

# Environment Agency

## North West Region

### Regional Drought Plan

DMNW9

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ENVIRONMENT AGENCY



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# Environment Agency, North West Region Regional Drought Plan

## 1. Introduction

As part of its statutory duty to manage water resources, the Agency has to take into account the effects of drought. Whilst the circumstances that cause drought (i.e. lack of rainfall) are outside the Agency's control, there are a number of regulatory duties and actions which it may take, together with Water Companies and other interested parties, to mitigate the impacts of drought.

Droughts are random and relatively rare events, so everyday working practice and experience will not necessarily equip us to deal with them effectively. This Plan is therefore written so that those who have had little previous experience of droughts can readily use it. The last significant drought in the Region occurred in 1995/96 and much of the guidance given in this Plan is derived from experience gained in that event. It should be noted, however, that no two droughts are ever the same, and it is therefore not appropriate for the Plan to be too prescriptive. Considerable flexibility is required when managing drought impacts and local factors must be taken into account during the decision-making process as a drought develops.

## 2. Drought Management in the North West

### 2.1. North West Regional Drought Plan

This Regional plan describes the key actions to be undertaken in North West Region in preparation for, during and after a drought. Its key aims are to:

- present a structured framework for handling drought situations whilst retaining the flexibility necessary to deal with droughts of differing characteristics and severity.
- apply the necessary Regional perspective to the guidance given in the Agency's national drought manual.
- minimise the impact of drought on the environment, by putting measures in place to achieve levels of environmental protection consistent with available resources.
- outline a system of monitoring and reporting to ensure that the onset, progress and wind down of drought situations is effectively identified and tracked.
- enable appropriate support to be given to Water Companies in the implementation of their Drought Contingency Plans, having due regard to the Agency's commitment to environmental protection and its statutory duty to secure proper use of water resources.
- enable timely warnings (via both meetings and PR media releases) to be provided to all abstractors and other interested parties.

### 2.2 Relationship with Agency National drought planning

The Plan forms a Regional Appendix to, and should be read in conjunction with, the Agency's national manual ("Drought Manual - Water Resources - Interim Issue" - Volume 032, July 1997), which is the main source of general guidance on all aspects of drought management.

It replaces the North West Regional Drought Management Manual prepared in May 1998, which brought together the experiences and lessons from the 1995/96 drought in the North West, and the later North West Region Environment Agency Drought Management Manual prepared in June 2000. It has been developed taking into account the recommendations of a recent internal audit ('Review of Environment Agency Drought Plans', November/December 2002 (Halcrow)).

### **2.3 North West Area Drought Plans**

Details of drought management procedures for the 3 North West Areas can be found in the Area Drought Contingency Plans.

### **2.4 Updates to Agency Drought Plans**

Further national guidance on drought management, including roles and responsibilities and preferred format and content of plans is due to be issued later in 2003. This is likely to result in a review of this Regional plan and the Area plans.

### **2.5. Water Company Drought Plans**

In response to the severe drought of 1995/96, the Government required water undertakers to demonstrate that they have adequate drought contingency plans. The United Utilities (UU) Drought Contingency Plan was first published in 2000 and has since been revised on an annual basis (latest revision March 2003). Plans for the other water undertakers with a small number of sources and supply areas within North West Region (i.e. Yorkshire Water and Severn Trent Water) are also available.

The preparation of drought plans by water undertakers will become a statutory duty on implementation of the provisions of the Water Bill. A plan will be required to describe how the water undertaker will continue, during a period of drought, to discharge its duties to supply adequate quantities of wholesome water, with as little recourse as reasonably possible to Drought Orders or Drought Permits.

In particular, plans will need to address the following matters:

- what measures the water undertaker might need to take to restrain the demand for water within its area
- what measures the water undertaker might need to take to obtain extra water from other sources
- how the water undertaker will monitor the effects of the drought and of the measures taken under the drought plan
- such other matters as the Secretary of State may specify

The preparation of these statutory plans will be subject to discussion and agreement between the water undertaker and the Agency

## **3. Human Resources**

### **3.1. Drought Management Teams**

Drought Management Teams have been established at both Regional and Area level. They are comprised of representatives from all relevant departments and functions, most of whom will not normally be engaged in activities relating to droughts.

The structure and membership of the teams has been formulated on the basis of managing a drought as a "major incident", as defined under the Agency's Incidents and Contingency Planning procedures (see Agency "Work Instruction on the Management of Major Incidents", No. 123\_2, v2).

The objectives of the teams are to:

**Regional Drought Management Team:**

- take a Regional strategic role in the management of drought events
- co-ordinate drought actions between the Regional and Area Drought Management Teams
- liaise with Head Office, external stakeholders and DEFRA
- report on management of the drought event to RMT and Head Office
- reach agreement with UU on drought actions

**Area Drought Management Teams:**

- assess, monitor and manage a drought event at the operational level locally within the Area, in consultation with the Regional Drought Management Team and external stakeholders
- ensure that all staff in the Area are aware of the drought status and of the demands that such an event may create.
- ensure the different Agency functions work together effectively and consistently during a drought event.
- ensure the local actions set out in the drought plan are carried out
- undertake all necessary Agency regulatory actions relating to Drought Orders, Drought Permits and spray irrigation restrictions
- liaise with UU on local drought management issues

## **3.2 Roles & Responsibilities**

### **3.2.1. Regional Drought Management Team**

The Regional Drought Management Team will fulfill a Regional strategic role in the management of drought events. It will undertake the following tasks:

- provide a Regional forum for discussion and co-ordination of drought actions between the Regional and Area Drought Management Teams
- liaise with Head Office, external stakeholders and DEFRA on strategic issues
- report on management of the drought event to RMT and Head Office
- provide regional forum for discussion and agreement on actions with UU
- ensure compliance with water company Drought Plans
- monitor and provide advice on strategic water supply issues

- co-ordinate public relations responses
- advise Areas on strategic issues relating to applications for Drought Orders and Drought Permits
- provide legal advice
- collate Regional drought information and produce briefing notes
- strategic reporting on drought issues, including provision of the required national Agency reports (e.g. HELP reports and SITREPS)

The structure of the Team and its relationship with the Area Teams is shown in Fig. 1.

**Fig. 1**  
**Regional Drought Management**  
**Team Structure**

Specific responsibilities are shown in the following table.

