) **Customer Communications and Engagement.** Thames Water will add clarification to the Drought Plan of how of the role and responsibilities of both the wholesaler (TMS) and the retailer (Castle) in relation to drought communications and management

c) **Emergency Drought Orders.** Thames Water notes CCWater's concern related to more severe droughts and the need for drought permits and drought orders over a prolonged period and the impact these measures would have if they were in place for extended periods. We note CCWater's view that planning and investing in our long-term security of supply will therefore become increasingly important as the pressures on our water services increase and we will take this forward to our draft WRMP 2019.

### 2.5.3.Changes to the Plan as a result of consultee representation

- a) **Temporary Use Bans.** No changes are made to the plan in relation to CCWater's representation on the imposition of TUBs.
- b) **Customer Preferences.** No changes are made to the plan in respect of how the company has taken account of customer's preferences in relation to the actions that the company plans to take showing evidence of relevant research and how the results have been used.
- c) **Customer Communications and Engagement.** The draft Plan has been changed to add clarification of the role and responsibilities of both the wholesaler (TMS) and the retailer (including Castle Water) in relation to drought communications and management.

Thames Water has added the following text (Taken from its Outline Service Definition Document) to section 7.4.1 of the Draft Plan:

*'In April 2017 the water industry was changed to introduce competition in the retail market for non-household customers. This means that there will be multiple retail providers to non-household customers throughout England including in Thames Region. Thames Water remains the wholesale provider for water supply in the Thames supply area and has developed Service Definition Documents covering the dealings between Thames Water Wholesale and the retailers operating in our supply area. A Service Definition Document has been developed for droughts or dry weather conditions management and includes the following sections governing implementation of Temporary Use Bans and Implementation of Drought Orders.'*

### **Implementation of Temporary Use Bans**

*During a drought TWUL will determine when measures are required to reduce demand. TWUL will inform Retailers operating within TWUL Wholesale Operational Area of when a Temporary Use Ban (TUB) is planned.*

### **Implementation of Drought Orders**

*TWUL Wholesale will inform retailers operating within TWUL Wholesale Operational Area of when a Drought Order to ban non-essential use or an Emergency Drought order is proposed. Thames Water will follow the legal requirements in applying for or implementing a Drought Order to ban non-essential use or an Emergency Drought Order.*

### **Revision or change of TUBS or other Drought Measures**

*Thames Water will inform retailers when the conditions of a TUB or Drought Order to ban non-essential use or Emergency Drought Order are changed or terminated.*

- d) **Emergency Drought Orders.** No changes are made to the plan in respect of CCWater's comments on Emergency Drought Orders.

## **2.5.4.Reasons for changes or no changes**

- b) **Temporary Use Bans.** No changes are made to the plan in relation to CCWater's representation on the imposition of TUBs because there have been no changes to the legislation in relation to water restrictions (TUBs and DD11) and no reason to expect that the views of our customers or neighbouring water companies have changed since 2011. The customer research that we undertook in 2011 reflected the requirements of the Flood and Water Management Act 2010. Changes were made to the planned implementation of TuBs and the exemptions that would be allowed following ongoing liaison with stakeholders after consultation on our Drought Plan in 2011 and using experience from the 2011/12 drought. This resulted in the exemption for trickle irrigation systems fitted with a pressure reducing valve.

- b) **Customer Preferences.** No changes are made to the plan in respect of how the company has taken account of customer's preferences in relation to the actions that the company plans to take showing evidence of relevant research and how the results have been used because there is no reason to expect that the views of our customers in relation to water restrictions (TUBs and DD11) have changed since 2011. Qualitative research undertaken for our WRMP19 in autumn 2016 indicated customer support for existing levels of service. No changes have been made as a result of the non-household retail market opening up this year because at this stage we have had no feedback from new retailers in relation to our proposed use of restrictions as set out in the plan. Modifications may be required following increased experience of non-household competition and we intend to discuss drought communications with the new retailers within the next 12 months..
- c) **Customer Communications and Engagement.** The draft Plan has been changed to add clarification of the role and responsibilities of both the wholesaler (TMS) and the retailer (including Castle Water) in relation to drought communications and management because of the change in how Thames Water manages Wholesale Water non household Customers.
- d) **Emergency Drought Orders.** No changes are necessary because CCWater support Thames Water's plans for emergency Drought Orders in the draft Drought Plan. Section 6.6 of our Drought Plan sets out our 'In extremis options';-These are options to be considered beyond Level 3 and include: tankering, reduction in bulk supplies, temporary desalination units and alternative sources for non-potable use. In addition a drought permit option for the lower Thames may include an allowance for the back-pumping of water over Molesey and Teddington weirs in order to ensure that the water available in the Lower Thames can be taken at the existing intakes.

## 2.6. S6 Waterlevel Limited

### 2.6.1.Consultee representation

Waterlevel Limited welcomed the recognition that resilience needs to be increased to accommodate more severe drought scenarios.

Waterlevel pointed out that in paragraph 6.7.2 reference is made to an "in extremis" option involving importing water in bulk by sea tanker. The reference includes a named location which is somewhat inaccurate, and should probably be removed on security grounds and in accordance with normal practice for matters covered by confidentiality agreements. Waterlevel supports the use of this form of tankering as a sensible "Insurance" option, in respect of both extreme drought conditions and any short term delays in major projects. The current draft fails to mention that certain external measures need to be put in place before the option can be considered to be available. Waterlevel consider that this situation can be remedied fairly quickly, and could probably be linked to similar initiatives in other parts of England that are vulnerable to similar extreme drought scenarios. Waterlevel felt that such linkages would increase the overall efficiency of the approach.

For the full Waterlevel response see Appendix 1.

## **2.6.2.Thames Water consideration**

Thames Water will remove the reference to the specific named location of an “in extremis” option involving importing water in bulk by sea tanker on the grounds of security.

Thames Water will add mention that certain external measures need to be put in place before the tankering option can be considered to be available.

## **2.6.3.Changes to the Plan as a result of consultee representation**

Thames Water has removed the reference to a specific named location of an “in extremis” option involving importing water in bulk by sea tanker on the grounds of security

Thames Water has added the following in section 6.7.2 page 121: ‘Thames Water recognises that certain external measures would need to be put in place before the option can be considered to be available but these can be remedied fairly quickly’.

## **2.6.4.Reasons for changes**

The “in extremis” option involving importing water in bulk by sea tanker on the grounds of security required amendment regarding the reference to the location and the measures that need to be put in place before the tankering option can be considered to be available.

## **2.7. S7 Action for the River Kennet (ARK)**

### **2.7.1.Consultee representation**

ARK has stated that they think the Plan is clearly presented and they support Thames Water’s approach.

ARK has expressed concern in relation to the Axford and Ogbourne Drought Permit options. They are concerned that following the reductions in licensed abstraction at Axford and Ogbourne any increase in abstraction would jeopardise the benefit of these reductions. ARK feels the impact of increasing these abstractions has been understated and in particular feels the options could result in a greater delay in groundwater recovery in some years than is indicated in Appendix B.

ARK agrees that the three Upper Kennet options should be the lowest priority of the 11 drought options for SWOX as stated in Appendix C.

ARK suggests that these Drought Permit options should require an Emergency Drought Order.

ARK has also requested further information on the Abstraction Incentive Mechanism (AIM) and has suggested the details should be included in the Drought Plan.

For full ARK representation see Appendix 1

## 2.7.2.Thames Water consideration

Thames Water has reviewed the assessed impact of the Axford and Ogbourne Drought Permit options for a 6 month implementation from April – September. The potential impact highlighted in the representation suggests continued implementation of a drought permit over the autumn period may be required if there is no significant groundwater recovery in a winter such as 1997/98, following the onset of drought in 1996/97. Drought Permits were not required in 1996/97 and increased demands that have occurred since then will be met by new resource developments rather than greater reliance on existing sources and so it is not likely that a repeat of the 1996/97 drought would result in a requirement for drought permits. However, Thames Water has also considered more severe droughts than those experienced in the historic record. Thames Water has developed a severe droughts assessment approach and this details how more severe droughts, and implementation of Drought Permits for longer periods, would be assessed. Thames Water has completed example Environmental Assessments for longer implementation periods for Latton and the Lower Thames Drought Permits but is not planning to extend these assessments for all its drought permit options at this stage. We have completed two example assessments for more severe droughts requiring extended drought permit implementation. We have selected the permit sites that are more likely to be implemented to demonstrate the methodology. Axford is the lowest priority option in SWOX and therefore we have not completed an extended assessment in this case. We will review the requirement to complete a more severe drought assessment for more Drought Permit options before the next revision of our plan. We have agreed this approach with the Environment Agency.

