



Asiant Cefnffyrdd De Cymru
South Wales Trunk Road Agent



Yn gweithio ar ran
Elywodraeth Cymru
Working on behalf of the
Welsh Government

[REDACTED]
Traffic Management Advisor
Gwent Police
Police Headquarters
Croesyceiliog
CWMBRAN NP44 2XJ

Dear Sir

RE: A465 LLANGUA.

I refer to your letter dated 13 February 2014 regarding the fatal collision which occurred on the 10 February 2014 near Llangua and in particular the request for details in relation to winter maintenance treatment undertaken prior to the collision.

In response to your request I have outlined details as follows:

1. Date and times any road surface treatment may have been applied in relation to the surface conditions prior to the reported collision.

Presalting was instructed on Sunday 9 February 2014 commencing at 1700hrs at a spread rate of 20g/sqm. The record of instruction to Partnership Service Providers is attached with route highlighted in yellow.

2. What records are held to determine that these works took place together with the level of substance applied?

Following the instruction South East Partnership returned a Daily Operational Report on 11 February 2014 indicating treatment undertaken (attached with route highlighted in yellow).



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3. What carriageway surface temperature equipment is available to you near this collision site, and what records of temperature were given during the night prior to this collision?

SWTRA obtain a route based forecasting service provided by the Welsh Government's specialist 'all Wales' forecast provider, MeteoGroup, who consider a number of factors and use various sources of data to produce their weather forecast models.

This will include data from roadside weather sensors which record information such as road surface temperature and air temperature. One of these sensors is located on the A465 at Llangua.

A text based forecast for the 24 hours ahead is provided by 1300hrs each day and includes a colour coded graphical representation of the predicted road surface temperatures across the network, a tabulated route schedule that indicates those routes likely to require treatment including minimum road surface temperatures and worst hazard.

The forecast information provided on the 9 February 2014 indicated a minimum road surface temperature of +0.6 C on the A465.

4. What factors you would use to determine the works necessary on a highway to reduce the risks of ice forming on the carriageway?

Decisions in relation to presalting action requirements are based on forecast information provided by MeteoGroup and are made in accordance with the guidance contained within the decision guide and treatment matrices provided in the SWTRA Adverse Weather Plan (2013/14) in accordance with WCTRMM Part 5 Adverse Weather (02/07/12).

In consideration of the forecast provided on 9 February 2014 a decision was made to undertake presalting on the A465 at the time and rate of spread instructed in accordance with the decision guide and treatment matrices.

A copy of the Decision Matrix Guide and Treatment Matrix Guide is attached.

5. Are the surfaces determined by a risk assessment or other recognised advice?

The road surface material is considered within the WGTRMM Part 5 Adverse Weather (02/07/12) guidance in so far as porous or open textured asphalts are treated at a higher spread rate than other road surface types. Furthermore where there are known areas of water seepage onto the carriageway this is also treated at a higher spread rate. This location was not a known seepage area.

6. How does the substance used on the carriageway react with the surface conditions.

To prevent the formation of ice or frost or to melt existing snow, salt must first form a brine solution (dissolution). Therefore, after spreading the salt, there is a time lag before it becomes effective. The length of the time required is dependent upon a number of factors (e.g. the size of the salt grains, availability of moisture, humidity and vehicle traffic running on treated surfaces). Treatment times are considered to allow, where practicable, the required time for this dissolution to take place in order to increase the effectiveness of the treatment.

7. What visual evidence can be expected to be seen for persons viewing the carriageway surface?

Visual evidence is dependant on the rate of spread undertaken and the prevailing road conditions. During the time lag before the salt enters in to solution, the salt grains are subject to the effects of wind and traffic whereby evidence of salt may be more prevalent in the channels and non trafficked areas, such as lay-bys, rather than on the main carriageway running lanes where salt has formed a brine solution due partly to vehicle traffic on treated surfaces.

I trust that this information answers your enquiry however if you require further details please do not hesitate to contact me.

