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15 September 2017

Mark Nolan
Manager Project Approvals HVO MTW
Yancoal Australia Ltd
Via email: mark.nolan2@coalandallied.com.au

RE: Further Response to EPA Review of Submissions for HVO South Modification 5

Dear Mark,
The following outlines additional information and clarification to address the further request for information from New South Wales (NSW) Environment Protection Authority (EPA) relating to the Response to Submissions prepared for the Air Quality and Greenhouse Gas Assessment (AQA) for the Hunter Valley Operations South (HVO South) Modification 5 (**Todoroski Air Sciences, 2017**).

Generally, the EPA is satisfied that the responses provided address the matters raised (Issues 1 to 6), however further information is requested in regard to demonstrating the efficacy of mitigation measures (EPA Issue 7, and related EPA Issue 8).

Each comment seeking additional information or clarification is shown in grey italics, and is followed by a response to the comment.

EPA Issue 7 - Assessment of the efficacy of proposed mitigation measures

> The RTS has stated the intended approach to mitigating the assessed additional exceedences of 24-hour impact assessment criteria. There is no analysis indicating the effectiveness of the planning and reactive management systems. In particular, there is no direct estimate of the ability of the system to mitigate the assessed additional exceedence days.
>
> Section 7.7 of the Approved Methods Modelling requires that where impact assessment criteria are exceeded, additional mitigation measures must be assessed until compliance is achieved. To meet this requirement, evidence needs to be provided that the proposed management actions remove the additional exceedences of impact assessment criteria.

- *The EPA requires assessment showing that the proposed reactive management successfully identifies the additional exceedences and reduces emissions sufficiently that the exceedences do not occur.*

As outlined in Table 6-2 of the AQA, the results of the contemporaneous assessment indicate potential for cumulative 24-hour average PM_{10} impacts to occur at the assessed locations without the use of reactive or predictive management systems to control short term dust levels.

The assessment indicated that there may be a few days on which the cumulative dust levels may exceed the criteria (without reactive/ predictive controls). The results however also indicate that on the days the exceedances occur, the unmitigated contribution from the project is significant, giving significant operational scope to reduce and eliminate the impacts by ceasing some or all activity upwind of the receptor, or adding additional watering etc. as may best suit the actual situation that may arise.

To evaluate the effectiveness of the implementation of such reactive or predictive management systems at HVO South, the dispersion modelling was re-run to consider the effects of applying reactive control measures that would temporarily pause activities in the pit and overburden areas during periods of elevated dust.

Only the activities that can be controlled in the pit and overburden areas were ceased in the model, and dust from all other sources such as wind erosion remained as a source of dust in the modelling, representing the implementation of mitigation measures.

The effectiveness of this measure is demonstrated in the times series plots in **Figure 1** and **Figure 2** for assessment locations 126 and 309 during Stage 2 and in **Figure 3** to **Figure 5** for assessment locations 126, 160 and 309 during Stage 3.

The results in these figures indicate that with the implementation of mitigation measures, the predicted exceedances of the 24-hour average PM_{10} air quality criteria could be averted at these locations. The indications are that use of reactive/ predictive controls would not lead to any additional day above the criteria in this case, demonstrating that the proposed system does have the ability to mitigate these potential exceedances.

However, it also needs to be noted that in some instances it may not be possible for this project (or any typical dust generating development) to reasonably prevent an exceedance of the cumulative 24 hour average PM_{10} criterion of 50µg/m^3. An example relevant to a working mine or quarry might be when the background dust level is a little below 50µg/m^3, and emissions from only site wind erosion add a few µg/m^3 of dust to the air leading to an exceedance. This would still occur irrespective of the controls, management systems or if the site is actively operating or not. Whilst such small contributions can potentially cause an exceedance, they do not cause any tangible level of harm, or unacceptable impact.

To practically deal with exactly this sort of situation, the Approved Methods also sets out in Section 11 that:

"Where additional exceedances might be predicted to occur at a receptor, the applicant should either:

1. *Review site selection and or apply more effective mitigation measures or emissions controls that reduce emissions to a greater extent, and revise the impact assessment, or*
2. *If emissions and impacts have been reduced as far as they can, consider whether there are opportunities to mitigate impacts through other measures such as negotiated agreements and/or acquisition of sensitive receptors."*

The first part of these requirements is consistent with Section 7 of the Approved Methods, and provided that emissions and impacts have reasonably been reduced as far as they can, the practical aspects of the second part equally apply.