Thames Water recognises the sensitivity around the rivers in the SWOX WRZ. The order of introducing SWOX Drought Permit options is a function of benefit to water supply, operational flexibility and environmental impact, and is as follows: Farmoor, Latton, Meysey Hampton, Baunton, Axford/Ogbourne.

At the point at which Drought Permit options need to be introduced, it is considered that the risk to security of supply is such that their introduction cannot be further delayed. To wait until the Drought Event Level has reached a prevailing DEL4 would be unwise and place security of supply under an unacceptable risk and therefore Thames Water considers that these permits should not require an Emergency Drought Order to be implemented. An Emergency Drought Order is imposed when it is necessary to drastically reduce demand by restricting supply to standpipes and/or the use of rota cuts. The drought permits are sought in advance of this requirement to avoid the need as far as possible to resort to such a draconian supply measure.

Thames Water will include a summary of its AIM measures in its Drought Plan.

## 2.7.3.Changes to the Plan as a result of consultee representation

Thames Water will not make changes to the Axford and Ogbourne EARs to address more severe droughts at this stage.

**Thames Water has included a summary table to section 3.6 of the revised draft plan on AIM as set out below:**

**Table 2 AIM Sources**

	Trigger
--	---------

		(river flow)(M/d)	(ab
<b>A</b>	<b>AIM sites</b>		
1	RIVER LEE AT NEW GAUGE PUMPING STATION POINT B	60	
2	PANGBOURNE	1.02	
3	AXFORD PUMPING STATION	166	
4	PANN MILL PUMPING STATION	5.6	
5	NORTH ORPINGTON PS	11.4	

### 2.7.4.Reasons for changes or no changes

Thames Water has reviewed the assessed impact of the Axford and Ogbourne Drought Permit options for a 6 month implementation from April – September. The potential impact highlighted in the representation suggests continued implementation of a drought permit over the autumn period may be required if there is no significant groundwater recovery in a winter such as 1997/98, following the onset of drought in 1996/97. Drought Permits were not required in 1996/97 and increased demands that have occurred since then will be met by new resource developments rather than greater reliance on existing sources and so it is not likely that a repeat of the 1996/97 drought would result in a requirement for drought permits. However, Thames Water has also considered more severe droughts than those experienced in the historic record. Thames Water has developed a severe droughts assessment approach and this details how more severe droughts, and implementation of Drought Permits for longer periods, would be assessed. Thames Water has completed example Environmental Assessments for longer implementation periods for Latton and the Lower Thames Drought Permits but is not planning to extend these assessments for all its drought permit options at this stage. We have completed two example assessments for more severe droughts requiring extended drought permit implementation. We have selected the permit sites that are more likely to be implemented to demonstrate the methodology. Axford is the lowest priority option in SWOX and therefore we have not completed an extended assessment in this case. We will review the requirement to complete a more severe drought assessment for more Drought Permit options before the next revision of our plan. We have agreed this approach with the Environment Agency. Therefore no changes have been made to the Drought Plan.

Thames Water recognises the benefit in including a table detailing the AIM sources in the Drought Plan.

## 2.8. S8 West Berkshire Council

### 2.8.1.Consultee representation

West Berkshire Council has stated that the agreement between Thames Water and the EA relating to the operation of the Holy Brook Control Structure has not been given final approval/sign off. In addition West Berkshire Council has concerns that the structure was not being effectively managed by Thames Water in times of flooding.

West Berkshire Council has stated that there is no mention how sluices, outside the direct control of Thames Water (i.e. sluices operated by Canal & Rivers Trust and private sluices), could be managed and coordinated to reduce the impact on drought.

West Berkshire Council raises concern regarding the coordination of drought response by Thames Water and how it is coordinated with drought response by other agencies. The Council suggests that integration into Local Resilience Fora should be reflected at least in outline.

For full West Berkshire Council representation see Appendix 1.

### **2.8.2.Thames Water consideration**

Thames Water has been working with the Environment Agency (EA) to complete approval/sign off of the agreement between Thames Water and the EA relating to the operation of the Holy Brook Control Structure. Thames Water will revisit this issue with the EA to enable sign-off of the agreement. Thames Water will take into account the concerns of West Berkshire Council regarding operation of the sluices in relation to the control of flooding. The operating agreement requires that the sluices are fully open in all periods other than during low flows and so the structures should be fully open during high flows to minimise the risk of flooding.

Thames Water is not able to control the operation of sluices for which it is not responsible. Thames Water does liaise with the Canal & Rivers Trust during drought and would expect the Trust and private sluice owners to close all sluices as appropriate during a drought.

Thames Water agrees that liaison with stakeholders is important during periods of drought and we have a good communications network with other water companies. For example we coordinates communications and implementation of restrictions with neighbouring water companies. However are not responsible for coordination of activities in relation to other measures relating to drought such as risk of fires and therefore cannot include this in our Drought Plan. Thames Water does however have links to Local Resilience Forums although these links are not restricted to the incidence of drought and we will recognise this in our Plan.

### **2.8.3.Changes to the Plan as a result of consultee representation**

No changes are required to the Drought Plan in relation to the agreement between Thames Water and the EA relating to the operation of the Holy Brook Control Structure or the control of flooding. Nor have any changes been made in relation to operation of sluices that are not owned by or are the responsibility of Thames Water.

Thames Water has changed its Drought Plan to include the following text in Section 7.2:

- 'Ensure that Thames Water engages all relevant stakeholders early and pro-actively. This will include Local Resilience Forums as appropriate.

### **2.8.4.Reasons for changes or no changes**

No changes are required to the Drought Plan in relation to the agreement between Thames Water and the EA relating to the operation of the Holy Brook Control Structure or the control of flooding as the activities are not related to actions in Drought.

No changes are required in relation to operation of sluices included in the representation as they are not owned by or are the responsibility of Thames Water,

Thames Water has changed its plan to include stakeholder engagement with Local Resilience Forums as part of its communication plan.

## **2.9. S9- Natural England (NE)**

### **2.9.1.Consultee representation**

Natural England (NE) has assessed Thames Water's Drought Plan, Strategic Environmental Assessment (SEA) Habitats Regulations Assessment and selected Environmental Assessment Reports (EARs).

NE makes the following representations.

- a) Natural England has no concerns to raise in relation to the submitted HRA. However NE notes that within the HRA document the EA's River Thames flood alleviation scheme is discussed and it is stated that Natural England supports the River Thames Scheme (RTS), Natural England has clarified that it does not actively support the scheme and is currently in consultation with the Environment Agency to assess the potential risk it poses to the South West London Waterbodies SPA. Natural England advises that the HRA document should be amended to reflect this.
- b) Natural England feel that the Environmental Assessment Reports (EARs) currently do not relay sufficient information to ensure that drought options are permit ready. In this context NE have stated that within the non-technical summary sections of the EARs it states that various aspects of the assessments will be completed at the time of application for the drought permit.
- c) Natural England has asked for verification that there have been no material changes in circumstances in relation to the options being assessed.
- d) There is a general lack of specificity in relation the EARs and designated sites. Natural England is concerned that monitoring and mitigation and measures are discussed in a relatively general way and it is not clear what specific mitigation measures are in place for specific risks to designated sites.
- e) Natural England has stated that an EAR for the West Berkshire Groundwater Scheme (WBGWS) has not been made available.

For full Natural England response see Appendix1.

### **2.9.2.Thames Water consideration**

- a) Thames Water will amend the HRA document to reflect the fact that Natural England does not actively support the RTS scheme. Thames Water will undertake further work to make its Drought Permit EARs permit ready. Thames Water has agreed with the Environment Agency that work on the EARs can be completed to an agreed programme

after submission of its revised draft Drought Plan. These changes will be made as part of that programme of changes.

- b) The non-technical summary sections of the EARs have been left uncompleted as they largely include a summary of information included in the chapters of the EARs that will be finalised at the time of application and so will not take a long time to complete. Therefore these sections are left incomplete however a note will be included in each EAR to clarify this. This approach has been discussed and agreed with Natural England at a meeting following the submission of Natural England's representation. The assessments relating to designated sites implications mitigation measures and monitoring are included within the EARs themselves and so the assessment has been carried out for each specific EAR. The Non-Technical-Summary will be updated with the application specific information at the time of application.
- c) Thames Water has made material changes to the Drought Plan through the addition of two Drought Permit options at Childrey Warren and Pann Mill and has modified the options at Ogbourne and Axford following licence reductions that have been implemented at these sites
- d) All the EARs do have specific monitoring and mitigation specified for all sites including any sites where there is a risk to designated sites. Natural England were not reviewing the correct section of the EARs when looking for this information and so Thames Water has provided specific targeted information specifying the exact sections where this monitoring and mitigation information is located.
- e) The West Berkshire Groundwater Scheme (WBWS) is a licensed strategic water resource scheme for which the EA is the licence holder. This scheme does therefore not require a drought permit and does not need an EAR.