Yours faithfully



Head of South Wales Trunk Road Agent

Encs

**SOUTH WALES TRUNK ROAD AGENT
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NOTIFICATION OF PROPOSED TREATMENTS

For the 24 hour period started at 12:00 hrs on

Sunday 9th February 2014

Forecast

Scattered showers and bright spells this afternoon. The odd squally hail shower possible with sleet or wet snow falling above 350m. The showers will become isolated this evening as clear spells develop but then more widespread showers will spread in from the north-west after late evening, again wintry on high ground, reaching many places by 02-03h. RSTs below zero for a time, exact timing variable from place to place - low confidence especially on zero crossing times. Clearer later in the night. Occasional showers tomorrow morning, wintry on hills.

Minimum Air Temperature

-0.5 °C

Minimum RST

-1.5 °C

Winter Maintenance

Action Required: YES/NO

Yes

Proposed Treatment

| SWTRA Route No. | Route Description | Spread Rate (g/m ²) | Start Time | Service Provider |
|-----------------|-------------------------------|---------------------------------|---------------|------------------------------|
| WK01 | M4, SSC to J25 | No Action | n/a | South East Wales Partnership |
| WK02 | M48, A466, A48 | No Action | n/a | |
| MP01 | M4, J24 to J29, A48M | No Action | n/a | |
| RG01 | A40, A449 slip roads | No Action | n/a | |
| RG02 | A40, A449 | No Action | n/a | |
| LF01 | A4042 | No Action | n/a | |
| LF02 | A465, A40 | 20 | 17.00 | |
| LF03 | A465 | 20 | 17.00 & 04.00 | |
| LF04 | A465, A470 North of Cefn Coed | 20 | 17.00 & 04.00 | |
| CN01 | M4, J28 - J32, A4232 | No Action | n/a | |
| CN02 | M4, J32 to J34, A470 | No Action | n/a | |
| PB01 | A4080, A485, A470 | 20 | 18.00 & 04.00 | MTCBC |
| WN01 | A470 Tafis Well to Abarcynon | No Action | n/a | BCBC NPTCBC |
| PD01 | M4, J34 to J35 | No Action | n/a | |
| PD02 | M4, J35 to J37 | No Action | n/a | |
| YG01 | M4, J37 to J44, A48 | No Action | n/a | |
| YG02 | M4, J38 to J45, A48 | No Action | n/a | |
| YG03 | M4, J45 to J49 | No Action | n/a | |
| YG04 | A485 | 20 | 18.00 & 04.00 | |

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| Proposed Treatment | | | | | | |
|------------------------------|------------------|-------------------|---------------------------------|--------------------------------|------------------|--------|
| SWTRA Route No. | County Route No. | Route Description | Spread Rate (g/m ²) | Start Time | Service Provider | |
| NG01 | East 1 | A483 | No Action | n/a | Carms | |
| NG02 | East 6 | A48, A483 | No Action | n/a | | |
| NG03 | East 2 | A40 | 20 | 03.00 | | |
| LY01 | East 3 | A40 | 20 | 03.00 | | |
| LY02 | East 4 | A40, A483 | 20 | 03.00 | | |
| CL01 | West 1 | A40, A477 | 20 | 04.00 | | |
| CL02 | West 2 | A40 | 20 | 04.00 | | |
| CL03 | West 4 | A40 slip roads | 20 | 04.00 | | |
| CL04 | West 5 | A48 | 20 | 04.00 | | |
| LL01 | Llanfyrnach 1 | A487 | 20 | 03.00 | | Penrbs |
| LL02 | Llanfyrnach 2 | A40 | 20 | 03.00 | | |
| LL03 | Llanfyrnach 3 | A487 | 20 | 03.00 | | |
| TND1 | Templeton 1 | A477 | 20 | 03.00 | | |
| TND2 | Templeton 2 | A477 | 20 | 03.00 | | |
| TND3 | Templeton 3 | A477 | 20 | 03.00 | | |
| WY01 | Withybush 2 | A40 | 20 | 03.00 | | |
| WY02 | Withybush 3 | A4076 | 20 | 03.00 | | |
| WY03 | Withybush 4 | A4076 | 20 | 03.00 | | |
| WY04 | Withybush 5 | A40 | 20 | 03.00 | | |
| South West Wales Partnership | | | | | | |
| Delay treatment if raining | | | | | | |
| Actioned by: | | [Redacted] | | Verified by: [Redacted] | | |
| Date & Time: | | 09/02/14 at 13.15 | | Date & Time: 09/02/14 at 13.15 | | |

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To: South Wales Traffic Management Centre (SWTRA)
Fax. 01792 325905
E-mail : w.maintenance@southwales-tra.gov.uk