<b>Job title</b>	<b>Role</b>	<b>Responsibilities</b>
As selected from pool of Regional Base Controllers	Regional Base Controller	<ul style="list-style-type: none"> <li>- Manage the Agency's Regional drought actions</li> <li>- Chair meetings of the Team</li> <li>- Ensure sufficient Regional resources are available</li> <li>- Brief and consult Strategic Managers and other Tactical managers</li> <li>- Provide support and advice to members of the Regional Team</li> <li>- Review/ revise action plan as necessary</li> <li>- Co-ordinate decisions regarding Drought Order and Drought Permit applications</li> <li>- Ensure compliance with reporting requirements</li> <li>- Ensure strategic communications with stakeholders occur as required</li> </ul>
Principal Water Resources Planner	Water Resources Planning	<ul style="list-style-type: none"> <li>- Assess and agree water company Drought Contingency Plans</li> <li>- Monitor compliance with water company Plans</li> <li>- Liaise with water companies regarding Regional water supply situation</li> <li>- Advice on security of public water supply, need for Drought Orders/ Permits in consultation with Technical Specialist Hydrology</li> </ul>
Principal Officer, Strategic Environmental Planning	Strategic Water Resources Planning	<ul style="list-style-type: none"> <li>- Co-ordinate and produce briefing notes and SITREPS in consultation with Water Resource Planning and pan-Area teams</li> </ul>
Incident and Emergencies Planning Manager	Incident and Emergencies Planning	<ul style="list-style-type: none"> <li>- Advise on incident and emergency procedures relating to drought actions</li> </ul>
Principal Solicitor	Legal advice	<ul style="list-style-type: none"> <li>- Advise on legal matters relating to drought actions and proceedings, particularly Drought Orders and Drought Permits</li> </ul>
Principal Officer Communications	PR representative	<ul style="list-style-type: none"> <li>- Advise on PR matters, specifically on content and timing of press releases, drought-related literature, translation of national PR strategy to Regional and Area level</li> </ul>
As selected	Representatives of Area Drought	<ul style="list-style-type: none"> <li>- Co-ordination of Area drought actions and procedures</li> </ul>

	Management Teams	<ul style="list-style-type: none"> <li>- Consistency with Regional /National actions</li> <li>- Provide briefings on Area drought situation</li> <li>- Represent Area views on drought issues</li> <li>- Provide environmental information</li> </ul>
Technical Specialist - Hydrology	Hydrological expertise	<ul style="list-style-type: none"> <li>- Advice on drought severity, interpretation of data and forecasts (rainfall, SMD, river flows, demand), modelling of natural systems and public water supply system, risk analysis, drought severity, hydrological design of mitigation measures, need for Drought Orders/Permits. Early warning of incipient drought, criteria for de-escalation</li> </ul>
Senior Technical Specialist - Hydrogeology	Hydrogeological expertise	<ul style="list-style-type: none"> <li>- Advice on groundwater levels and aquifer storage, management, need for and benefit of Drought Orders/Permits.</li> </ul>

The names and contact details of current members of the Regional Drought Management Team are listed in section 10.1. A member of the Team will be given the responsibility of reviewing this list on a regular basis to take account of staff and management structure changes.

### 3.2.2. Area Drought Management Teams

The primary role of the Area Drought Management Team will be to manage a drought event at the operational level within the Area. It will be undertake the following tasks:

- ensure that all Agency functions within the Area work together effectively and consistently during a drought event.
- ensure the local actions set out in the Drought Plan are carried out
- take a lead role in undertaking all necessary Agency regulatory actions relating to Drought Orders, Drought Permits and spray irrigation restrictions, including-
- advise Secretary of State on Drought Orders
- determine applications for Drought Permits
- organise local public hearings as required for Drought Permit applications
- enforce Drought Order/Permit conditions
- represent Area views on the Regional Drought Management Team
- consult with external local groups and individuals on potential drought impacts and ways to minimise water use
- liaison with stakeholders on local issues
- liaison with UU on local drought management issues and requirements for extra monitoring
- carry out site inspections and deal with relevant queries
- organise Area monitoring and impact assessments
- collate Area drought information
- enforce licence conditions
- report on Area drought issues, including provision of the information required for national Agency reports (e.g. HELP reports and SITREPS)

Specific responsibilities of Area Team members are detailed in the Area Drought Management Plans.

The names and contact details of current members of the Area Management Team are listed in section 10.1. The details will be subject review by a member of each Area Team to take account of staff and management structure changes

### **3.3. Appointment of Consultants & Internal Back-up Staff**

During a drought it may be necessary to appoint consultants to enable the re-allocation of resources to meet the additional workloads associated with the water situation, whilst maintaining normal service continuity during and after the drought event.

The appointment procedure will be:

- the Regional and/or Area Drought Management Teams will recognise the need to appoint consultants to assist with peak workloads
- the Base Controller(s) will arrange for a paper to be submitted to the Regional Management Team detailing requirements, justification, implications and recommendations.
- consultants will be appointed in accordance with the National Framework Agreement for Engineering & Environmental Consultancy Services (NEECA).

### **3.4. Financial Resources and Cost Recovery**

It is anticipated that drought activities carried out during moderate and/or localised events will constitute normal workloads, although routine work will need to be given a lower priority. The actions undertaken as a drought develops will undoubtedly require additional resources to ensure normal service continuity. In such a case the Region will introduce a comprehensive system for monitoring costs and reporting on the management of such activities. This system will detail:

- staff costs, including time/overtime spent on drought work (NTRS codes will be designated)
- consultant costs to cover normal and additional workloads
- operational costs
- Cost of public hearings
- Setting up of finance codes

It is expected that UU will fund any additional environmental monitoring required as a consequence of Drought Orders/Permits applied for by them.

### **3.5. Training**

There are no specific training courses available directly relating to drought management. To a large extent, specific knowledge and skills can only be obtained through involvement in an actual drought event.

In order to benefit from previous drought experience, it would be particularly useful for potential members of drought teams and relevant staff to familiarise themselves with the 1998 edition of the Regional Drought Management Plan. This is largely based upon experience gained in the 1995/96 drought in the North West and contains useful practical advice.

Priority should be given for media training of key Area and Regional staff who could be called upon to give interviews, etc.

#### **4. Drought Monitoring**

During normal conditions, routine monitoring of the regional water situation is carried out by the pan-Area Hydrology Team as part of their normal duties. If potential drought conditions develop, information will be passed to the 3 Area Team Leaders Water Resources, the supra-Regional Water Resources Planning Manager and the Regional Strategic Environmental Planning Principal Officer. This group will evaluate conditions as they develop and advise base controllers when appropriate. It is then the responsibility of the base controllers to take this advice into consideration and, if necessary, to declare a drought.

Experience has shown that droughts in the North West usually develop as water supply droughts. Due to the integrated nature of much of the UU supply system and irrespective of the geographical pattern of the drought, the availability of water supplies to the whole of the Region will usually be of concern in the early stages. It is therefore anticipated that the Regional Drought Management Team will be convened on declaration of a Regional or any Area drought. Area teams will be convened as dictated by local circumstances.