### **2.9.3.Changes to the Plan as a result of consultee representation**

- a) Thames Water has amended the HRA document to reflect the fact that Natural England does not actively support the EA's River Thames scheme.
- b) Thames Water will undertake further work to make its Drought Permit EARs permit ready. Thames Water has agreed with the Environment Agency that work on the EARs can be completed to an agreed programme after submission of its revised draft Drought Plan. These changes will be made as part of that programme of changes. The non-technical summary sections of the EARs will have the following text included:

*'The objective of this Environmental Assessment Report (EAR) is to provide an independent and robust assessment of the potential environmental effects of the implementation of the \*Insert Name of Drought Permit \* drought permit which is located in the Water Resource Zone (WRZ).*

*This EAR aims to identify any potential issues at an early stage and minimise the time it would take to produce a full EAR which will be required to support a future drought permit application by Thames Water Utilities Ltd (TWUL), to the Environment Agency, in accordance with the Water Resources Act 1991, as amended by the Environment Act 1995 and the Water Act 2003 and subsequently the Water Act 2014. The environmental assessment undertaken has been conducted in accordance with Government*

regulations and using the Environment Agency's revised Drought Plan Guideline (DPG), published in 2015.

*The assessment and findings are based on the current understanding of the baseline environmental conditions and also include an understanding of historical hydrological conditions. At the time of application of the drought permit, the EAR will be updated to include the most recent available climatic, hydrological and environmental conditions that will inform both the need for the application of the drought permit and provide an updated baseline for the assessment of any potential environmental impacts and the subsequent monitoring and impact mitigation requirements. As such, the relevant section of the non-technical summary can only be completed at the time of application when the environmental conditions preceding a drought has been determined.*

*The outcomes of the assessment of the potential environmental impacts, based on the current understanding, are summarised in Section \*Insert section of Environmental Assessment Report\*.*

- c) Thames Water has added a section in the Drought Plan to clarify the material changes made in relation to the drought permit options now included. The following text has been added in section S1 Material Changes Since the Last Drought Plan (2013) and Section 1.6

*'Thames Water has made material changes to the Drought Plan through the addition of two Drought Permit options at Childrey Warren and Pann Mill and has modified the options at Ogbourne and Axford following licence reductions that have been implemented at these sites.'*

- d) No change has been made to the plan in relation to the specific monitoring and mitigation specified for all sites including any sites where there is a risk to designated sites
- e) No change has been made to the plan in relation to the WBGWS

#### **2.9.4.Reasons for changes**

- a) The HRA has been changed to reflect NE's position regarding the River Thames Scheme.
- b) The EARs will be updated to make them permit ready. This will be completed following the submission of the draft Final Drought Plan to a timescale to be agreed with the EA.
- c) A section has been added to the non-technical summary detailing why it will be completed at the time of application as well as highlighting where the analysis has been completed based on current understanding in the Environmental Assessment Reports.
- d) The required information is already in the plan. Specific information has been provided to Natural England to clarify exactly where this information is located.
- e) No change has been made in relation the need for an EAR for the WBGWS because it is a licensed scheme and so does not need a drought permit.

## **2.10. S10- National Farmers Union (NFU)**

### **2.10.1. Consultee representation**

The NFU's main point of concern relates to how the company proposes to work with affected farm businesses both from the outset and during Level 3 and 4 drought scenarios, particularly in relation to the supply side measures.

The NFU is pleased to see that Thames Water will work with other abstractors who may be affected by supply side drought measures but is not assured that this would work due to the lack of detail. The NFU believes the company should work in partnership with the identified abstractors (in table 19 on page 108) in advance of drought as part of the Plan's development. The NFU suggest every effort should be made to avoid recourse to the payment of compensation by working to ensure affected businesses can withstand restrictions enforced upon them.

The NFU also feel that the range of stakeholders listed is limited, leading to concern that other direct abstractors will be insufficiently prioritised in the Plan as they may neither be recognised as a stakeholder or a Public Water Supply customer.

### **2.10.2. Thames Water consideration**

Thames Water has undertaken a comprehensive assessment for all of its drought permit options and the potential licence holders that could be affected by implementation of a drought permit. The assessment reflects a risk based approach and the identification of these licence holders (Table 19, page 108) does not mean that they will definitely have their ability to abstract their licensed quantities affected.

Each of the licence holders that could potentially be affected in the event of a drought would be contacted in advance of the use of the Drought Permit option in order to discuss and agree a strategy to address any risk to the resilience of their operations or business.

Thames Water will assess the volume of the licensed abstraction in each case and will determine whether it is necessary to undertake any direct communication with the licence holder in advance of drought to address the risk that their abstraction could be affected in a drought.

Thames Water does not consider that the range of stakeholders is extremely limited as the key issue is the potential impact upon other direct abstractors has been addressed comprehensively through the assessment undertaken for the Drought Permit options. The concern that they may not be recognised as a stakeholder or a customer of Thames Water is not a risk as all licence holders have been assessed and only those considered to be at risk as a result of the Drought Permit option have been identified in the Drought Plan. Licence holders with very small abstractions below 0.5 Ml/d have been assessed to not be at risk in agreement with the Environment Agency. All Thames Water customers will be treated equally and any impacts of a DD11 measure would be assessed prior to implementation to ensure a balance between ensuring security of supply and any adverse economic impact.

### 2.10.3. Changes to the Plan as a result of consultee representation

Thames Water will amend its plan to set out the potential risk to the licensed abstractors that would be affected. The table has been updated based on new abstraction licence information from the Environment Agency; this includes removing an expired licence, including specification of whether the licence is a surface water or groundwater licence as well as details of any flow constraints. Thames Water has also clarified the communication that would be undertaken prior to a drought permit being implemented.

Thames Water has amended its plan to add the following:

*“Thames Water will contact the abstractor at least 2 weeks before the Drought Permit application to discuss the risk to the abstractor and would agree any measures to mitigate the impact of the Drought Permit option and to address the potential issue of compensation should it arise”*

Table 19 has also been updated;

Drought permit or order option	Abstractor/ Licence Holder	Risk to licence
Lower Thames	Private abstraction – Shepperton Marina (Surface Water)	Low
	Private abstraction – Kingston upon Thames (Surface Water)	Low
Sundridge (options) (London WRZ)	Sevenoaks District Council (Wildfowl Reserve) (surface water transfer between sources)	Uncertain
Latton (SWOX WRZ)	Hanson Quarry Products Europe Ltd (GW abstraction)	Low
	Moreton C Cullimore (Gravels) Ltd (GW abstraction)	Low
	Farmcare Trading Ltd (GW abstraction)	Low
Meysey Hampton (SWOX WRZ)	The Cooperative Wholesale Society Ltd (GW abstraction)	Low
	Hanson Quarry Products Europe Ltd (GW abstraction)	Low
	Moreton C Cullimore (Gravels) Ltd (GW abstraction with flow constraint)	Low
Eynsford (London WRZ)	Sandfields Farms Limited (surface water, spray irrigation**)	Low

Pangbourne	Enfield Estate Trust Corp Ltd (Surface water, Spray irrigation**)	High
Childrey Warren	Elms Farm Partnership (surface water, agriculture/spray irrigation**) Hallidays Developments Ltd (surface water, production of Energy) with a constraint.	Low High

#### 2.10.4. Reasons for changes

The changes to the Plan have been made to add further information to clarify the risk to other abstractors and to clarify the communication that would be undertaken prior to a drought permit application.

### **3. Consideration of Environment Agency Response**

#### **3.1. EA1- Compliance with relevant legislation**

##### **3.1.1. Consultee representation**

Drought Plan (England) Direction 2016. The Environment Agency's assessment is that Thames Water's draft drought plan has complied with all directions.

##### **3.1.2. Thames Water consideration**

Thames Water acknowledges that the EA has assessed compliance and confirmed that the draft drought plan has complied with all directions.

##### **3.1.3. Changes to the Plan as a result of consultee representation**

No Changes.

##### **3.1.4. Reasons for no changes**

The draft drought plan complies with all directions so no changes are required.

#### **3.2. EA2- Recommendations – Drought Permit/Order application readiness (See also Appendix 1 Evidence report Reference Recommendation 1.1 & 1.3)**

##### **3.2.1. Consultee representation**

Thames Water should update its plan in line with the principles set out in the *Drought permit and supply order application ready* guideline supplementary information. We recommend that Thames Water amends its EARs to include further information on the following:

- The mitigation measures that that will be required to reduce the environmental impacts of some of its drought actions. For example, we have concerns that the company has not considered site-specific mitigation measures for the Eynsford drought permit option, which could have potentially significant impacts on fish populations.
- The monitoring for some of its drought actions, ensuring the baseline monitoring and sites selected are appropriate to drought and the receptors that are at risk.
- The prioritisation of actions during a drought, in particular the priority of Sundridge and Crayford drought permits.

