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WEATHER AND SEASONAL MANAGEMENT

1 **PURPOSE**

The purpose of this document is to outline the framework in which Network Rail Controllers manage weather events of floods, high winds, snow, high and low temperatures and respond to seasonal weather events by following the instructions contained in this instruction, 365 Weather Management Modules and Route Appendices.

2 **SCOPE**

The scope of this document is designed to provide seasonal instructions, including non-operation of track circuits, using Route specific instructions.

This document will also provide direction to mitigate the risks from seasonal management of flooding, high winds, snow and high temperatures using forecast arrangements, actual weather data, utilisation of the Extreme Weather Response Process and Structured Expert Judgements (SEJs).

3 **REFERENCE DOCUMENTATION**

NR/L3/OPS/043/F7.1A	Failure to Operate Track Circuits Standard Operating Report Form
NR/L3/OPS/043/F7.1B	Failure to Operate Track Circuits – Report Form for Subsequent Incidents
NR/L3/OPS/043/F7.1C	Winter Mitigation Request Form
NR/L2/OPS/021	Weather – Managing the Operational Risks
GE/RT8000	Rule Book – Module M3 Managing Incidents, Floods and Snow
GE/RT8000	Rule Book – Module TS11 – Failure Of, or Work On Signalling Equipment – Signallers' Regulations
GO/RT3208	Arrangements Concerning the Non-operation of Track Circuits During the Leaf Fall Contamination Period
Various	365 Weather Management Modules and Route Appendices



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4 DEFINITIONS

Forecast Data	See Forecast Process at Section 5.1 below.
Actual Data	This is data which is available via weather stations, personnel on the ground or other sources.
Structured Expert Judgement (SEJ)	A SEJ is an exercise carried out with appropriate industry members who are able to provide input to decision-making, using relevant actual data captured during extreme weather events to define network limits outside of those defined by existing thresholds.

5 GENERAL: WEATHER – FORECAST ARRANGEMENTS

5.1 Forecast Process

The contracted weather forecast provider supplies weather reports with a forecast for all weather areas (see Appendix A Map of Forecast Areas).

The forecasts shall be provided by 03:00 hours each day with a forecast for the current day plus a four-day forecast.

If forecasts are not received then the Network Rail Route Control Manager (RCM) shall contact the forecast provider.

On receipt of the forecast the Network Rail Route Control Manager shall:

- send out alert status;
- record alert status;
- liaise with the nominated senior manager if a conference is needed.

The RCM shall have a process to notify the colour alert status (see Table 1) to Train Operating Companies (TOCs) and Freight Operating Companies (FOCs), National Operations Centre (NOC) and other key stakeholders.

5.2 Weather Alert Status Table and Confidence

Weather Type	Alert Status
Normal	Green
Aware	Yellow
Adverse	Amber
Extreme	Red
Extreme weather event affecting two or more Routes	Double Red (to be used only by NOC Duty Controller)

Table 1: Weather Alert Status

The forecast provider shall provide a confidence level of the weather expected, ranging from high to low.

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5.3 Alert Status

When a colour alert has been issued other than green, arrangements shall be made by the Route to discuss the operational integrity and preparedness.

Every Route shall have a high-risk site register of weather susceptible locations, which might be of use.

When a yellow alert has been forecast within the four-day outlook, this might be reviewed with the forecast provider if felt necessary by the Route.

When an amber alert has been forecast within the four-day outlook, this shall be reviewed daily, or more frequently if felt necessary by the Route.

When a red alert has been forecast then this shall be reviewed daily.

Note: Hazards are expected to be present in extreme form or a combination of adverse weather conditions giving a high degree of risk to the operational integrity of the network.

5.4 Extreme Weather Affecting Two or More Routes (Double Red)

When two or more Routes activate the Extreme Weather Response process, the NOC shall notify the National Control Manager or nominated deputy and all other relevant personnel and co-ordinate responses across the affected parts of the network. The status of alert shall be referred to as Double Red.