In this regard, the DEP&E provides specific mitigation and acquisition criteria. The DP&E criteria define the level of exceedance (above the EPA criteria) that is acceptable with mitigation, or is not acceptable unless acquisition rights are afforded to the affected receptor.

It is thus noteworthy that even without the reactive/ predictive controls operating, the assessment results indicate that no unacceptable levels of impact per the DP&E criteria would occur at any privately owned receptors that are not afforded acquisition rights.

EPA Issue 8 - Assessment of the efficacy of additional mitigation measures (if necessary)

Note: This issue is closely linked to issue 7 above. As set out in section 7.7 of the Approved Methods, additional mitigation measures are needed where assessment shows impact assessment criteria will not be met. This issue is to demonstrate that the additional measures chosen (if necessary) achieve the desired environmental performance.

It is clear that the real-time air quality management system is used. The performance of the system has not been shown. As set out above, to meet the requirements set out in section 7.7 of the Approved Methods Modelling, assessment is needed showing that operation of the reactive management system removes the additional exceedence days occurring without it.

... to meet the requirements set out in Section 7.7 of the Approved Methods Modelling, assessment is needed showing that operation of the reactive management system removes the additional exceedence days occurring without it.

As outlined at EPA Issue 7, the assessment shows that the application of the reactive/ predictive controls would prevent any additional impact occurring, (noting that no typical dust generating development can strictly meet the criterion at all times in every instance, such as when the prevailing background levels approach the criterion value).

Please feel free to contact us if you need to discuss (or require clarification on) any aspect of this report.