- The data and methodology that the company expects to use to make the case for an exceptional shortage of rain for its drought permits, including the rain gauges that would be used as justification for the drought permit.
- Arrangements for advertising the permits and hearings, including potential venues for any hearings.

Thames Water should ensure that it has addressed all of the site-specific comments provided by our area teams on the EARs, and work with us to ensure its drought permits are as near to "application-ready" as possible, taking a risk based approach. We would expect these to be completed in order of frequency of use, with a rolling programme to ensure all sites are covered by 2022.

The EA recognises that some work will need to be carried out at the time of application, therefore Thames Water should account for this and provide an estimate of the amount of time it will need to complete this work and ensure that its proposed preparation time for drought permit / order application is sufficient.

If the company is unable to complete this work in time for the Statement of Response, it should provide a programme to address these concerns, prioritising by environmental impact and likelihood of use. We will continue to work with the company to ensure its drought actions are fit for purpose.

### **3.2.2.Thames Water consideration**

Thames Water will update its plan in line with the principles set out in the *Drought permit and supply order application ready* guideline supplementary information. This guideline supplementary information was issued after Thames Water had submitted its draft Drought Plan to Defra and so it was not possible to comply with all aspects of the guideline.

Thames Water will ensure that it has addressed all of the site-specific comments provided by the Environment Agency's area teams on the EARs. We will work with the EA to ensure our drought permits are as near to "application-ready" as possible, taking a risk based approach. The EA would expect these to be completed in order of frequency of use, with a rolling programme to ensure all sites are covered by 2022. Thames Water will work with the EA to complete this work and will develop a programme to do this and implement the actions in that programme after submission of its Statement of Response and revised draft Drought Plan.

- Thames Water will consider site specific mitigation measures for the Eynsford drought permit option. Thames Water will work with the EA to complete this work and will develop a programme to do this and implement the actions in that programme after submission of its revised draft Drought Plan.
- Thames Water will provide more information on monitoring for some of its drought actions, ensuring the baseline monitoring and sites selected are appropriate to drought and the receptors that are at risk. The specific sites of concern to the Environment Agency will be determined through meetings with area staff. Thames Water will work with the EA to complete this work and will develop a programme to do this and implement the actions in that programme after submission of its revised draft Drought Plan.

- The priority of our options is set out in the Drought Plan in Section 4, covering the methodology for the Drought Permits. In particular the priority of Sundridge and Crayford drought permits is set out in Appendix C. The priority of Crayford Drought Permit is 3<sup>rd</sup>, equal with Wansunt, this is followed by Waddon – 4<sup>th</sup>, Sundridge1 – 5<sup>th</sup>, Sundridge2 – 6<sup>th</sup> and finally Eynsford – 7<sup>th</sup>. This priority reflects the fact that the EA consider Sundridge and Eynsford to be the most sensitive DP options in the London WRZ, with Eynsford more sensitive than any other.
- Thames Water will provide more information on the data and methodology that the company expects to use to make the case for an exceptional shortage of rain for its drought permits, including the rain gauges that would be used as justification for the drought permit.
- Thames Water will provide more information on the arrangements for advertising the permits and hearings, including potential venues for any hearings.
- Thames Water will set out the work that would be required at the time of application and provide an estimate of the time needed to complete this work.

### 3.2.3.Changes to the Plan as a result of consultee representation

Thames Water will update the EARs to consider site specific mitigation measures for the Eynsford drought permit option. Thames Water will provide more information on monitoring for some of its drought actions, ensuring the baseline monitoring and sites selected are appropriate to drought and the receptors that are at risk. Thames Water will work with the EA to complete this work and will develop a programme to do this and implement the actions in that programme after submission of its revised draft Drought Plan.

Thames Water has added the following text in section 6.1.5 setting out the information on the data and methodology that the company expects to use to make the case for an exceptional shortage of rain for its drought permits:

*'In order to obtain a Drought Permit it is a legal requirement to justify an exceptional shortage of rainfall such that a serious deficiency of supplies of water in any area exists or is threatened. Thames Water's Drought Management methodology sets out how reservoir storage, groundwater levels and river flows are all used to determine the onset of drought and how droughts are managed in each water resource zone. This information together with rainfall data will be used to demonstrate an exceptional shortage of rainfall and a serious deficiency of supplies.*

*The water situation reports we produce each month during average weather conditions include information on monthly rainfall, deficit over the preceding year, annual summaries of rainfall as a percentage of long term average and a map showing the variation across our supply area, see Appendix D. During a drought this assessment would be completed more frequently.*

*When the water resource situation reaches the point where drought permits or orders are required an exceptional shortage of rainfall assessment would be completed at either a Thames regional scale and/or for each Water Resource Zone depending on the extent of the drought. The need to demonstrate an exceptional shortage of rainfall could apply across the whole Thames catchment if drought permits or orders are required for London and so the rainfall*

*pattern over the whole catchment would be used to demonstrate the exceptional shortage. It may also be necessary to demonstrate the exceptional shortage of rainfall over one or more of the other WRZs. In either case it is more appropriate to use areal rainfall which is indicative of the whole area rather than at individual points where gauges are located. Areal rainfall is calculated using a network of rain gauges to determine rainfall for the Thames catchment and its sub-catchments which enables the effect of the rainfall deficit to be used to more comprehensively demonstrate the impact on water resources than if isolated rain gauges are used. The areal rainfall pattern may also be supplemented by individual rain gauge records if this is useful in indicating the exceptional shortage at the time of the drought.*

*Areal rainfall data covers the following areas-*

- *Cotswold West*
- *Cotswold East*
- *Berkshire Downs*
- *Chiltern West*
- *Upper Thames*
- *Cherwell*
- *Ock*
- *Thame*
- *North Downs – Hants*
- *Wey – Greensand*
- *North Downs – South London*
- *Loddon*
- *Lower Wey*
- *Upper Mole*
- *South London*
- *Chiltern East Colne*
- *Lee Chalk*
- *North London*
- *Lower Lee*
- *Roding*
- *Enbourne*
- *Cut*

*The period assessed to determine the exceptional shortage of rainfall would be defined during each drought event as each drought is different, and so the period assessed would be applicable to the specific drought and the time that it has taken to result in a potential shortfall in supplies. Typically this could include assessments over periods of 6, 12, 18 months or longer. The appropriate techniques for demonstrating an extreme shortage of rainfall would vary according to the nature of the drought event in terms of its duration and the severity of the deficit. A combination of the following techniques would be used along with other measures if appropriate:*

- *Monthly and cumulative rainfall deficits*
- *Monthly and cumulative percentage of Long Term average rainfall*
- *Geographical extent of rainfall deficit*
- *Comparison of rainfall deficit with other drought events within the Thames Region, for example 1976.*

*The assessments of rainfall deficit would be used to place the drought within the context of the long term record of droughts and an approximate return period would be calculated which would be used to demonstrate that the measures proposed to manage the drought were consistent with Thames Water's levels of service.*

*This information for rainfall shortage would be used alongside the drought protocol for each Water Resource Zone, which includes assessment of reservoir storage, groundwater levels and river flows to demonstrate the severity of the water resource situation arising from the rainfall deficit. In the same way as the rainfall deficit is used to calculate a level of severity and approximate return period the river flow and ground water levels would also be analysed to determine their severity when compared to the historic record and an approximate return period would be determined.*

*It is not possible to set out exactly what information would be used and how it would be presented prior to the drought event occurring because each drought is different and therefore a certain amount of flexibility is required to make the case for an exceptional shortage of rainfall.'*

Thames Water has added the following in section 6.1.4 and in C4.6 in Appendix C setting out the information on the arrangements for advertising application of drought permits and notification of hearings required to determine the Drought Permits, including potential venues for any hearings:

*A list of potential venues for Drought Permit hearings and local newspapers in which each Drought Permit could be advertised has been included in Appendix C. This is a provisional list and would require updating before a Drought Permit Application'*

Thames Water has included a table estimating the time required at the time of application in Appendix C

Task	Time required	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Sites of local wildlife importance - data update	4 weeks										
Updating environmental monitoring data - EA request	4 weeks										
Liaison with stakeholders (e.g. other licence holders)	4 weeks										
Updating Environmental Assessment report	3 weeks										
Detailing antecedent conditions	3 weeks										
Advertising Drought Permit Application	2 weeks										
Organising hearing if required	2 weeks										
Inspectors Report and Determination	2 weeks										

### 3.2.4.Reasons for changes

Thames Water will make changes to its EARs to ensure that it has addressed all of the site-specific comments provided by EA area teams on the EARs, and work with them to ensure the drought permits are as near to "application-ready" as possible.