At this stage, responsibility for management of the drought passes to the Regional and Area Drought Management Teams. This process is shown in Fig. 2.

**Fig. 2**  
**Drought monitoring and notification procedures**

##### **4.1. Drought Management Areas**

No specific drought management areas have been assigned within North West Region. As described above, water supply issues will be dealt with in a Regional context. The appropriate Area as will undertake local drought actions and when they arise - see Fig 3.

**Fig. 3**  
**Map of North West Region with Area boundaries**

##### **4.2. Drought Severity Levels**

Droughts usually follow a common pattern in that they arise from a shortage of rainfall and gradually progress through stages of increasing severity until such time as the rains return again. It is possible for droughts to last across several seasons, with little or no recovery over the normally wetter winter months. Droughts, like rainfall, vary in severity between localities over time, and impacts depend on local resilience in terms of the hydrological or environmental character of a catchment, or the integrity of the public water supply system.

There are no industry agreed definitions of drought severity in anything other than general terms, though attempts have been made to suggest mechanisms for classification into "moderate, serious and severe" levels on the basis of the scale of the accumulated rainfall deficit. The key issue for the Agency is the extent to which drought impacts will cause difficulty for the water environment, public water supply and other water resource users. Knowledge of what these difficulties are likely to be and what circumstances are likely to give cause them is essential.

Typical conditions that are likely to be experienced at the various drought stages are:

<b>Drought stage</b>	<b>Typical conditions</b>
<b>Normal conditions</b>	<ul style="list-style-type: none"> <li>- normal range of rainfall and soil moisture deficit</li> <li>- river flows and groundwater levels within their normal ranges</li> </ul>
<b>Potential drought</b>	<ul style="list-style-type: none"> <li>- rainfall below seasonal average</li> <li>- faster than normal reservoir drawdown</li> <li>- perhaps isolated ecological problems</li> <li>- hands-off levels for abstractions reached</li> <li>- drought simulation indicates risk to water supply</li> </ul>
<b>Drought declared</b>	<ul style="list-style-type: none"> <li>- drought simulation indicates significant risk to water supply</li> <li>- possible spray irrigation problems</li> <li>- low river flows (&lt;Q98widespread)</li> </ul>
<b>Established drought</b>	<ul style="list-style-type: none"> <li>- continuing serious risk to water supply.</li> <li>- widespread evidence of environmental stress</li> </ul>
<b>Severe drought</b>	<ul style="list-style-type: none"> <li>- likely need for Drought Orders/Permits</li> <li>- possible need for spray irrigation use restrictions</li> </ul>
<b>Post-drought recovery</b>	<ul style="list-style-type: none"> <li>- reservoirs start to refill</li> <li>- river flows return to normal seasonal levels</li> <li>- groundwater recovers (may be later)</li> </ul>

#### **4.3. Drought Indicators**

The decision to declare a drought initiates a range of time consuming management procedures. A premature declaration will result in wasted time and effort, too late and water supplies or the environment are jeopardised, as well as attracting adverse public comment.

No specific drought triggers relating to rainfall, river flows or groundwater levels have been set in North West Region. Experience of previous droughts has shown that the development of a drought can be monitored effectively by reference to the availability of reservoir storage for public water supply. The main tool used to identify the development of potential water supply is "Droughtwatch". This is a computer model, which uses current information on reservoir stocks and outputs together with scenarios of future inflows to assess the likelihood and location of supply shortfall and maximum safe outputs. It can also be used to monitor refill at the end of a drought. A typical output is shown in Fig. 4. The Hydrology Team runs Droughtwatch as part of their normal summer workload so the frequency can be increased if conditions appear to be worsening.

**Fig. 4**  
**Output from Droughtwatch**

A wide range of other indicators of potential drought includes:

- the accumulated rainfall deficit vs. accumulated long term averages for particular sites
- river flow vs. monthly long term averages, annual Q95 statistics and flows in recent droughts
- groundwater levels vs. monthly long term averages and levels in historic groundwater droughts
- reservoir levels vs. drought levels and control curves or similar criteria
- lake levels - drawdown compared with previous droughts
- public concern, increased media interest
- reports of problems with private water supplies

#### **4.4. Environmental Monitoring**

Environmental monitoring has the following objectives:

- to identify the general impact of drought as it intensifies and later recedes.
- to identify the impact or likely impact at sites affected by drought authorisations
- to assess the need for mitigation and measure the benefits
- to provide data for longer-term programmes e.g. setting of river flow objectives

A baseline monitoring programme has been set up to allow separate identification of drought impacts. This is more fully described in the Area manual. Additional short-term monitoring is carried out as specified in Area drought plans, particularly to assess the potential impact of drought restrictions. Increased surveillance may also be necessary to ensure regulatory compliance. It is possible that UU will be required to fund and/or carry out additional environmental monitoring as a consequence of Drought Orders/Permits applied for by them.

#### **4.5. Hydrometric Monitoring**

Additional hydrometric monitoring may be required:

- to assist with the determination and enforcement of Drought Order/ Permits
- enforcement of licence conditions

- to provide flow information in association with environmental monitoring
- to establish low flow information at ungauged sites

The Area Drought Plans contain further details of specific sites and requirements.

#### **4.6. Enforcement**

Enforcement of abstraction licences is a routine Agency activity, but it has increased importance during times of depleted water resources. During a drought the Agency will step up its enforcement activity to ensure licence conditions are adhered to and extra work may be involved in policing licence restrictions and Drought Order/ Permit conditions. Due to this extra workload, routine enforcement Operational Performance Measures (OPMs) may not be met.

Further details of drought specific enforcement arrangements are given in the Area Drought Plans.

#### **5. Drought Actions**

Every summer UU carry out a range of normal summer management activities to cut back sources in line with their operating control rules. In the initial stages of a potential drought these activities continue but may be intensified, and monitoring and reporting frequencies increase. If the situation deteriorates, both practical and management activity continues to build up until a drought is declared. The overall aim is to maintain essential water supplies whilst maximising environmental protection. It is equally important to plan for relaxation of drought measures. Drought may affect all or part of the region, with varying severity, and the response should be tailored accordingly.

The UU Drought Contingency Plan also sets out a phased sequence of actions to cover a progressively severe drought, both implementation and relaxation. The plan covers both regional strategic actions and site-specific operational actions, listed under the appropriate UU resource zone. It includes a list of potential Drought Order/Permit applications (see Appendix 1), with information on benefit to water supplies, impacts, environmental monitoring, mitigation measures, and consultation with affected parties. The list is a useful basis for planning Agency responses to Drought Order/Permit applications.