On being notified by the NOC of a Double Red weather status, the RCMs of the Routes involved shall then reflect this revised status in their own reporting arrangements.

5.5 High-Risk Register

Route Controls shall have a list of high-risk areas and assets which are weather susceptible (see weather hazard identification in Appendix B) that can operationally affect the running of trains and help become a factor in deciding on an alert status. High-risk registers shall be compiled by each Route.

6 EXTREME WEATHER RESPONSE PROCESS

6.1 Process Overview

The extreme weather response process is a five stage process. These are:

Stage 1: Awareness

Stage 2: Preparation

Stage 3: Respond

Stage 4: Recovery

Stage 5: Review

In addition to this, there is also a Stage 0, which is the normal forecasting process outlined in Section 5, and is business as usual.

6.2 Stage 1: Awareness

When weather conditions which might warrant a red alert status are 4 – 5 days out on the 5 day forecast outlook, the RCM shall outline the potential of these conditions to key stakeholders.

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6.3 Stage 2: Preparation

6.3.1 General

When weather conditions which might warrant a red alert status are 3 days out on the 5 day forecast outlook or the RCM has assigned red alert status to weather conditions which are two days out, preparation activities shall begin. This shall include a Delivery Unit (DU) conference to allocate DU and Asset Management resources prior to the Extreme Weather Action Teleconference (EWAT). DU conferences are outlined in [NR/L2/OPS/021](#).

6.3.2 EWAT

The Current Operations Manager (COM) shall convene an EWAT.

The purpose of the EWAT is:

- to assess the impact of extreme weather on the infrastructure;
- to determine mitigation, monitoring and contingency plans;
- to communicate actions and decisions.

The EWAT will normally be led by the COM or RCM and attendees will include staff from Network Operations, Delivery Units, Asset Management, Operational Planning and Communications.

The TOCs / FOCs shall be invited on to the EWAT to share their mitigation plans.

The EWAT conference agenda shall include, but is not limited to:

- Confirmation of the forecast, affected locations and confidence in the forecast, which may be delivered by the weather forecast provider (Note: The forecast provider shall be given four hours notice of this).
- Declaration of the weather as extreme to allow Customer Account Teams to activate the force majeure procedure.
- Infrastructure risks and mitigation plans.
- Staff and equipment resource availability and deployment.
- Whether the Gold / Silver / Bronze Command structure shall be activated.
- Emergency timetable utilisation.
- Information provision to Network Rail and TOC managed stations.
- Confirmation of route-proving arrangements after the event.
- Summary of actions and decisions.

The actions shall be shared with participants of the EWAT conference and the NOC.

6.4 Stage 3: Respond

During an extreme weather event, Route Control staff shall:

- conduct further EWATs as appropriate;
- provide updates to TOCs, Managed Stations and Media teams to keep the travelling public informed;
- initiate the Service and Performance Recovery Conference.



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6.5 Stage 4: Recovery

The COM shall convene a Service and Performance Recovery Conference. This will normally be led by the COM or RCM.

The purpose of the conference is to:

- establish the priorities and timescales for recovery of the network;
- understand the TOCs / FOCs priorities and timescales for service recovery.

6.6 Stage 5: Review

A review conference shall be convened by the COM. This will normally be led by the COM or RCM.

The purpose of the review conference is to:

- review the preparation for and response to the weather event;
- identify and capture good practice;
- identify, capture and create improvement plans for bad practice.

An invitation to the review conference shall be extended to all parties involved in the EWAT. The agenda for the review shall include, but is not limited to:

- Forecast accuracy throughout the outlook period.
- Route Control preparation activities.
- DU preparation activities.
- Infrastructure performance and continued risks.
- Operator preparation, performance and continued risks.
- What worked well.
- What did not work and how could this be improved.

6.7 National EWAT

When Double Red Status is declared, the National Control Manager or nominated deputy shall decide whether a National EWAT is required to prepare for and manage the weather event. The National EWAT will be led by the NOC Duty Controller and shall involve all affected Routes and Operators.