Thames Water has included changes to clarify the data and methodology that the company expects to use to make the case for an exceptional shortage of rain.

Thames Water has included changes to clarify the information on the arrangements for advertising the need for drought permits and the notification and location of anticipated hearings.

### **3.3. EA3- Recommendation 2- Actions in severe and extreme drought scenarios (See also Appendix 1 Evidence report Reference Recommendation 2.1 and 2.2)**

#### **3.3.1.Consultee representation**

Thames Water has not provided information on the environmental impacts of its actions in these more severe and extreme drought scenarios, therefore the significance of the potential impact on the environment is unclear and unquantified. The company has not provided the sequencing and timing of drought actions under these scenarios, or the consideration of Drought Event Levels in the implementation of actions.

Thames Water should provide further information on the environmental impacts of its actions under these scenarios, particularly where the most significant impacts are expected or actions are likely to be needed for longer. The company should provide a timeline for completing these environmental assessments. We would expect Thames Water to investigate the possible sequencing of these actions and whether action can be taken earlier to reduce the reliance on environmentally damaging actions.

The company should ensure that the environmental assessments it has undertaken for the drought plan are considered when appraising the costs and benefits of increased resilience in its WRMP. The company should then update its drought plan if appropriate.

#### **3.3.2.Thames Water consideration**

Thames Water will set out the sequencing and timing of drought actions under these more severe and extreme drought scenarios together with the consideration of Drought Event Levels in the implementation of actions.

It is not possible to take these actions earlier to reduce the reliance on environmentally damaging actions because at the onset of a drought it is not known how severe it will be. The Drought Plan methodology set out in the plan ensures that measures are implemented as early as necessary, commensurate with the level of severity and risk which is assessed at the onset of the drought.

The environmental impacts of its actions in these more severe and extreme drought scenarios will be addressed through the development of EARs for Drought Permit options running for longer than 6 months. Thames Water will complete these longer timescale assessments for a number of Drought Permit options to illustrate the impact of this more severe scenario (TW has selected the Lower Thames, Latton and Eynsford drought permit options to illustrate the environmental impacts under this scenario). Thames Water will also provide an indication of how this would be applied in other cases through a generic approach to DP environmental assessment for a subsequent 6 month period after imposition of a DP for 6 months.

Thames Water will ensure that the environmental assessments it has undertaken for the drought plan are considered when appraising the costs and benefits of increased resilience in its WRMP, this will be done through consideration of the more extreme and prolonged droughts in its scenario assessment in the WRMP. Thames Water will update its drought plan following this assessment if appropriate.

### 3.3.3.Changes to the Plan as a result of consultee representation

Thames Water has added the following information in section 8.2.2 to set out the sequencing and timing of drought actions and Drought Event Levels under these more severe and extreme drought scenarios.

*'As with droughts included in the historical record, the drought measures would be implemented as per the Drought Plan methodology and within the indicative timescales required for implementation in London (Table 12). In the example shown in Figure 14 the drought severity becomes more extreme in the winter months and represents only one possible manifestation of how a more extreme drought may develop and therefore the timing of measures required in a more extreme drought as set out below are only an indicative example.*

*In this case the drought progression indicated by the reservoir control curves show that this would mean that a media campaign would begin in October. In this severe drought example a TUB would be implemented from November over the winter months, which would have a relatively smaller impact on demand when compared to implementation of a TUB in the summer, but would still be important given falling reservoir storage and low groundwater levels and the importance of ensuring all measures are implemented at the right time to ensure subsequent measures can be implemented. A DD11 non-essential use ban and Drought Permits would be implemented 10 weeks later at the end of January/start of February in line with crossing level 3 on the control diagram.'*

Thames Water will update its DP EARs to address the environmental impacts of its actions in more severe and extreme drought scenarios. Thames Water will work with the EA to complete this work and will develop a programme to do this and implement the actions in that programme after submission of its revised draft Drought Plan.

### 3.3.4.Reasons for changes

Thames Water has made changes to clarify the sequencing and timing of drought actions and Drought Event Levels under more severe and extreme drought scenarios.

Thames Water will make changes to update its DP EARs to address the environmental impacts of its actions in more severe and extreme drought scenarios. Thames Water will work with the EA to complete this work and will develop a programme to do this and implement the actions in that programme after submission of its revised draft Drought Plan.

## 3.4. EA4- Strategic Environmental Assessment mitigation (See also Appendix 1 Evidence report Reference Recommendation 3 – Strategic Environmental Assessment mitigation)

### 3.4.1.Consultee representation

As with recommendation 1, Thames Water should provide further information on the mitigation that has been considered on a whole plan scale, drawing on information from the EARs and

Environmental Monitoring Plan. This will help to understand the impacts of the drought plan before mitigation is enacted.

### 3.4.2. Thames Water consideration

Thames Water will update its Drought Plan SEA to provide further information on the mitigation that has been considered for the Drought Permits, drawing on information from the EARs and Environmental Monitoring Plan. This approach was agreed with the Environment Agency at a meeting following receipt of the EA representation.

### 3.4.3. Changes to the Plan as a result of consultee representation

Thames Water has updated its SEA in section 7 to provide further information on the mitigation that has been considered on a whole plan scale. The following text has been added to the SEA Environmental Report along with a summary table which includes example mitigation measures used in the Environmental Assessment Reports for the Drought Permits-

*'As part of the environmental assessment of each drought option, for those receptors with a potential moderate or major impact from implementation of the associated drought permit, site specific monitoring has been recommended, together with triggers to inform practical implementation of mitigation measures. These are described in the EARs and EMPs. The range of mitigation measures that are possible for the features identified fall into three general activities:*

- 1) Measures to reduce impacts at source, by reducing the hydrological or water quality impact;*
- 2) Measures to modify environmental conditions in the river, by conducting actions within the watercourse to reduce the pressure at sensitive locations; and*
- 3) Management of sensitive ecological species and communities, through direct action to mitigate impact by movement or management of the receptor/feature itself.*

*Mitigation measures identified in the EARs are feature, location, species and community specific. They will be informed by walkover surveys of all of significantly impacted reaches before and during the implementation of the drought measure. This will enable a targeted approach to mitigation based on monitoring. If post-drought measure monitoring identifies impacts associated with implementing the permit, consideration will be given to compensatory measures, such as restocking of fish.*

*Examples of monitoring and mitigation that would be conducted during implementation of drought measures and following the drought period are presented in **Table 7.1**. Note that these are examples only, and have been provided to indicate the type of mitigation considered when assessing residual impacts during the SEA process. Actual EMPs would be site and event-specific, and finalised at the time of implementation.'*

### **3.4.4.Reasons for changes**

Changes to the SEA of the DP have been made to provide further information on the mitigation that has been considered on a whole plan scale.

## **3.5. EA5- Deployable output benefit of strategic schemes (See also Appendix 1 Evidence report Reference Recommendation 4.1 & 4.2)**

### **3.5.1.EA5-Consultee representation**

Thames Water should confirm if the Thames Gateway Treatment Works will still deliver its design output of 150MI/d. The drought plan states that the output benefit of the scheme is 'up to' 150MI/d, whereas in previous drought plans it was stated as 150 MI/d.

The company should confirm whether there are uncertainties with the deployable output of its strategic schemes, particularly in more severe droughts, and identify actions that would ensure the deployable output can be achieved. If the strategic outputs of the schemes are reduced, the company should state the reductions, the reasons and evidence for these reductions and clearly state the impacts on the timing of triggers for subsequent actions.

The company should also ensure that its deployable outputs for all of its strategic schemes are consistent throughout its drought plan.

### **3.5.2.Thames Water consideration**

Thames Water can confirm that Thames Gateway has the capability to achieve 150MI/d. The plant was designed to achieve 150MI/d against historic droughts, and not to deal with more extreme droughts that are expected to be of greater intensity and less water availability. In particular, salinity levels in the upper and middle Thames Tideway are forecast to show greater variability, impacting the current running of the plant. To improve resilience to these conditions we will require further investment in WRMP19.

WBGWS - In the context of Habitat Directive investigations being undertaken by the EA and mitigation proposals to modify the WBGWS operating strategy, an assessment of impact on deployable output (DO) contribution was undertaken. As part of this assessment the abstraction capability of the WBGWS was reviewed, including how the borehole yields declined over an 8 month period of operation. This resulted in revised abstraction profiles being produced for the WBGWS boreholes and analysis of impact on DO available for the London WRZ. These were discussed and agreed with the EA and now form part of our base deployable output.