The Area Plans also give details of specific actions based upon the phased approach, covering:

- Drought Order/Permit sites
- mitigation measures
- monitoring
- operational changes to UU systems
- actions re spray irrigation to protect the environment

The table below sets out an overall framework for actions, based upon a staged approach to a developing drought. Once a potential drought has been identified, the framework should be used to identify detailed Regional and Area actions appropriate for the conditions at the time and to review those actions as the drought develops.

Drought stage	EA Regional/ pan-Area actions	EA Area actions	UU Drought Contingency Plan actions
Normal conditions	<ul style="list-style-type: none"> <li>- Routine monitoring, including Droughtwatch in drawdown and refill seasons</li> <li>- Preseason liaison with UU to be aware of abnormal circumstances eg planned outages</li> </ul>	<ul style="list-style-type: none"> <li>- Routine ecological monitoring</li> </ul>	<ul style="list-style-type: none"> <li>- Normal operations in line with control curves, i.e. including seasonal cutbacks, conjunctive use of sources to ensure reliability</li> </ul>
Potential drought	<ul style="list-style-type: none"> <li>- Indicate concerns to UU, more frequent liaison</li> <li>- Increased frequency of risk analysis</li> <li>- closer monitoring of abstractions</li> <li>- Review PR plan</li> <li>- review dissemination of drought information</li> <li>- request low flow gauging programme from Areas</li> </ul>	<ul style="list-style-type: none"> <li>- Inform Region of any concerns, specific analysis requirements</li> <li>- Consider initiating low flow surveys at &lt;Q95</li> <li>- Increased surveillance of licences with flow conditions</li> </ul>	<ul style="list-style-type: none"> <li>- increased seasonal cutbacks, rezoning of supplies, maximum utilisation of river and lake pumping in line with normal control curves, to conserve storage and maintain balanced reliability across resource zones</li> <li>- increased frequency of liaison with EA</li> <li>- start preparation of Drought Action Plan (based on Plan from previous droughts)</li> </ul>
Drought declared	<ul style="list-style-type: none"> <li>- Agree Drought Action Plan with UU, including triggers for further action, UU Drought Communications Plan.</li> <li>- Set up Drought Teams</li> <li>- Review and escalate monitoring, analysis and dissemination as necessary.</li> <li>- Review human and financial resources.</li> <li>- Initiate Agency PR plan including water-saving publicity</li> <li>- Prepare for Drought Orders and Permits</li> </ul>	<ul style="list-style-type: none"> <li>- Set up Drought Teams</li> <li>- review and escalate monitoring, analysis and dissemination as necessary</li> <li>- Increased consultation with external organisations</li> <li>- Review human and financial resources.</li> <li>- Increase monitoring of S57 agreements, possible restrictions</li> <li>- Initiate local PR plan</li> <li>- Prepare for Drought Orders/Permits</li> <li>- Increased local liaison with UU</li> </ul>	<ul style="list-style-type: none"> <li>- Commence Drought Contingency actions</li> <li>- Finalise detailed Drought Action Plan in full discussion with Agency.</li> </ul>
Established drought	<ul style="list-style-type: none"> <li>- Increased liaison with UU</li> <li>- ensure UU actions in line with Plan</li> <li>- Consider need and justification for drought Orders/Permits and prepare material, prepare for hearings</li> <li>- Agree environmental mitigation measures with UU</li> <li>- Continue PR activity.</li> <li>- Liaison with Areas to ensure</li> </ul>	<ul style="list-style-type: none"> <li>- As above, plus</li> <li>- Environmental mitigation measures as necessary (e.g. fish rescues)</li> </ul>	<ul style="list-style-type: none"> <li>- Intensified activities as per UU Drought Contingency Plan</li> <li>- Review need for special powers, application and implementation as necessary.</li> </ul>

Drought stage	EA Regional/ pan-Area actions	EA Area actions	UU Drought Contingency Plan actions
	hydrological support as appropriate for environmental needs		
<b>Severe drought</b>	<ul style="list-style-type: none"> <li>- As above plus support for Drought Hearings</li> <li>- Further escalation of activities as necessary</li> </ul>	<ul style="list-style-type: none"> <li>- As above plus support for Drought Hearings</li> <li>- Further escalation of activities as necessary</li> </ul>	<ul style="list-style-type: none"> <li>- Application and implementation of major Drought Orders</li> <li>- Further escalation of activities as necessary</li> </ul>
<b>Post-drought recovery</b>	<ul style="list-style-type: none"> <li>- Check agreed triggers for relaxation of drought special powers, act accordingly</li> <li>- Continue hydrological monitoring</li> <li>- Continue Droughtwatch as appropriate.</li> <li>- Review and document experiences</li> </ul>	<ul style="list-style-type: none"> <li>- Continue ecological monitoring</li> <li>- Liaise with Region over relaxation</li> <li>- Review and document drought experiences.</li> </ul>	<ul style="list-style-type: none"> <li>- Monitor situation</li> <li>- stand down measures in accordance with agreed triggers in consultation with EA</li> </ul>

## 6. Drought Orders / Permits

### 6.1. Legislation

The Agency's regulatory duties in relation to Drought Orders and Permits are specified in Chapter III (s.73-81) of the Water Resources Act 1991 (as amended by the Environment Acts 1991 and 1995). These provide for three mechanisms for dealing with drought situations: ordinary Drought Orders, Emergency Drought Orders and Drought Permits.

The pre-requisite for both Drought Orders and Permits is **an exceptional shortage of rain**, and further that the lack of rain means that a **serious deficiency of water supplies** exists or is threatened. They can authorise abstraction from specified sources and can modify or suspend any existing restrictions or obligations relating to the abstraction.

**Ordinary Drought Orders** can also be granted for **environmental reasons**, i.e. where the lack of rain poses a threat to **any flora or fauna which are dependent on affected inland waters**.

**Emergency Drought Orders** may be granted where the deficiency is likely to **impair the economic or social well-being** of persons in the affected area.

**Drought permits** are limited to authorising a water undertaker to take water from a source, or to modify/suspend restrictions or obligations to which that undertaker is subject relating to taking of water from a source.

Ordinary Drought Orders may go further than drought permits. They also deal with abstractions and discharges of water by other than other than water undertakers and with supply, filtration and treatment obligations. They can also allow water companies to prohibit or limit particular uses of water. They can authorise the carrying out of associated works.

Emergency Drought Orders go further still: the water undertaker has complete discretion on the uses of water that may be prohibited or limited and can be authorised to use stand-pipes and water tanks.