Yours faithfully,

Todoroski Air Sciences

Aleks Todoroski

Philip Henschke

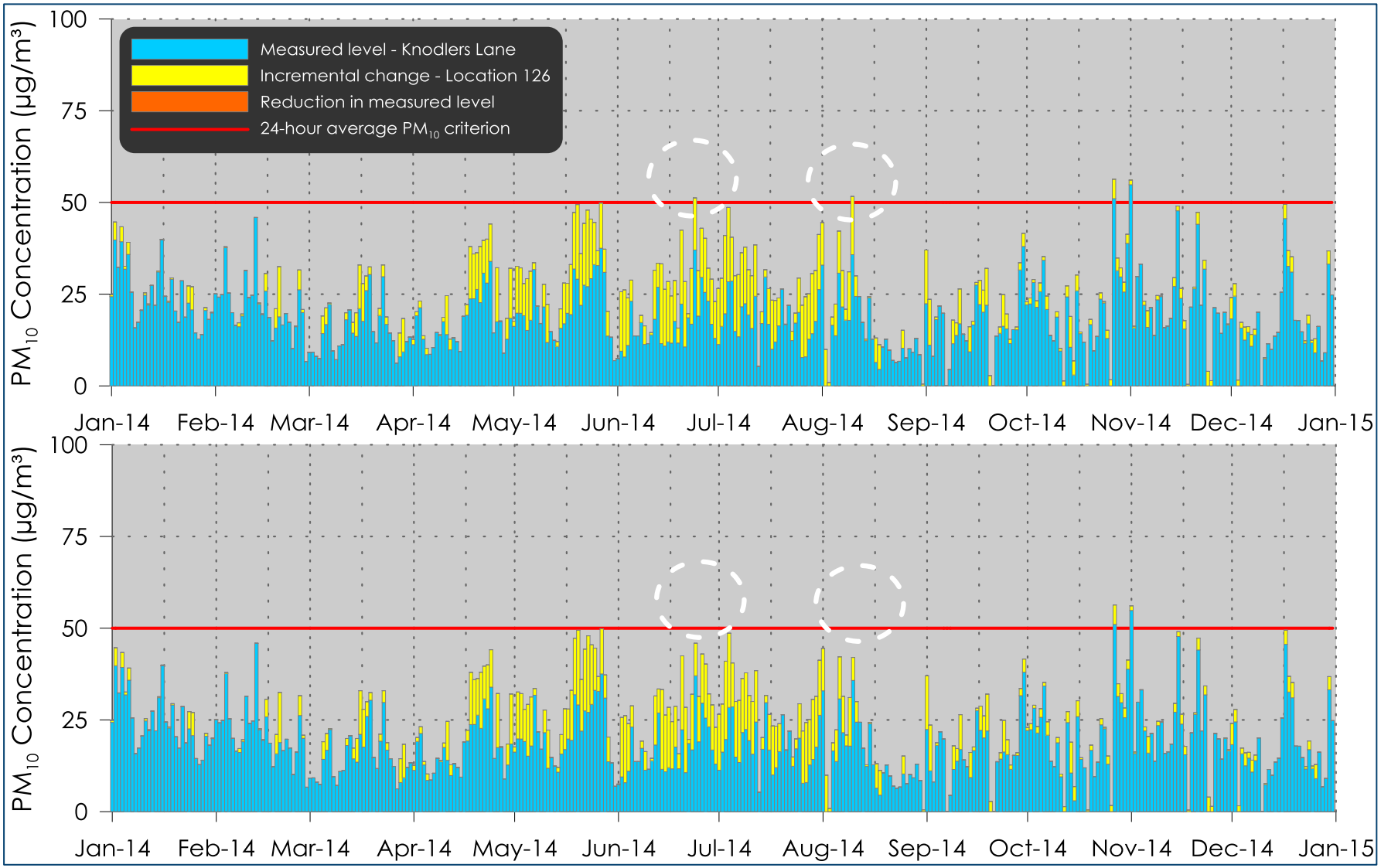

Figure 1: Times series plots comparing predicted 24-hour average PM10 impacts at Assessment Location 126 without (above) and with (below) reactive measures during Stage 2

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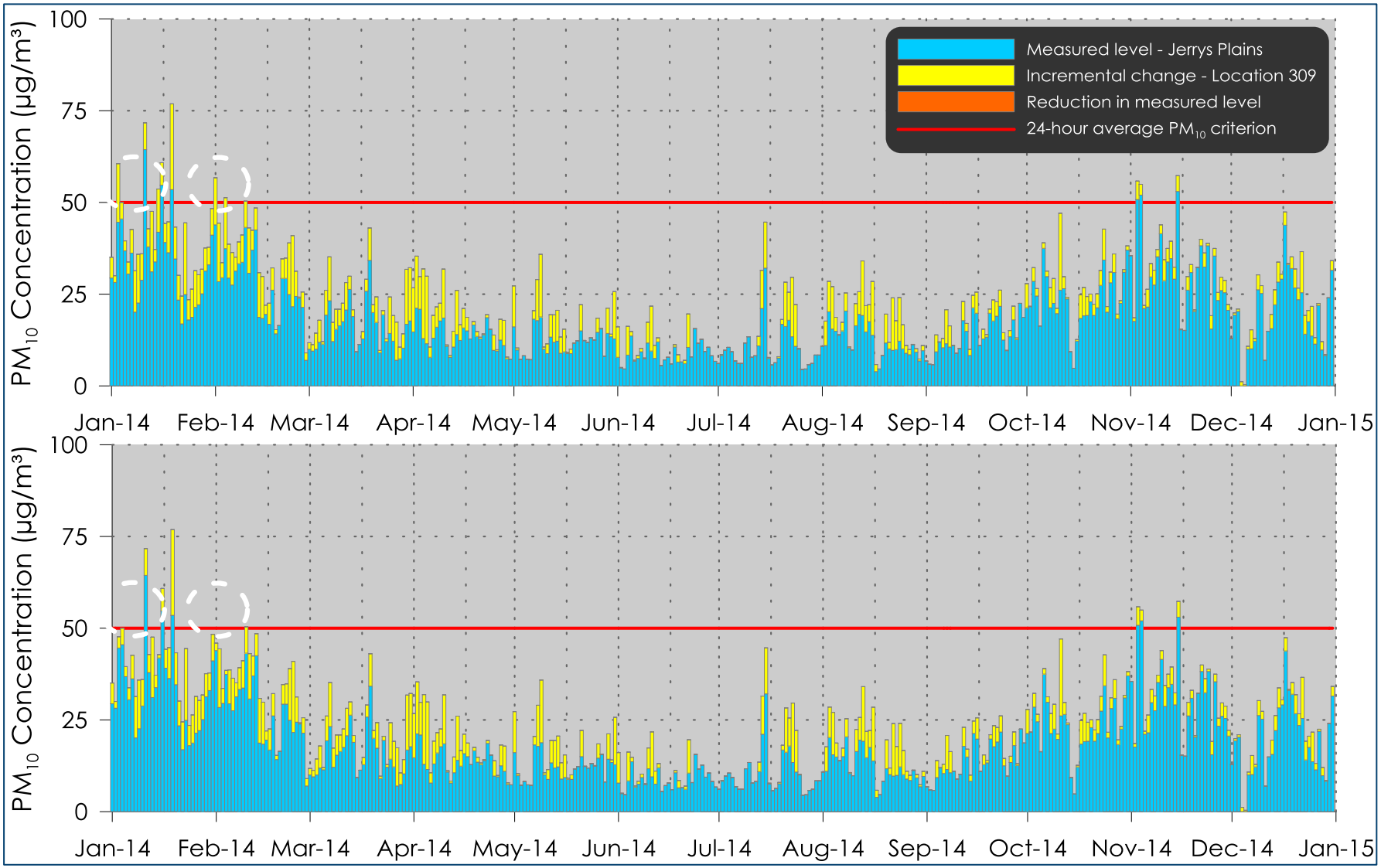