In addition, the WBGWS was test pumped by the EA in 2012. This demonstrated asset availability and maintenance requirements subsequently programmed and addressed by the EA. This in conjunction with groundwater modelling carried out to support the HD investigation and the impact of mitigation measures has provided the most robust available view on the WBGWS performance during historical droughts. A revised Operating Strategy has been

agreed with the EA to capture asset availability and operational constraints to ensure HD compliance.

## NLARS

Improved information on borehole operational performance, together with updated information on the aquifer state of storage allowed an improved view of NLARS contribution to London's deployable output (DO). This was undertaken as part of AR16. NLARS abstraction output over an extended drought declines as aquifer storage is drawn down; this results in a declining abstraction profile rather than an unrealistic constant abstraction rate. Although the abstraction profiles assumed in our base DO assessment for London are considered to be the most robust, practical estimates, there remains some uncertainty. To account for this risk around what NLARS may be capable of during a drought, two further scenarios of the declining output from NLARS have been evaluated, including the previous view of NLARS output, which is a more pessimistic view and results in a DO reduction of around 15 MI/d. This risk around NLARS output has been input to the Target Headroom model and already included in our base DO reported in AR16.

### **3.5.3.Changes to the Plan as a result of consultee representation**

Thames Water has added the following to section 6.2.1.3 of the revised Drought Plan.

*'Thames Water can confirm that Thames Gateway has the capability to achieve 150MI/d. The plant is run annually for a period at lower volumes of at least 25MI/d, as per the licence agreement, to maintain operating capability. The designed intermittent use of the plant means we need to replace perishable equipment once used, such as costly membranes. To manage these replacement costs, and also high operating costs, we will only utilise the full capacity of the plant when required.*

*Since commissioning in 2011, we have had the opportunity to learn about the operation of the plant on an estuary with changing salinity. This has led to working improvements that have optimised the operational practice, and also awareness of the required maintenance to maintain the intermittently used equipment.*

*The plant was designed to achieve 150MI/d against historic droughts, and not to deal with more extreme droughts that are expected to be of greater intensity and less water availability. In particular, salinity levels in the upper and middle Thames Tideway are forecast to show greater variability, impacting the current running of the plant. To improve resilience to these conditions we will require further investment in WRMP19.'*

No changes to the plan have been made for WBGWS and NLARS.

### **3.5.4.Reasons for changes or no changes**

Thames Water has added clarity on the Thames Gateway Water Treatment Works deployable output.

No changes have been made for WBGWS or NLARS because Thames Water has reviewed the deployable output of its strategic schemes (WBGWS and NLARS) and confirmed that the DO is assessed over the duration of a longer drought and is consistent with the WRMP.

### **3.6. EA6- Representation period for temporary use restrictions (See also Appendix 1 Evidence report Reference Recommendation 5 Representation period for temporary use restrictions)**

#### **3.6.1.EA1-Consultee representation**

Thames Water has increased the representation period for its Level 3 temporary use restrictions from two weeks to three weeks. The company has not provided an explanation for this change, nor has it confirmed whether this affects the period of time the temporary use restriction will be in place, or the triggering of subsequent actions. There is a risk that if the implementation period of temporary use bans is shorter, then actions that may put the environment at risk are implemented earlier than necessary.

Thames Water should provide further details regarding the change in representation period for level 3 temporary use restrictions, and explain how it has ensured that the demand-savings as a result of the action will still be realised.

#### **3.6.2.Thames Water consideration**

Thames Water has not increased the representation period for its Level 3 temporary use restrictions from two weeks to three weeks in this Drought Plan. It would appear that the EA has made this comment as a result of text included in the plan referring to a change made from a previous plan (2006).

#### **3.6.3.Changes to the Plan as a result of consultee representation**

Thames Water has clarified the reference to the representation period for its Level 3 temporary use restrictions in section 5.5.2.1 (p. 96) of the draft Drought Plan.

#### **3.6.4.Reasons for changes**

Thames Water needs to clarify the reference to the representation period for its Level 3 temporary use restrictions

### **3.7. EA7- Improvements – Improvement 1 – Strategic Environmental Assessment Environmental Report (See also Appendix 1 Evidence report Reference Improvement 1 – Strategic Environmental Assessment Environmental Report)**

#### **3.7.1. Consultee representation**

There are a number of improvements that could be made to the SEA Environmental Report to improve clarity and understanding. These include details on the monitoring that will be carried out, details on the future baseline of the environment for the different resource zones, and confirmation of the spatial scope of the assessment.

Improvement 1 – SEA ER 1.1. The main report (table 2.1) includes a summary of the plans and programmes that the draft drought plan has a relationship to. However, the detailed relationship and how these are taken into account in the draft drought plan is provided in Appendix C. The main report would be strengthened if a summary of these implications were included.

Recommended Improvement:

Thames Water should include a summary of the relationship between the draft drought plan and other plans and programmes and how they have influenced the drought plan in the main report.

Improvement 1 – SEA ER 1.2. The cumulative impacts of drought permits have been identified in the SEA Environmental Report. The Crayford and Wansunt drought permits have been identified as having minor impacts on the River Cray downstream of Crayford, but are likely to have cumulative impacts on the same stretch. There is also potential in-combination effects with Sutton and East Surrey Water's drought permits.

Recommended Improvement:

The company should provide further information on the cumulative impacts of the Crayford and Wansunt drought permits on the River Cray. Further information should also be provided on the cumulative impacts with Sutton and East Surrey Water's drought permits.

Improvement 1 – SEA ER 1.3. Appendix D describes the future baseline of the environment and key issues are identified in section 3.4, however, it is not clear what would happen in the absence of the drought plan.

Recommended Improvement:

Thames Water should provide further clarity on future baseline of the environment in the absence of the drought plan. A short statement under each section to clarify could be provided.

Improvement 1 – SEA ER 1.4. A non-technical summary has been provided. The addition of images would be useful to improve readability. Explanation on the spatial scope and water resource zone would also help readers better understand the findings of the assessments. There is also no mention of alternatives in the non-technical summary.

Recommended Improvement:

Thames Water should provide better clarity on the spatial scope of the assessment and consider using more images / tables for ease of reading in its non-technical summary.

Improvement 1 – SEA ER 1.5. The Environmental Report states that monitoring will take place following the implementation of the drought plan. Given that Environmental Monitoring Plans are already available for the supply side drought permit / order options, some examples could be drawn from these to expand on future monitoring scenarios.

Recommended Improvement:

Thames Water should consider providing examples from Environmental Monitoring Plans. Identification measures to monitor significant environmental effects should be included in the final drought plan.

Improvement 1 – SEA ER 1.6. The spatial scope assessed in the SEA extends beyond the boundaries of the Thames Water supply area to include the whole of the Thames river basin. Figure 1.1 shows this but it is not clear. It would help if the spatial scope was added.

The assessment of cumulative effects include trans-boundary effects with other suppliers. It would also be useful to confirm if all of these fall within the Thames river basin.

The Environmental Report states that the baseline is presented at local, regional and national levels where possible. This has been done for some environmental categories in Appendix D. The baseline is described by type rather than location. More specific information could be provided for each WRZ, for example. It is unclear what spatial scope the baseline is for - should this not cover what is identified in section 1.3.5?

Recommended Improvement:

Thames Water should ensure the spatial scope includes the cumulative assessment and update figure 1.1 to show this scope (not just supply areas / surface water features). It should also confirm the spatial scope for the baseline.

Improvement 1 – SEA ER 1.7. The nature and duration of potential effects have been set out in the Environmental Report, using an appraisal framework. Section 3.4.9 identifies that there are inter-relationships. However no detail has been provided for each of the SEA objectives.

Recommended Improvement:

Thames Water should provide a matrix identifying these inter-relationships so that they are clearly identified.

Improvement 1 – SEA ER 1.8. Given there are previous plans and previous strategic environmental assessments, it would have been helpful to have included a summary of the environmental effects of previous plans.

Recommended Improvement:

Thames Water should consider the environmental effects of previous plans, and whether this could allow the scope of the assessment to be further refined.

Improvement 1 – SEA ER 1.9. The links to appendices / tables have errors throughout the report making it difficult in places to refer to the correct appendices etc.

Recommended Improvement:

Thames Water should ensure that all links are correct and working.

### **3.7.2.Thames Water consideration**

Thames Water will make changes to the SEA Environmental Report to improve the clarity and understanding of the SEA.

### **3.7.3.Changes to the Plan as a result of consultee representation**

A number of changes have been made to the SEA to improve the clarity and understanding.