Ordinary and Emergency Drought Orders are granted by the **Secretary of State**. The Agency grants Drought Permits.

The Agency is the most likely applicant for environmental Drought Orders. A typical requirement would be to minimise adverse environmental impact by means of a reduction in compensation releases from a reservoir at risk from drying up, in the absence of a water company application. (In the 1995/96 drought the NRA were granted such an Order, which authorised reduction in compensation water releases from reservoirs at Macclesfield).

Full information and guidance on dealing with applications is given in the Agency Drought Manual and in Chapter 12 of the Licensing Manual.

## **6.2. Processing Applications**

The determination of applications to the Agency for Drought Permits and the co-ordination of responses to DEFRA on applications for Drought Orders will be carried out by the appropriate Area. In accordance with NFSOD, the Area Manager will approve and sign Drought Permits.

Full details of Area procedures, including consultation with the Regional Drought Management Team and local discussions with UU prior to applications being made, are provided in the Area Drought Management Plans.

Substantial experience was obtained in North West Region during the 1995/96 drought, which resulted in Drought Orders/Permits being granted for a total of 21 sources. Useful practical guidance based on this experience is contained in the **North West Regional Drought Management Manual – May 1998**, including:

- guidance on the interpretation of “exceptional shortage of rain”
- an account of the application and decision making process in practice, including the concept of “shared pain” between water company and environmental interests
- examples of standard letters/press releases
- practical advice on how to organise a drought hearing
- the outcome of selected applications.

### **6.2.1. Determining UU Drought Order/Permit applications**

In responding to Drought Order applications and determining applications for Drought Permits, the Agency has a duty under Section 15 of the Water Resources Act 1991 to have particular regard to the requirements of any water undertaker or sewerage undertaker, which may be affected. Thus, any of our actions must balance that duty with the needs of the environment (the water company also has environmental responsibilities).

Thus, the Agency:

- aims to balance the needs of the environment with the needs of public water supply and other water users
- expects the Water Company to undertake widespread and relevant publicity requesting wise use of water
- expects a company to demonstrate that real savings in demand for water resources have been made before considering support for a Drought Order/Permit application
- expects the Water Company to do all it can to avoid Drought Orders/Permits even if this means costly refurbishment of stood down sources, extra treatment or temporary connections
- requires mitigation measures to alleviate the environmental impacts of Drought Orders/Permits

During the 1995/6 drought, a trigger control curve relating drought measures to water company stock levels was agreed between the Agency and UU (see Fig.5). This proved invaluable in meetings with the company when agreement on drought actions/decisions was needed, particularly the acceptability of Drought Orders/Permits in relation hosepipe and non-essential use bans. By this means much heat was taken out of potentially confrontational situations. It was also used when the de-escalation of drought measures was considered.

**Fig. 5**  
**Group Trigger Curve – 1995**  
**example**

Although the precise curve may not necessarily be the same in future, this approach has been incorporated into the UU Plan. Because circumstances are different in each drought, and may vary considerably across the region, UU's normal operating plans are appropriate for a wide range of weather conditions. Equally, during a drought they have a wide range of options to manage and conserve water supplies. To give maximum benefit from this flexibility, the exact composition of the trigger curve for actions including hosepipe bans and major drought orders will be agreed with UU immediately on declaration of a drought. It would be expected to be similar to that shown in Figure 5. (UU has also agreed to declare drought conditions at the reasonable request of the Agency.)

In their 2003 Drought Contingency plan, UU state that they aim to minimise the number of Orders/Permits compared to previous droughts by focusing on options which provide maximum benefit to the affected resource zone whilst minimising environmental impact. The Plan contains a list of potential Drought Order and Drought Permit applications for specified sources throughout the Region, involving variation of abstraction licence conditions and reservoir compensation water requirements. These are shown in Appendix 1.

## **7. Spray irrigation restrictions**

The Agency has powers under the Water Resources Act 1991, Section 57 to impose temporary restrictions on the abstraction of water during a drought. Restrictions may be imposed "by reason of exceptional shortage of rain or other emergency". Abstraction from groundwater may only be restricted if the groundwater abstraction is likely to affect the flow,

level or volume of any inland waters. Where there is more than one abstractor from the source, the restrictions must be applied in an even-handed manner.

Cessation conditions exist on many existing spray irrigation licences, such that abstraction must stop when flows at a specified control point fall below a defined threshold. These conditions, with appropriate enforcement and the increasing use of winter storage reservoirs do limit the need for Section 57 restrictions. However, in 1995 it was necessary to impose partial restrictions on 74 licence holders in the Crossens area, near Southport in order to prevent damage to drainage channels due to peat shrinkage.

Full information and guidance on applying for Section 57 restrictions is provided in the Agency Drought Manual.

## **8. Reporting**

### **8.1. Water Situation Reports**

Under normal conditions a monthly Regional water situation report is circulated internally (and to Head office). The report provides an overview of the current water resources situation, summarising rainfall, river flows, groundwater levels, reservoir storage, soil moisture deficit and the weather forecast.

### **8.2. Drought reporting**

As a drought approaches and intensifies, the scope and range of information will be widened as appropriate to cover the geographic area of concern in more detail, and more often. It is essential that analysis and interpretation is sensitive to changing needs, and is appropriate for the target audience, i.e. a press report needs to be much simpler than a technical briefing.

#### **8.2.1. Regional reports**

Regional reports/analyses are likely to include:

- daily rainfall for key sites
- analysis of return periods, ranking of rainfall totals, for relevant periods of time (e.g. current drawdown period, current low flow period)
- reservoir storage levels
- risk analysis for public water supply at current outputs, for a range of inflow scenarios (output from Droughtwatch package)
- maximum outputs which ensure security of supply
- monitoring of key abstractions (Windermere, Ullswater, Wyre, Lune, Broughton, Ennerdale) in relation to licensed quantities and hands-off flows
- daily river flows for key sites
- recession analyses for fisheries protection
- groundwater levels and trends, level in relation to hands-off for T74
- temperatures
- soil moisture deficit
- public water supply demand and trends

- restrictions in force

During an established drought, the Region is required to report to Head Office on a weekly basis. The standard report for previous droughts included the following information:

- river flows
- groundwater levels
- reservoir levels
- spray irrigation licence restrictions
- hosepipe bans
- non-essential use bans
- company specific Operating Agreements
- Drought Orders relating to abstraction
- Drought Permits
- significant or unusual events related to the drought or low flows
- human and financial resources

Head Office will advise Regions when this weekly reporting needs to start and how long it should continue for.