DAILY OPERATIONAL REPORT for SWTRA
Actions undertaken by

| Instruction issued (Time/Date) | | | | SUNDAY 9 TH FEBRUARY 2014 | | |
|--------------------------------|---------------------------------|----------|-------------|--------------------------------------|----------------|----------|
| Route No | Actual Treatment | | | Vehicle ID | Name of driver | Comments |
| | Spread Rate (g/m ²) | Time out | Time return | | | |
| WK01 | | | | X601 CTX | | |
| WK02 | | | | X602 CTX | | |
| MP01 | | | | CN51 FBA | | |
| LF01 | | | | CN57 HGU | | |
| LF02 | 20 | 17:00 | 18:30 | CN61 DDL | ██████████ | |
| LF03 | 20 | 17:00 | 18:15 | YJ60 BXH | ██████████ | |
| | 20 | 04:00 | 05:15 | YJ60 BXH | ██████████ | |
| LF04 | 20 | 16:45 | 18:30 | CN61 DDK | ██████████ | |
| | 20 | 03:45 | 05:30 | CN61 DDK | ██████████ | |
| RG01 | | | | CN61 DDU | | |
| RG02 | | | | CN57 HGX | | |
| CN01 | | | | | | |
| CN02 | | | | | | |

Additional Comments, problems encountered, plant defects

Please note that these salting records are for a 24hr period from 12:00pm on the date of action.

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Certified by:



Date:

11/2/14



Decision Matrix Guide

| Predicted Road Conditions | | | | |
|-----------------------------|--|---|--------------------------------|--|
| Road Surface Temperature | Precipitation etc. | Wet | Wet Patches | Dry |
| May fall below +1°C | No rain No hoar frost No fog | Salt before frost | Salt before frost (See note A) | No action likely, monitor weather (See note A) |
| | Expected hoar frost Expected fog | | | |
| Expected to fall below +1°C | Expected rain BEFORE freezing | Salt after rain stops | | |
| | Expected rain DURING freezing | Salt before frost and after rain stops (See note C) | | |
| | Possible rain Possible hoar frost Possible fog | Salt before frost | Monitor weather conditions | |
| Expected snow | | Salt before snow fall | | |
| Freezing rain | Before rain | Salt before rainfall (See note C) | | |
| | During rain | Salt during rainfall (See note C) | | |
| | After rain | Salt after rainfall (See note C) | | |

- A Particular attention should be given to any possibility of water running across carriageways and such locations should be monitored and treated as required.
- B When a weather warning contains reference to expected hoar frost considerable deposits of frost are likely to occur and close monitoring will be required. Particular attention should be given to the timing of precautionary treatments due to the possibility that salt deposited on a dry road may be dispersed before it can become effective.
- C Under these circumstances rain will freeze on contact with running surfaces and full pre-treatment should be provided even on dry roads. This is a most serious condition and should be monitored closely and continuously throughout the danger period.



Treatment Matrix Guide

(in accordance with WGTMM 2012 Part:5.8 Application of Salt)