Figure 2: Times series plots comparing predicted 24-hour average PM10 impacts at Assessment Location 309 without (above) and with (below) reactive measures during Stage 2

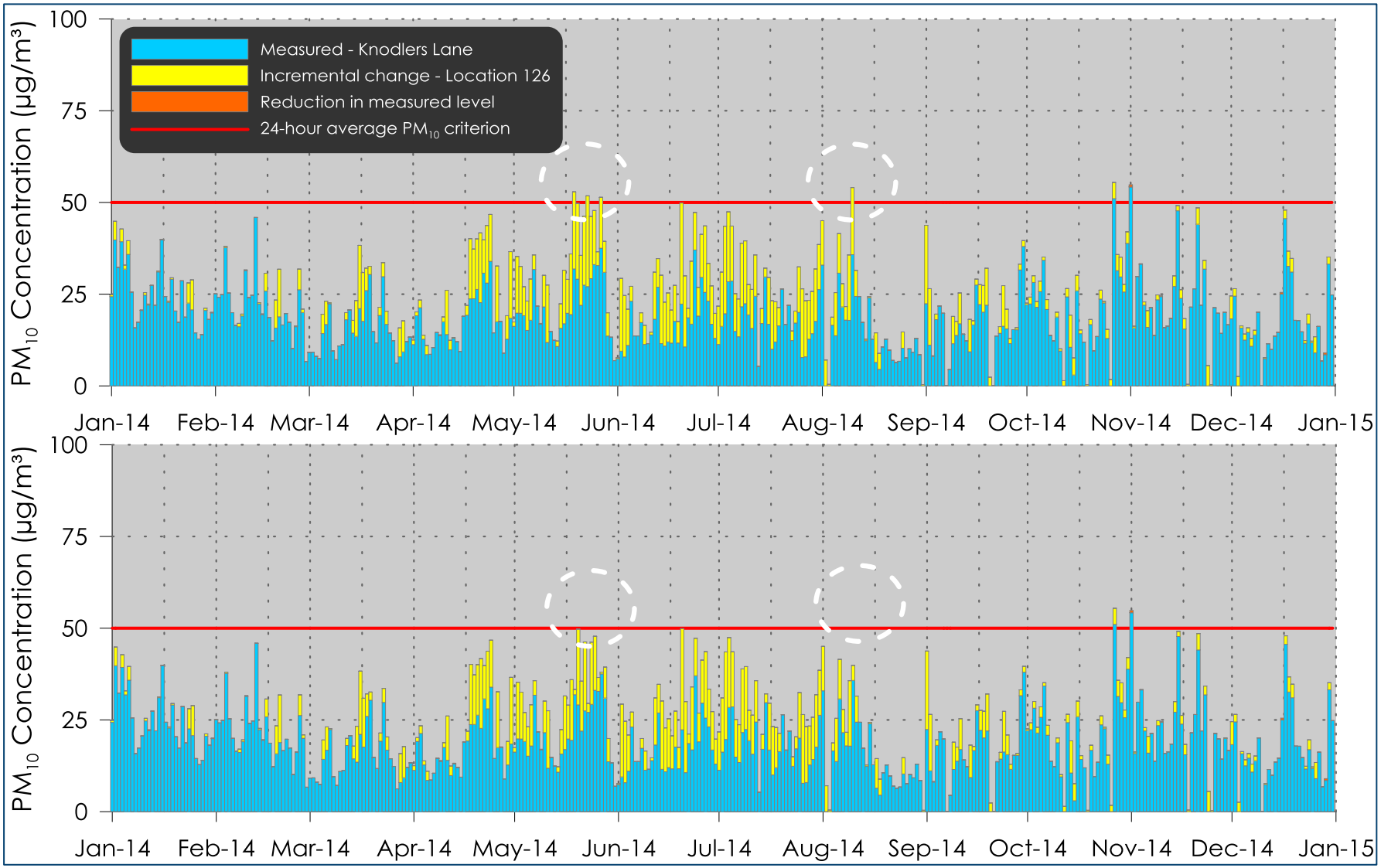

Figure 3: Times series plots comparing predicted 24-hour average PM10 impacts at