### **8.2.2. Area Reports**

Area reports will include information on local drought management issues and site-specific information, for example:

- Drought Orders/Permits
- operational problems, e.g. restrictions on spray irrigation
- water quality problems, including algal blooms
- fish mortalities, rescues, problems with poachers
- ecological problems e.g. evidence of stress, drying wetlands
- navigational problems, issues relating to canals
- impact of drought on recreation

Full details of the scope of reports prepared by the Areas are given in the Area Drought Management Plans.

### **8.2.3. Post-Drought Reporting**

Following a return to more normal conditions, a debrief should take place involving all appropriate staff. By this means, issues and problems can be reviewed and recommendations made for revised procedures, corresponding amendments to the drought plans made, with a list of lessons learnt compiled.

A Regional drought review report should be prepared to provide a record of the event. It will summarise:

- hydrological conditions
- the extent and severity of the drought
- Drought Orders/Permits issued

- operational aspects
- ecological conditions and reports
- impact on the environment and users of water resources
- communications
- specific issues and problems encountered
- lessons learnt

Input to the report will be required by the Regional and Area Drought Management Teams and will be compiled into a single report by the Regional Team. It should normally be completed within 2 months of the end of the event.

## **9. Communications Plan & PR Strategy**

### **9.1. Introduction**

PR and communications are key elements in managing drought contingency planning in order to maintain confidence in the Agency and to encourage water users to minimise their use. The Agency's reputation management is vital, as is communicating the effectiveness of our drought actions in achieving the difficult balance between protection of the environment and meeting the demands of public water supply and other users of water resources. It is also important to maintain a distinct Agency profile and avoid public confusion with water company actions and policies.

This section sets out a strategy for managing communications, external relations and message management in the run-up to, during and after a drought.

### **9.2. External Communications Planning**

#### **9.2.1. Objectives**

In broad terms, the objectives of an external communications plan are to:

- protect the environment by minimising the use of water by all sections of the community
- protect and enhance the reputation of the Agency.

Protecting the environment:

This strand of the communications plan will focus on encouraging individuals, homeowners, industry, agriculture and business, to minimise their use of water. The benefits of taking action are to maintain security of supply and help the environment. Either or both of these messages may be appropriate.

Sustainable development requires the ongoing protection of the water environment whilst meeting the future needs for water resources. Existing umbrella communications about sustainability and social responsibility for sustainable use of resources will underpin all messaging. This will include work on Catchment Abstraction Management Strategies (CAMS).

Consideration will be given to the role and responsibility of the water companies to influence their customers and whether or not it is appropriate to follow a joint approach. It could be that

the Agency would be at odds with the water companies over some elements of drought management and abstraction.

**Protecting the Agency's reputation:**

Our communications need to focus on explaining and clarifying the role of the Agency and other organisations, especially the water companies and then managing public expectations. Issues of openness, consultation and public accountability will be a significant aspect of this work. The role of the Agency with respect to water resources is a key message and useful in explaining the issues the Agency faces during times of drought.

The Agency's role is to balance the needs of all water users, while protecting the environment. In a drought, this balance puts the Agency at risk, as some groups will place environmental protection as the main priority, while others will identify water availability for public, industrial and agricultural use as the main issue. The Agency needs to demonstrate that its actions ensure all existing abstractions are used effectively and that efforts are made to reduce demand before new or less restrictive use of resources is authorised.

### **9.2.2. Target Audiences**

Communications will need to be carefully targeted to meet the needs of different sectors within the public at large and, for some of those groups, specific, complementary information will need to be produced to meet their needs.

The communications plan will identify the actions that the Agency would like target groups and stakeholders to undertake. For example:

- general public – save water in the home, recycle household water for the garden
- business and trade associations – water minimisation techniques
- farmers – avoid/minimise spray irrigation, use winter storage if appropriate

For other audiences and stakeholders, communications will focus on providing information and demonstrating that the Agency is open and accountable. For example:

- MPs
- local authorities, regional government structures and elected members
- media
- DEFRA

### **9.2.3. Key Messages**

The plan should emphasise the need to include key messages that relate to the following aims:

- to explain the Agency's powers, responsibilities, and roles
- communicate clearly the positive steps taken in the North West since the 1995/96 drought to better manage drought situations
- emphasise the fine balancing act the Agency has to play between the needs of the environment and the needs of people, agriculture and industry
- emphasise that water is a precious resource and we all play a part in preserving it

- minimise the impact of any adverse or inaccurate publicity during a drought and provide accurate, timely information to the media at all times to ensure maximum positive coverage
- establish the Agency as open, credible, transparent and accessible
- explain technical issues clearly and concisely in jargon-free language
- handle any national positioning/issues management initiatives from Head Office
- break the connection between 'plentiful water' in recent floods and current drought.

#### **9.2.4. External communications methods**

The methods of communication will need to be tailored to deliver the chosen key messages to specific stakeholders. It is vital that all information is presented in a clear and simple way without patronising the audience.

The communications plan will consider methods that the Agency can undertake itself and those that can be done in partnership with others – this should include where the influence of others on a particular stakeholder group is more significant than the Agency's own influence e.g. NFU for farming community.

Typical activities could include:

- web pages on regional website
- literature
- display materials/public displays
- powerpoint presentations (generic – to be tailored to specific circumstances)
- external briefings/public meetings
- external liaison groups with particular target audiences
- community liaison groups
- partnership initiatives
- media briefings/press releases/features
- information roadshows.(mobile exhibitions)
- newsletters

#### **9.3. Developing and implementing the plan**

The Regional Drought Management Team will alert PR to the possibility of a drought and the need to begin preparing a communication plan as early as possible. Team meetings will be held regularly, with PR staff co-opted to join the group as needs are identified, to review the developing circumstances and amend the communications plan as appropriate. The Team will identify target audiences, stakeholders (e.g. local authorities, angling clubs with fishing rights, water companies, environmental pressure groups, affected industry, farmers with spray irrigation licences etc), and develop key messages and actions that the Agency wants audiences and stakeholders to receive/undertake.

PR will draw up a draft communications plan that will identify:

- roles and responsibilities for actions
- success criteria and necessary evaluation methods
- activities for monitoring delivery and success
- existing support materials and any further requirements (display panels etc)

- financial/budgetary requirements
- staff resources required
- staff for media interviews

General actions relating to PR and communications during a drought will be discussed and planned in the early stages of a developing drought. They will cover the following elements:

- key messages
- key audiences
- regional issues
- combined key messages with other organisations
- sensitive or problem areas and current action undertaken
- local and regional contacts for further information.