| Treatment Matrix (2012-2013) | | | | | |
|---|------------|------------------------------------|--|--|-----------|
| Weather Conditions Road Surface Conditions Road Surface Temperature(RST) | Air Temp | Treatment | | | |
| | | Dry Salting (g/m ²) | Pre-Wetted Salting (g/m ²) (see Note 1) | Pre-Coated Salting (g/m ²) | Ploughing |
| (MARGINAL CONDITIONS) Frost or forecast frost, RST at or above -2°C and dry or damp road conditions. (Porous / open textured surfacing, see Note 4). | | 10 (12) | 10 (12) | 10 (10) | No |
| Frost or forecast frost, RST at or above -2°C and wet road conditions (see Note 3 if wet and lightly trafficked). (Porous / open textured surfacing, see Note 4). | | 10 (15) | 12 See Note 2 Below (15) | 10 (12) | No |
| Frost or forecast frost, RST below -2°C and above -5°C and dry or damp road conditions (see Note 3 if damp and lightly trafficked). (Porous / open textured surfacing, see Note 4). | | 15 (20) | 15 (20) | 10 (15) | No |
| Frost or forecast frost, RST below -2°C and above -5°C and wet road conditions (see Note 3 if lightly trafficked). (Porous / open textured surfacing, see Note 4). | | 20 (25) | 20 See Note 2 Below (25) | 15 (20) | No |
| Frost or forecast frost, RST at or below -5°C and above -10°C and dry or damp road conditions (see Note 3 if damp and lightly trafficked). (Porous / open textured surfacing, see Note 4). | | 20 (25) | 20 (25) | 15 (20) | No |
| Frost or forecast frost, RST at or below -5°C and above -10°C and wet road conditions (existing or anticipated) (see Note 3 if lightly trafficked). (Porous / open textured surfacing or particularly low temperatures at lower end of temperature band, see Note 4). | | 2 x 15 (2 x 20) | 2x15 See Note 2 Below (2x20) | 25 (2x15) | No |
| Light snow forecast (<10mm). | | 10-20 | 10-20 See Note 2 Below | 10-15 | No |
| Medium/heavy snow or freezing rain forecast. | | 2 x 20 | See Note 2 Below | 2 x 15 | No |
| Freezing rain falling. | | 20 (successive) | See Note 2 Below | 15 (successive) | No |
| After freezing rain. | | 20 (successive as required) | See Note 2 Below | 15 | No |
| Ice formed (minor accumulations). | above -5°C | 20 | See Note 2 Below | 15 | No |



| | | | | | |
|--|------------------|--------------------------------------|--|---|------------------|
| Ice formed. | at or below -5°C | 2 x 20 | See Note 2 Below | 2 x 15 | No |
| Treatment Matrix (2012-2013) (continued) | | | | | |
| Weather Conditions Road Surface Conditions Road Surface Temperature(RST) | Air Temp | Treatment | | | |
| | | Dry Salting (g/m²) | Pre-Wetted Salting (g/m²) (see Note 1) | Pre-Coated Salting (g/m²) | Ploughing |
| Snow covering exceeding 30mm. | | 10-20 (successive) | See Note 2 Below | 10-15 (successive) | Yes |
| Hard packed snow/ice. | above -8°C | 20 (successive) | See Note 2 Below | 15 (successive) | No |
| Hard packed snow/ice. | at or below -8°C | Salt/abrasive (successive) | See Note 2 Below | Salt/abrasive (successive) | No |
| <p><i>Rates of spread for precautionary treatments may be adjusted to take account of residual salt or surface moisture. Refer to more detailed Advice and Guidance Notes.</i></p> <p><i>If the indicated spread rate can not be accurately applied due to limitations of the equipment or calibration difficulties, the next higher spread rate should be used. (For example; when indicated 12g/m² use 15g/m².)</i></p> <p><i>Equipment shall be calibrated and adjusted to ensure that the required spread rates throughout the salting route (with varying loads) does not fall below the minimum rate specified, this is particularly important for the lower spread rates indicated.</i></p> <p><i>Where double treatment is necessary the initial first treatment shall be at the highest spread rate possible within the limitations of the spreader for the route length. For example 2x15g/m² applied as 1x20 g/m² + 1x10 g/m².</i></p> | | | | | |

Notes

| | |
|----|---|
| 1) | Spread rates for pre-wetted salt is the combined weight of dry rock salt and brine combined at 70:30 proportion by weight respectively. Please see Guidance / Advice regarding the addition of Agricultural by Products (ABP's) within the brine (10% by volume maximum) or use of pre-coated salt (3% by weight of salt). |
| 2) | When ice has formed or snow is lying, dry or pre-coated salting is the preferred treatment unless the road is closed to traffic when pre-wetted salting may be used. Pre-wetted and pre-coated salting is a more effective treatment in advance of such conditions. Pre-coated and dry salting should be undertaken when roads are wet from recent or anticipated precipitation. |
| 3) | Treatments should be carried out, whenever possible, after traffic has dispersed standing water. Successive normal or half rate treatments (for pre-wetted, pre-coated and dry salt) may be considered, based on operational experience for highly trafficked roads at the lower end of the temperature bands indicated and climatic variations experienced. |
| 4) | Where a surfacing is of an open texture and /or porous or surface water is evident the higher spread rate (indicated in brackets) should be used. Where temperatures may reach the lower end of the temperature bands, light traffic or a more cautious approach to treatment is required based on operational experience, local knowledge, the higher spread rate (indicated in brackets) may be used. |