Improvement 1 – SEA ER 1.1 – relationship to other plans. Thames Water has added the following section to section 1.6 in the SEA:

*‘The only significant linkage between the Drought Plan and other plans or programmes is with the TWUL Water Resources Management Plan (WRMP).*

*The Drought Plan and the WRMP have distinct, separate, but linked purposes. The Drought Plan is a short term, day to day plan for managing TWUL’s actions during a drought. The Drought Plan covers the monitoring and measurements of water resource variables to determine the onset of drought, the triggers for undertaking actions during a drought, the communications that would be undertaken in a drought, the demand and supply side actions undertaken in a drought, and the management structure put in place during a drought. The Drought Plan also sets out how droughts of differing severity would be managed, and the impact they would have on the provision of water supply. The Drought Plan is revised every four to five years and is based on the existing assets available to TWUL. It does not provide the framework for development of new water supply options.*

*In contrast, the WRMP sets out the plans for meeting water resources needs over at least 25 years, but also includes consideration of requirements up to 80 years into the future. It also takes into account factors such as growth, climate change and loss of resources to protect the environment. The WRMP is the plan for future investment in demand management programmes and new water resource options and so sets the framework for development. The WRMP is also revised every five years to update the plans for future demand management and resource requirements.*

*The key links between the two plans are that the Drought Plan sets the tactical response to drought episodes, using the water resource assets that are specified in the WRMP as the base resource available at the time the plan is produced and for the following four to five years. The Drought Plan sets out in detail the methods used to implement the measures that are assumed to be available in the WRMP (e.g. temporary restrictions*

*on the use of water) and it is therefore critical that the Drought Plan and WRMP are consistent in the assumptions made relating to what resources are available and what measures are implemented at what stages in a drought. The Drought Plan also addresses the challenge that would be faced in the event of droughts of greater severity than have been experienced in the historic record, and so indicates the situations in which pressure on resources would be greatest. This is used to inform the WRMP, outlining where measures are needed to improve the resilience to potentially more severe droughts in the future. The Drought Plan can be updated before four years have elapsed if necessary (see Section 1.4.1) for example, if a new resource development came on line.*

*It is important to note a key distinction between the assumptions in the Drought Plan and WRMP in respect of drought permit options. The WRMP does not specifically include the utilisation of drought permit options in its assessment of the supply demand balance. Drought permit options are a key feature of the Drought Plan and are included to provide greater resilience to severe droughts. Drought permit options do not feature in the WRMP because they have the potential to cause adverse impact on the environment, and so are not options that should be relied upon for routine use. The application of drought permits is, however, considered in sensitivity testing of potential investment portfolios in the WRMP to examine their robustness and likely environmental impacts.'*

#### Improvement 1 – SEA ER 1.2

Assessment of the cumulative impacts of the Crayford and Wansunt drought permits on the River Cray is ongoing, as we are waiting for the outcome of the NEP investigation at the River Cray. The Crayford and Wansunt EARs will be updated with potential cumulative impacts when the NEP investigation report is available. However, the potential for a cumulative impact associated with these drought measures has been noted in Section 6.3.

Assessment of cumulative impacts with Sutton and East Surrey Water's drought permits is ongoing following TW recently being informed of S&ESW' drought permit options, and will be reviewed and re-assessed as necessary during the process of updating the drought permits to permit ready.

#### Improvement 1 – SEA ER 1.3

The future baseline for each WRZ is provided in Appendix D to the Drought Plan SEA Environmental Report. The future baseline is not central to the Drought Plan as the temporal scope of the plan is only five years, hence we have not added additional detail regarding the future baseline

#### Improvement 1 – SEA ER 1.4

A map has been added to the Non-Technical Summary (Fig.1.1). No additional tables have been added to the Non-Technical Summary, in order to maintain brevity. The Non-Technical Summary already includes the following sections on alternatives as follows-  
*'DPs encompass a number of drought options that will only be implemented if and when required. Each drought is different in terms of its severity, season, location and duration and each combination of these*

factors may require a different response in terms of measures. In the context of drought planning, individual drought options are taken to constitute alternatives. TWUL's Draft DP comprises a total of 51 drought options (10 supply side options, six demand options and 35 drought permit/order options).

The SEA provides information on the relative environmental performance of alternatives, and is intended to make the decision-making process more transparent. The SEA can, therefore, be used to support the timing and implementation of drought options within the DP.'

#### Improvement 1 – SEA ER 1.5.

Thames Water has updated its SEA in section 7 to provide further information on the mitigation that has been considered on a whole plan scale. The following text sets out the broad categories of these mitigation measures and has been added to the SEA Environmental Report along with a more lengthy summary table-

*'As part of the environmental assessment of each drought option, for those receptors with a potential moderate or major impact from implementation of the associated drought permit, site specific monitoring has been recommended, together with triggers to inform practical implementation of mitigation measures. These are described in the EARs and EMPs. The range of mitigation measures that are possible for the features identified fall into three general activities:*

- 1) Measures to reduce impacts at source, by reducing the hydrological or water quality impact;*
- 2) Measures to modify environmental conditions in the river, by conducting actions within the watercourse to reduce the pressure at sensitive locations; and*
- 3) Management of sensitive ecological species and communities, through direct action to mitigate impact by movement or management of the receptor/feature itself.*

*Mitigation measures identified in the EARs are feature, location, species and community specific. They will be informed by walkover surveys of all significantly impacted reaches before and during the implementation of the drought measure. This will enable a targeted approach to mitigation based on monitoring. If post-drought measure monitoring identifies impacts associated with implementing the permit, consideration will be given to compensatory measures, such as restocking of fish.*

*Examples of monitoring and mitigation that would be conducted during implementation of drought measures and following the drought period are presented in **Table 7.1**. Note that these are examples only, and have been provided to indicate the type of mitigation considered when assessing residual impacts during the SEA process. Actual EMPs would be site and event-specific, and finalised at the time of implementation.'*

#### Improvement 1 – SEA ER 1.6.

Figure 1.1 in the SEA Environmental Report has been updated to better identify the SEA study area.

Improvement 1 – SEA ER 1.7.

A matrix identifying inter-relationships has been added to Section 3.4.9 of the SEA Environmental Report.

Improvement 1 – SEA ER 1.8.

During the previous Drought Plan no actions were implemented that had an environmental impact, the only action implemented was a Temporary Use Ban in 2012. Therefore the plan does not require further refinement in this update.

Improvement 1 – SEA ER 1.9.

All referencing errors have been corrected.

### **3.7.4.Reasons for changes**

Changes to the SEA have been made to improve the clarity and understanding.

## **3.8. EA8- Improvements – Improvement 2 – Merton Groundwater recommissioning (See also Appendix 1 Evidence report Reference Improvement 2 – Merton groundwater recommissioning)**

### **3.8.1.Consultee representation**

The company has included an action for recommissioning its Merton groundwater source. We are aware that this is being considered for WRMP19 and therefore the company should ensure that the plans are consistent depending on the outcome of WRMP19 options appraisal. This may mean revising the drought plan to include details following WRMP19.

### **3.8.2.Thames Water consideration**

Thames Water is planning to include the recommissioning of Merton as an option for WRMP19. Thames Water will reflect this position in the revised draft Drought Plan.

### **3.8.3.Changes to the Plan as a result of consultee representation**

Thames Water has amended the plan in section 6.2 to add the following in relation to Merton groundwater source 'Thames Water's Merton source is currently out of service and the deployable output is declared as zero. Significant investment is required to return the source to operation and so it is intended that this will be included as a requirement for our AMP7 (2020-2025) Business Plan and will be included as an option in our WRMP19. Our Drought Plan will be revised as necessary following the redevelopment of this option in AMP7.'

### **3.8.4.Reasons for changes**

Changes have been made to the plan to clarify Thames Water's plans for Merton groundwater source.

## **3.9. EA9- Appendix 1- Evidence report- Issue ref.1.2 – Drought Permit/Order application readiness**

### **3.9.1.Consultee representation**

Thames Water has provided a description of the prioritisation of drought actions in section 6.1.4, however, there are a number of terms that describe the prioritisation including Category 1 and 2, and Tier 1 and 2. Appendix C also includes a table with a priority scoring for each WRZ action within Category 1 and 2, but no explanation of the scoring is provided. It is unclear how the different prioritisations fit together. We have also provided specific concerns with the prioritisation of Sundridge and Crayford drought permit options.

### **3.9.2.Thames Water consideration**

Thames Water will clarify the description of the prioritisation of drought actions in section 6.1.4, and provide explanation of the terms that describe the prioritisation including Category 1 and 2, and Tier 1 and 2. Clarification will also be provided in Appendix C covering the table with a priority scoring for each WRZ action within Category 1 and 2.