Assessment Location 126 without (above) and with (below) reactive measures during Stage 3

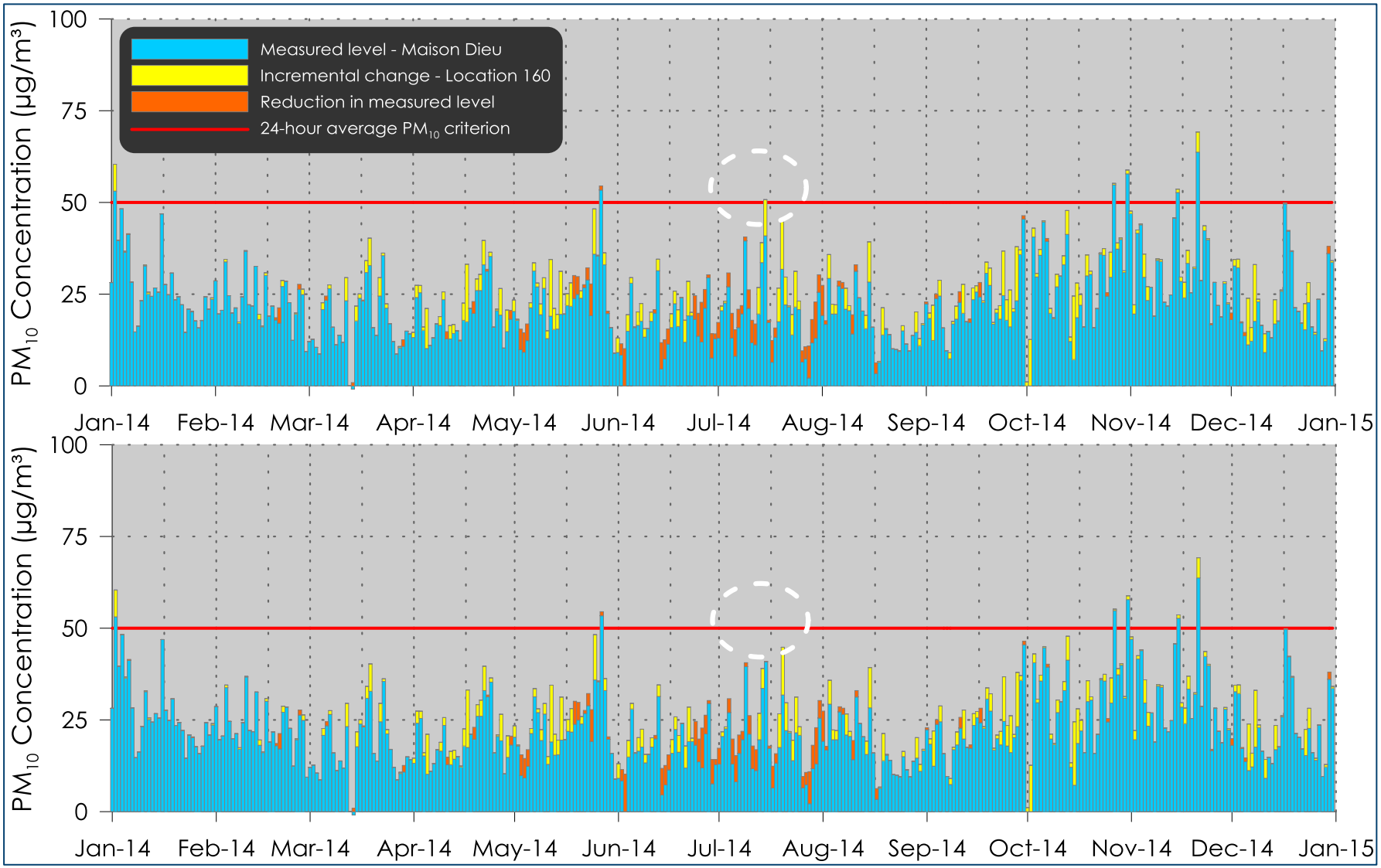

Figure 4: Times series plots comparing predicted 24-hour average PM10 impacts at Assessment Location 160 without (above) and with (below) reactive measures during Stage 3