7 IMPOSITION OF BLANKET EMERGENCY SPEED RESTRICTION

7.1 The actions to be considered are:

- reduction in line speeds to reduce the likelihood and / or consequence of a train striking obstructions blown onto the line;
- reduce the risk of damage to Overhead Line Electrification (OLE) and electric trains;
- mitigation of the effects of wind related incidents and their effects on staff and passengers;
- engineering work, especially where cranes are involved.

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7.2 Advice to Drivers / Signallers

Should the Route decide to impose a blanket speed restriction relevant details shall be published on the Late Notice Case at Traincrew Booking on Points. The time when this notice is published shall dictate whether further reactive advice to drivers and signallers is required.

Train drivers shall be specially advised of the imposition of emergency speed restrictions by methods described below:

- GSM-R.
- Stopping of Trains at Signals to advise of the action required.

RCMs shall make sure that signal boxes are advised if such restrictions are imposed.

Route Control, or the signaller, shall receive positive confirmation from drivers in the affected area that they have received and understood the message and Route Control shall note the time the blanket speed was introduced.

Any trains entering the blanket speed restriction area shall also be advised, stopping especially if necessary. Consideration shall be given to cross Route trains and Boundaries when imposing speed restrictions.

Where there is a conflict between different requirements, the most restrictive requirement shall be applied.

Speed restrictions are subject to any lower permanent or temporary speed restriction.

8 REMOVAL OF BLANKET EMERGENCY SPEED RESTRICTIONS

8.1 When a forecast indicating abatement from the conditions that forced the implementation of blanket emergency speed restrictions has been received, and is confirmed by an actual reading from monitoring equipment (where available), the conditions shall be monitored for one hour ('weather related incident-free' period) after which the Route representatives may decide to remove the blanket emergency speed restriction. Consideration shall be given to cross Route trains and Boundaries when removing speed restrictions.

During leaf fall season, the 'weather related incident-free' period shall be extended, as required, to allow for any effects of precipitation on embankments, weight of trees in full leaf, etc.

Withdrawal shall be carried out using:

- Removal notice at booking on points.
- GSM-R (where available).
- Advice at manned stations.

If all services on a given Route section have been suspended, then a resumption of services at the normal or reduced speed shall be dependent on line proving being carried out, and shall be subject to consultation and agreement using a SEJ.

During line proving the driver shall proceed at a safe speed.

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9 STRUCTURED EXPERT JUDGEMENT (SEJ)

9.1 A SEJ is an exercise carried out with appropriate industry members who are able to provide input to decision-making, using relevant actual data captured during extreme weather events to define network limits outside of those defined by existing thresholds.

When forming a SEJ individuals shall consider all available information, including but not limited to:

- local features to the area concerned i.e. lineside trees;
- daylight / darkness;
- wind speed and other weather conditions;
- OLE / DC lines;
- local environment i.e. flat moorland, mountainous area, embankments;
- consideration of reducing permissible line speed.

9.2 SEJs shall be reviewed when weather conditions change. Updated actual data shall be used to review arrangements. If a SEJ has been used, the individual shall record why this action was taken and its outcomes. The record shall be stored in the Network Rail Weather Service library.

10 FLOOD WARNINGS

10.1 The Environment Agency has in place a system whereby flood warnings are advised to Route Control via email, fax or telephone message.

On receipt of a flood warning the Route Control shall have procedures in place to communicate flood alerts, warnings and severe warnings to all relevant parties.

The Route shall maintain a list of national, regional and area offices of the relevant authorities.

10.2 Mitigation plans shall be in place that shall include any actions for safeguarding railway operations, including, but not limited to:

- procedures for implementation and subsequent removal of site monitoring;
- temporary or emergency speed restrictions and / or line closures.

The action plan shall also detail the circumstances which trigger the required actions.

The requirements of [GE/RT8000 Rule Book Module M3 – Managing Incidents, Floods and Snow](#) shall apply.