### **3.9.3.Changes to the Plan as a result of consultee representation**

Changes to the plan have been made in section 6.1.4 to provide clarification of the description of the prioritisation of drought actions, and to provide explanation of the terms that describe the prioritisation including Category 1 and 2. The reference to Tier 1 and Tier 2 Environmental Assessment reports has been removed and instead the reports are referred to only as EARs and pEARs. This explanation has also been provided in Appendix C. The following text has been added to section 6.1.4;

*6.1.4 - 'Drought permits are categorised into Category 1 and Category 2 and then prioritised within the categories based on the proposed implementation order (with 1 being the most likely to be implemented). This prioritisation is based on magnitude of environmental impact, water resources benefit and ease of implementation. The Category one options are those that are likely to be implemented ahead of the Category two options, principally on the grounds of lesser environmental impact. However, in an actual drought, other factors will also be taken into account in determining which drought permits should be applied for, such as ease of implementation and water resources contribution to areas of need. Therefore the actual order of implementation of drought permit options in a drought may vary slightly from this categorisation*

*although the priority order given in this Appendix (C) would form the basis of the order in which options are used in a drought.'*

### **3.9.4.Reasons for changes**

Changes have been made to the plan to clarify the prioritisation of drought permit options.

## **4. Summary and Conclusions**

### **4.1. Changes to draft Drought Plan**

It is useful to divide the Thames Water response to representations into four categories of change to the text in the current draft Drought Plan, as follows:

- No change;
- A change to further clarify meaning or intention;
- A change that provides additional information on the way Thames Water proposes to manage a drought event;
- A material change to Company policy that will significantly alter the way that Thames Water intends to manage a drought event and is therefore likely to affect customers.

The categories of change made to the draft Drought Plan resulting from Thames Water's consideration of the Stakeholder and Environment Agency responses are summarised below in Table 5. In all of the 11 Stakeholder representations, most resulted in a change to either further clarify or provide additional information. No changes were made in response to 2 representations on specific aspects of the draft Drought Plan.

In regard to the environmental assessment reports changes will be made in consultation with the Environment Agency and, where required, Natural England in line with the agreed programme. No material changes were made to the draft Drought Plan as a result of the Environment Agency's response.

Table 5 Summary of aspects of draft Drought Plan for which changes have been made

Aspect of Plan	Stakeholders-representations		Environment Agency-representations	
	Number of Reps	Changes to DP	Number of Reps	Changes to DP
Compliance with legislation			1	None
DD11-exemptions	1	None	0	
Communications Strategy	2	Included reference to communications with other abstractors that are potentially at risk from implementation of Drought Permits.	0	N/A
Drought Permits- SWOX	1	None		
Drought Permits- Environmental Assessment	2	Environmental Assessments will be updated following the publication of the Drought Plan agreed with the Environment Agency.	2	Environmental Assessments will be updated following the publication of the Drought Plan as agreed with the EA.
West Berkshire Groundwater Scheme	1	None	0	N/A
Drought Management Methodology - Timing of measures	3	None	1	Clarification included in text.
Bulk Supplies	1	2 additions of new information about bulk supplies	0	N/A
In extremis options	1	Information added and location removed for national security reasons.	0	N/A
Customer preferences	1	None	0	N/A
Emergency Drought Order	1	None	0	NA
HRA	1	Correction made	0	N/A
SEA	0	N/A	2	Information added and corrections made.
Extreme Droughts	0	N/A	1	Information added.
Strategic Schemes	0	N/A	1	Information added to the plan and corrections made
Groundwater recommissioning	0	N/A	1	Information added to the plan
Total	15		9	

## **4.2. Concluding statement**

As a result of Thames Water's considerations of the responses from Stakeholders and the Environment Agency, it is Thames Water's view that the subsequent revisions to the draft Drought Plan have led to improvements in clarity and provision of information.

## **5. Next steps**

This Statement of Response will be published on the Thames Water web site and those who have made representations will be notified.

Thames Water will prepare the final draft Drought Plan after taking into account any directions received from the Secretary of State. The Environment Agency will scrutinise the draft final Drought Plan to ensure it complies with the Secretary of State's directions, if any. The final Drought Plan will be published thereafter to the same requirements as the draft Drought Plan.

## Glossary

Abstraction Licence – The authorisation granted by the Environment Agency to allow the removal of water from a source.

Aquifer – A geological formation, group of formations, or part of a formation, that can store and transmit water in significant volumes.

DD11 – Drought Direction 2011 replaces the Drought Direction 1991 and updates the powers of water companies to ban non essential use under the terms of an Ordinary Drought Order.

DEL – Drought Event Level – Levels used by Thames Water to assess the risk that the drought poses to drinking water supply both currently and in the future.

DEL 1, 2, 3 & 4 – These drought event levels are defined in the draft Drought Plan, Section 4 “Drought Management Methodology”.

Demand Management – The implementation of policies or measures which serve to manage control or influence the consumption or waste of water

Deployable Output – the output of a commissioned source or group of sources or of a bulk supply for a given level of service as constrained by:

- Environment
- Abstraction licence, if applicable
- Pumping plant and/or well/aquifer properties
- Raw water mains and/or aquifers
- Transfer and/or output main
- Treatment
- Water quality

Drought Order – An authorisation granted by the Secretary of State under drought conditions which imposes restrictions on the use of water and /or allows for abstraction/impoundment outside the schedule of existing licences on a temporary basis.

Drought Permit – An authorisation granted by the Environment Agency under drought conditions which allows for abstraction/impoundment outside the schedule of existing licences on a temporary basis.

Environmental Assessment Reports (EARS); preliminary Environmental Assessment Reports (pEARS); Strategic Environmental Assessment (SEA) and Habitats Regulation Assessment (HRA). reports – These reports contain the environmental information required to support the Drought Plan and associated Drought Permits and Drought Orders and are available on the Thames Water website.

Groundwater – Water in the zone of an aquifer where the voids in a rock or soil are filled with water at a pressure greater than atmospheric pressure.

Levels of service – Levels of service are a contract between a company and their customers; they describe the standard of service that customers can expect to receive from their water company. Levels of service are expressed as the expected frequency with which water use restrictions will need to be imposed on customers.

LTCD – Lower Thames Control Diagram – A guideline, contained within the LTOA (see below) in the form of a diagram setting out how much water must be allowed to flow over Teddington weir and at what time demand management measures should be implemented in relation to the storage in the Thames Reservoirs.

LTOA – Lower Thames Operating Agreement – An Operating Agreement between the Environment Agency and Thames Water under Section 20 of the Water Resources Act which sets out controls over the abstraction of water from the Lower Thames under the existing abstraction licence.

Protocol – term generally used herein to describe the framework that converts the results from the hydrologic assessment methodologies into a decision-making procedure for making decisions on appropriate drought management measures to be considered and/or implemented.

SAC – Special Area of Conservation – Designated under the European Habitats Directive (1991)

Security of supply – A company is said to have delivered security of supply where it is able to meet its agreed levels of service. Security of supply is commonly reported through the security of supply indicator (SoSI). Where  $SoSI = 100$  the water company is able to meet its agreed levels of service. Where  $SoSI < 100$  the water company is said to be in supply demand deficit and customers are exposed to a higher risk of water use restrictions than agreed in the levels of service; the lower the number the greater the risk

SWOX WRZ – Swindon and Oxfordshire Water Resource Zone – A Drinking water supply area covering the Swindon Oxford and surrounding areas as shown in Appendix A of the Drought Plan 2011.

Trigger – The term used to describe a decision mechanism for providing definitive guidance on the introduction of drought management measures.

TUB – Temporary Use Ban – The Water Use (Temporary Bans) Order 2012 enables the water company to restrict the use of drinking water in periods of water stress (such as drought) after consultation with the public and interested parties, this has replaced the Hosepipe Ban previously used.

WARMS (Water Resources Management System) – WARMS is a modelling system made up of a series of mathematical simulation models and is used to simulate future reservoir storage levels within the LTCD through ‘what if’ behavioural analysis of the Thames Water system. It is also used to calculate the deployable output for London and SWOX through operation in a time series mode using historic hydrometric records.

WBGWS – West Berkshire Ground Water Scheme A series of abstraction boreholes drilled and maintained by the Environment agency in Berkshire to provide surface water for environmental support and abstraction during times of water stress (such as drought).

WRZ – Water Resources Zone - The largest possible zone in which all resources, including external transfers, can be shared and hence the zone in which all customers experience the same risk of supply failure from a resource shortfall.

Yield – A term generally used to describe the quantity of water pumped from a borehole usually expressed as a continuous rate of flow eg megalitres per day.

Stochastic - Stochastic means having a random variable. A stochastic model is a tool for estimating probability distributions or potential outcomes by allowing for random variation in one or more inputs over time. The random variation is based on fluctuations observed in the historical data for a selected period using standard time series techniques. Distributions of potential outcomes are derived from a large number of simulations which reflect the random variation in the inputs.