#### 9.4. Internal communications strategy

An important role of communications is to ensure that Agency staff are kept up to date on the developing drought situation and are aware of key messages and issues. A plan to achieve this should be developed in parallel with the external one. Communication methods will include:

- cascade brief
- e-mail of water situation/drought reports
- grassroots features and articles
- Regional/Area notice boards
- use briefing zone and easinet pages to communicate key messages/issues/ and areas of concern to staff
- e-mail to communicate existence of briefing packs
- presentations/literature/displays and any other resources
- briefing packs placed on the shared drive.

### 10. Contacts and Other Useful Information

#### 10.1. Internal Contacts

<b>Regional Drought Management Team</b>		
<b>Name</b>	<b>Post</b>	<b>Internal contact details</b>
	Regional Base Controller	
Hilary Smithers	Principal Water Resources Planner	7 21 2030
Mike Knowles	Principal Officer, Strategic Environmental Planning	7 21 2500
Steve Smith	Incident and Emergencies Planning Manager	7 21 2352
	Principal Solicitor	
Steve Broughton	Principal Officer Communications	7 21 2621
	North Area Drought Management Team representative	

	Central Area Drought Management Team representative	
	South Area Drought Management Team representative	
	Technical Specialist - Hydrology	
Keith Seymour	Senior Technical Specialist - Hydrogeology	7 21 2533

Area Drought Management Teams		
Name	Post	Internal contact details
<b>North</b>		
<b>Central</b>		
<b>South</b>		

## 10.2. External Contacts

Organisation	Name	Contact details
United Utilities Water plc	John Sanders/ Janet Makim	

## 11. References

### EA References

Drought Manual, Water Resources - Interim Issue, July 1997

Licensing Manual Chapter 12: Drought Orders and Drought Permits

Interim Review of Drought Management Experience in the North West Region of the National Rivers Authority. Lessons Learned (29<sup>th</sup> June 1995- March 31<sup>st</sup> 1996)

Drought Orders and Permits. Information from DETR, the Welsh Office and the Environment Agency – May 1998

Environment Agency . Review of Environment Agency Drought Plans (Halcrow)  
Final Report – November 2002  
Good Practice Examples – December 2002

North West Regional Drought Plan – May 1998

North West Region Environment Agency Drought Management Manual - June 2000.

North Area, Drought Contingency Plan – date?

Central Area, Drought Contingency Plan – date?

South Area, Drought Contingency Plan – date?

Non-financial Scheme of Delegation

North West Region Drought/Water Situation Reports (weekly and monthly)

Management System Document - Work Instruction on the Management of Major Incidents, Number 123-02, V.2, December 2002

### **Legislation**

Water Resources Act 1991

Environment Act 1991

Environment Act 1995

### **External References**

United Utilities Water plc. Drought Contingency Plan – revised March 2003

## Appendix 1

### United Utilities Water plc. Potential Drought Order and Drought Permit Applications (March 2003)

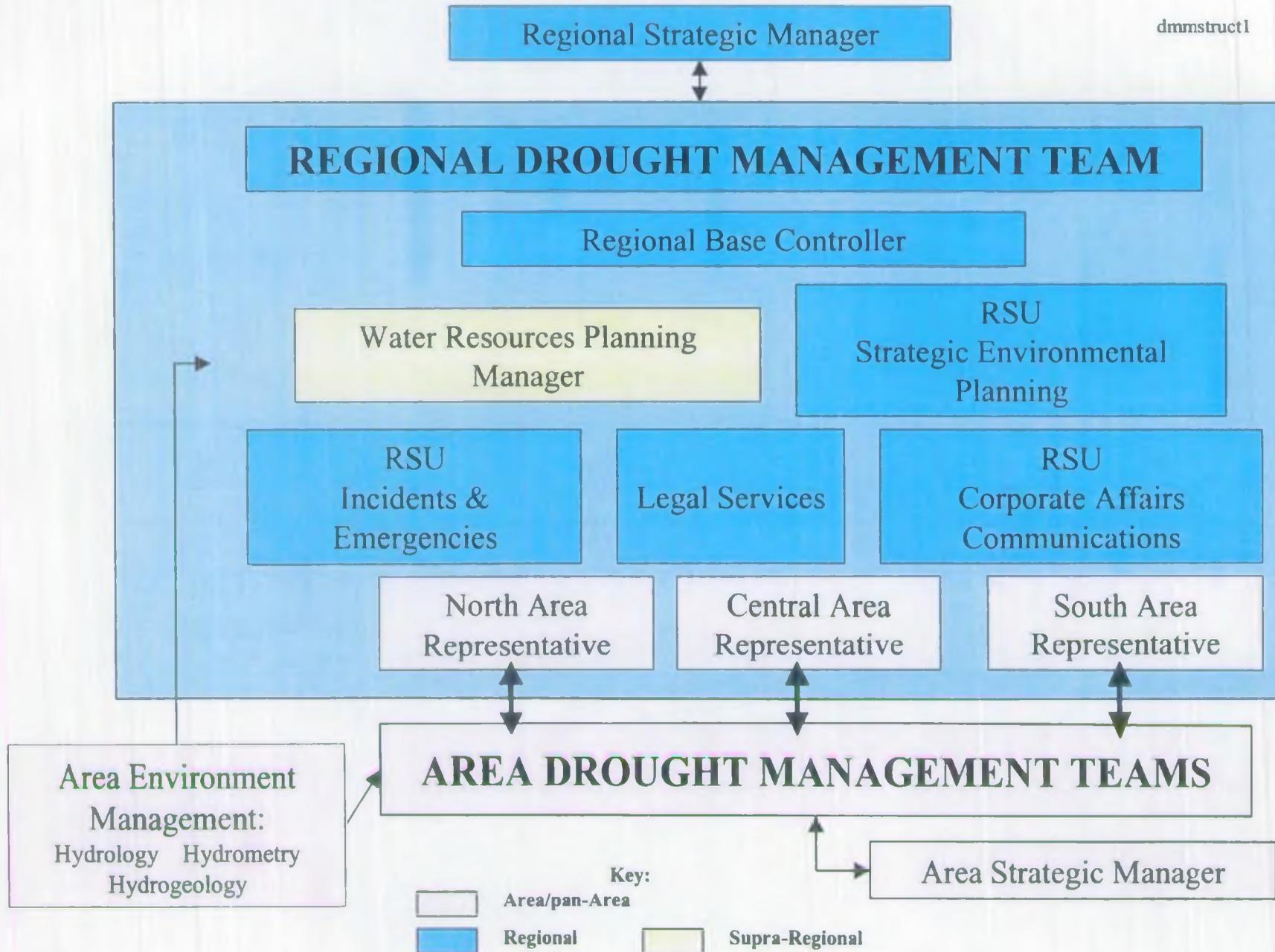
<b>Source</b>	<b>Integrated Zone Potential Drought Order or Drought Permit</b>
Longdendale	Reduce compensation from 45.6 to 22.5 or 15.0 MI/d
Rivington – White Coppice	Reduce compensation from 4.9 to 2.0 MI/d
Rivington – Brinscall Brook	Reduce compensation from 3.9 to 2.0 MI/d
Jumbles Reservoir	Reduce compensation from 20.0 to 12.0 or 6.0 MI/d
Delph Reservoir	Reduce compensation from 3.6 to 1.0 MI/d
Dovestone Reservoir	Reduce compensation from 15.9 to 10.0 or 5.0 MI/d
Vymwy Reservoir	Reduce compensation from 45.0 to 25.0 MI/d
Broughton A boreholes	Relax condition relating to T74 observation borehole
Windermere	Reduce hands-off flow conditions Permit draw-down of lake level by up to 0.76m Relax 12-month rolling abstraction licence limit
Ullswater	Reduce hands-off flow conditions Construct temporary outlet weir to raise lake level by up to 0.15m Relax 12-month rolling abstraction licence limit