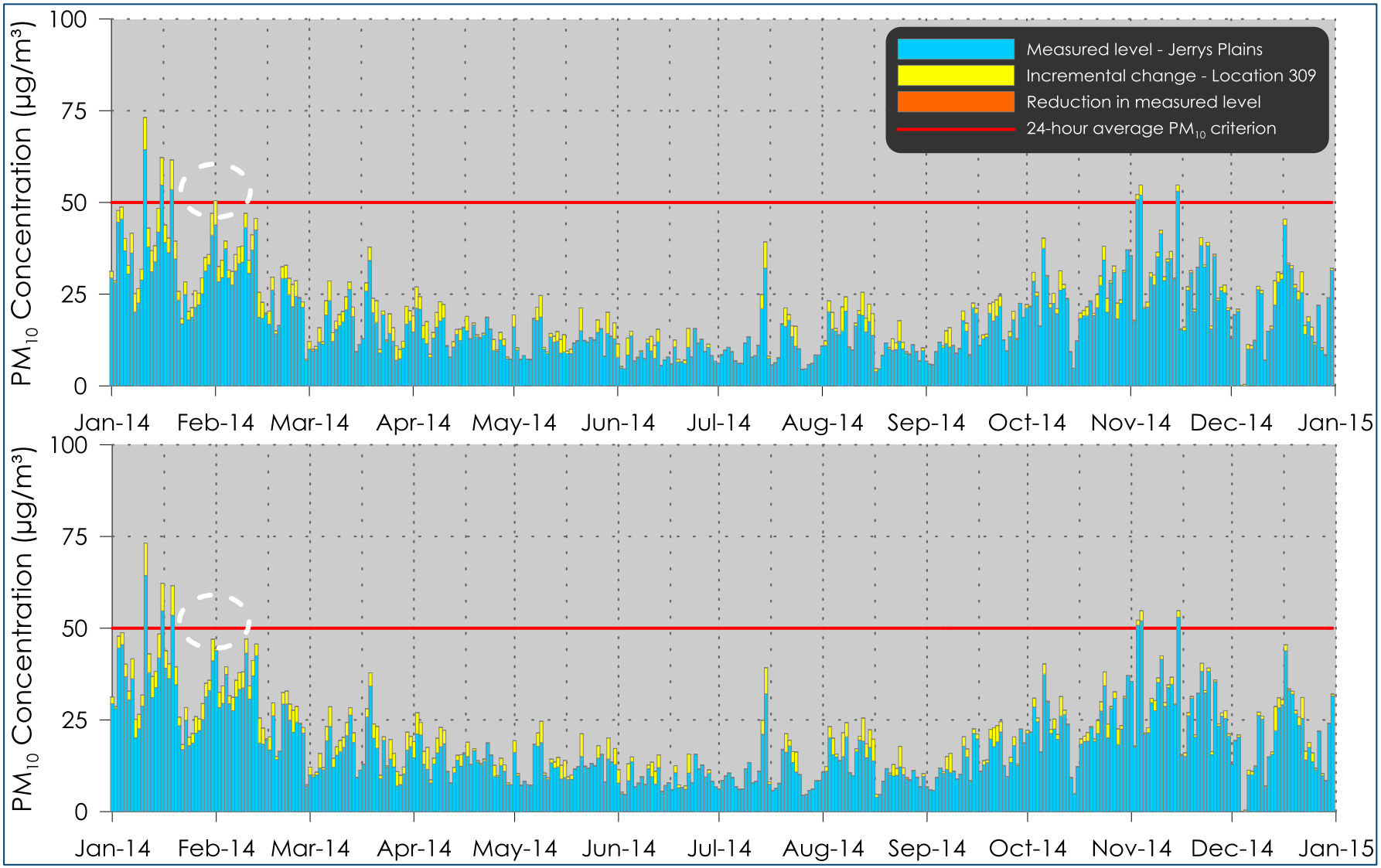

Figure 5: Times series plots comparing predicted 24-hour average PM10 impacts at Assessment Location 309 without (above) and with (below) reactive measures during Stage 3