<b>Source</b>	<b>West Cumbria Zone Potential Drought Permit or Drought Order</b>
Scales boreholes	Increase annual licence limit to enable continuation of a higher daily abstraction rate (up to licence limit of 6 MI/d)
Ennerdale Water	Reduce compensation flows and/or allow increased drawdown of lake level beyond the Ennerdale Operating Agreement limit
Crummock Water	Reduce compensation flows and/or allow increased daily abstraction beyond licence limit. Allow pumping of abstraction and compensation rather than by gravity and lowering of the lake level

<b>Source</b>	<b>Carlisle Zone Potential Drought Permit or Drought Order</b>
River Eden at Cumwhinton	Relax annual licence limit to enable continuation of the maximum daily abstraction rate (up to operational limit of 23 MI/d)*
River Eden at Cumwhinton	Allow increased daily abstraction (above licence limit of 27 MI/d – to max of 32 MI/d) and the installation of temporary abstraction and treatment facilities*

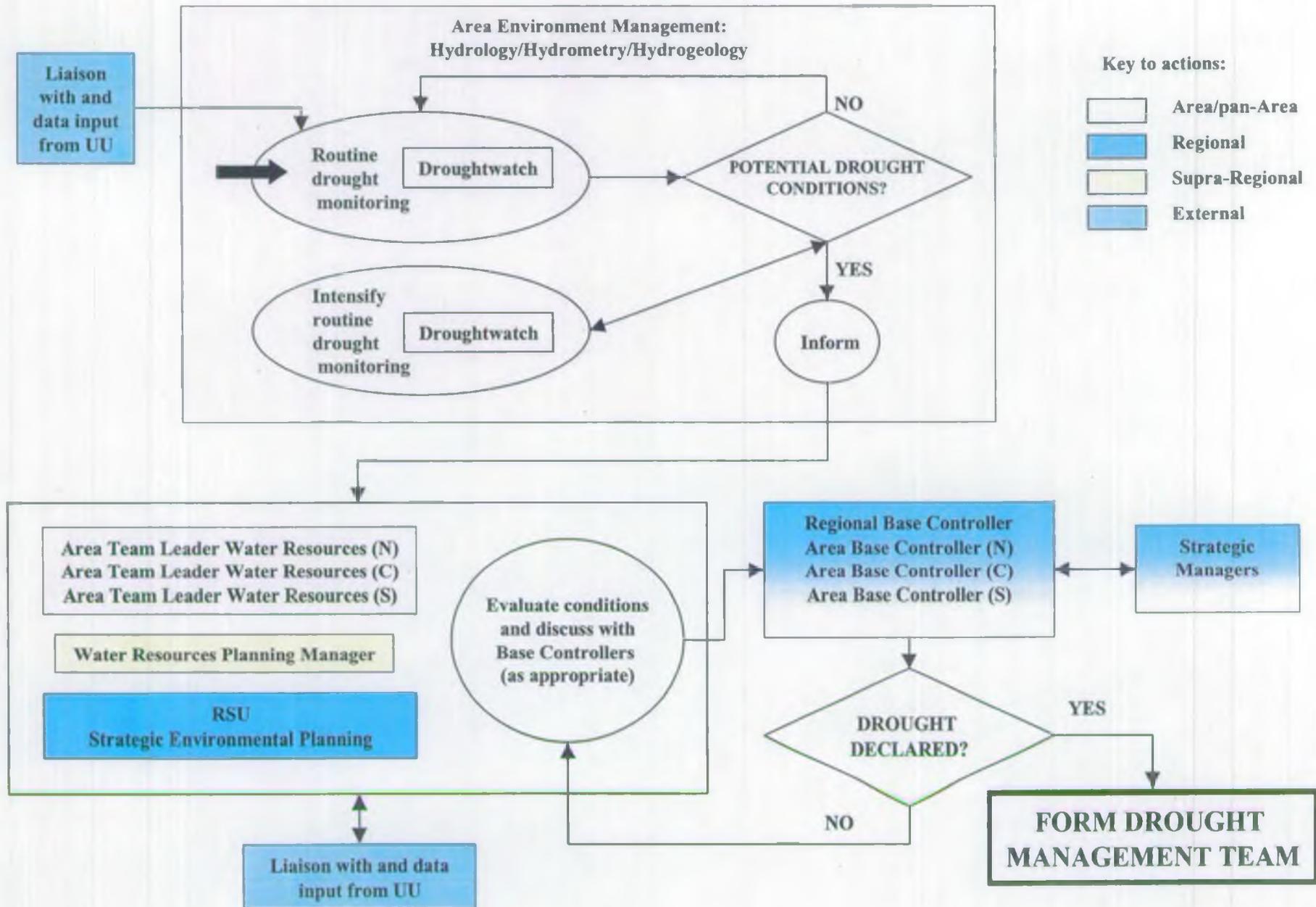
Source	Eden Zone Potential Drought Permit or Drought Order
<p>Specific groundwater sources where annual limit constrains abstraction:</p> <p>Beacon Edge borehole  Bowscar borehole  Dale Springs  Gamblesby borehole  Braesteads Springs</p>	<p>Increase annual licence limit to enable continuation of the maximum daily abstraction rate</p>
<p>Specific groundwater sources within the Eden resource zone – will depend on where supply deficiency problems arise</p>	<p>Increase daily licence limits to maintain essential supplies</p>

**Fig 1. Regional Drought Management Team Structure**



**Fig. 2. Drought Monitoring and Notification Procedures**

dmmstruct2





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