

Joff Edevane
Growth Planning Lead
Southern Water

05 November 2020

Dear Joff,

Re: ATKINS REPORT – ODOUR COMMENTS

This letter provides our response to the Technical Note produced by Atkins on behalf of Southern Water in relation to the Odour Impact Assessment (Hoare Lea, February 2020, ref: REP-1010502-5A-20200218-Ford Airfield Odour-R5) submitted for the Proposed Development at Ford Airfield (Arun District Council planning ref: F/4/20/OUT), hereafter referred to as the 'Proposed Development'. The key findings raised by Atkins are provided for reference in italics prior to each response.

It should be noted that the scope of the submitted Odour Impact Assessment was agreed through formal scoping in May 2018 with Mr Colin Giddings, Senior Environmental Health Officer (EHO) at Arun District Council (ADC) and representatives from Southern Water. This correspondence is included within Appendices 11.3, 11.4 and 11.5 of the submitted Environmental Statement (ES).

1. *"The model only considers four sources of odour. Have all sources been considered?
Action – discuss with Southern Water, Atkins have not visited site or had site plans issued so to make any further assessment, will require additional site information to be made available."*

As detailed in the submitted Odour Impact Assessment, a site visit was undertaken by Mr Matt Stooling of Isopleth Ltd on behalf of Hoare Lea in June 2018 where he met Mr Craig Radoki-Smith, Field Performance Manager and who explained the operation of the Ford Wastewater Treatment Works (WWTW). During the site visit, four open sources (i.e. emission points) were identified which include the main odour control units (OCUs), the sludge reception odour control, the aeration lanes and final settlement tanks. These four sources were therefore used in the assessment. The potentially odourous sources considered within the dispersion modelling assessment were also agreed with Southern Water and therefore it is considered that the odour sources in the assessment are correct for Ford WWTW specifically.

2. *"The conversion of H₂S data to ouE/m³ by applying the odour threshold for H₂S (0.47 ppb) is overly simplistic and the way it accounts for other odorous compounds is not justified and arbitrary. It is recommended that the model is re-run using measured data or if this is not possible more realistic output data Atkins would suggest 1,500 ouE/m³ for a 2-stage carbon polished unit or 3,000-5,000 ouE/m³ for a single stage (e.g. biofilter). This input to the model requires further discussion between Atkins, Southern Water and Hoare Lea."*

The 1.5 ouE/m³ has been used because of the sludge imports. All of the sludge imports are contained and treated so the use of the data proposed by Atkins is irrelevant. The calculated odour emission rates for the two Odour Control Units (OCUs) were converted and then a sensitivity factor was applied to the maximum value to allow for 'worst case'. It should be noted that the OCUs at Ford WWTW include chemical scrubbers and therefore the emission rates used in the assessment are considered to be conservative assumptions and provide a robust model. We agree that odour sampling at the stack would provide more accurate data from

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the Ford WWTW for use in the model however at the time of assessment, it was not possible to undertake monitoring due to ongoing refurbishment works.

3. *"Bowen and albedo inputs to the model should be calculated based on the 'far field' land representation (10x10km) SR based on the near field (1km circular area) in accordance with the AERMOD guidance. This does not seem to have been done."*

The use of this parameter is not detailed in the AERMOD guidance and we consider the meteorological data preparation inputs used in the assessment to be correct.

4. *"The SR and Bowen ratio should be set as the proposed future use, i.e. more urbanised to reflect conditions after development. This will best represent conditions after development and use of reduced land characteristics will serve to understate odour conditions at the STW boundary."*

The surface roughness and Bowen ratio used in the assessment are based on an average of the 10km x 10km surrounding area and is considered appropriate for the site. We recognise that utilising the surface roughness and Bowen ratio for the future year scenario is an alternative approach.

5. *"The odour emissions from the area sources are not 'worst case' as described in the assessment report. Given that the rates are in the Low and Typical ranges as presented by UKWIR and that the plant is carbonaceous, higher figures should be used. In addition, consideration of any anoxic zone should be included within the model. This is important as this source of odour is the major input to the model. The ideal situation would be confirmation of the emission rate choices through a site odour monitoring survey."*

During the site visit undertaken by Mr Matt Stoaling of Isopleth Ltd on behalf of Hoare Lea, Mr Stoaling found the aeration lanes to have "a very low odour" and the final tanks to be "odour free". This indicates that the Ford WWTW is operating efficiently. For this reason, many water companies (including Anglian Water and Wessex Water) do not require the final tanks to be modelled. Furthermore, in Mr Stoaling's experience, he has found the UKWIR values to be well above any values he has measured in the UK, including at Southern Water sites. The selection of a 10UE/m²/s is considered to be conservative in the absence of monitored data.

6. *"There are errors and inconsistencies with the calculated emissions rates from both the aeration lanes and clarifiers. It is requested that Hoare Lea provide further detail as to how these have been calculated and they provide a clear statement identifying all inputs to the model."*

There is a typo in Table 5.4 of the submitted Odour Impact Assessment, however the data in the model and subsequently, the outputs of the model are correct, and impacts have been correctly reported. Table 1 and Table 2 below provide the corrected details of the model inputs.

Table 1: Aeration Lanes Model Inputs

ID	Name	X	Y	Z	Emission	Height	Width	Length	Angle	Area	Emission
AL1	Aeration Lane	499491.9	103089.2	4	2	1	9	52.5	54.8	472.5	945.0
AL2	Aeration Lane	499511.4	103061.3	4	2	1	9	52.5	54.8	472.5	945.0
AL3	Aeration Lane	499505.1	103085.1	4	2	1	10	44	54.5	440.0	880.0
AL4	Aeration Lane	499511.6	103076	4	2	1	10	44	54.5	440.0	880.0



Table 2: Final Settlement Tanks Model Inputs

ID	Name	X	Y	Z	Emission	Height	Radius	Area	Emission
FST1	Final Settlement Tank	499566.9	103143.2	4	1	1	14	615.75	615.8
FST2	Final Settlement Tank	499595.7	103163.3	4	1	1	14	615.75	615.8
FST3	Final Settlement Tank	499588.2	103113.2	4	1	1	14	615.75	615.8
FST4	Final Settlement Tank	499616.8	103133.6	4	1	1	14	615.75	615.8

7. *"Additional details of the site visit and identification of odour sources, type, extent as well as site activities witnessed should be detailed within the report."*

Section 3.3 of the submitted Odour Impact Assessment provides adequate detail on the site visit undertaken at the Ford WWTW. The operations of the WWTW were explained by Mr Craig Radoki-Smith, Field Performance Manager at Ford WWTW and further information regarding the H₂S monitoring on site was also provided by Mr Radoki-Smith. Furthermore, Section 4.5 of the submitted Odour Impact Assessment provides detailed information regarding the operations of the WWTW and shows the main sources of odour in a photograph taken during the site visit. Any additional detail of the site visit would not change the conclusions of the Odour Impact Assessment and therefore we believe the information provided is satisfactory.

8. *"Ignoring any potential impact from the Grundon Waste Management and Transfer Facility ignores the fact that any emission from this facility could result in heightened sensitivity within the development area resulting in additional pressure on other potential odour emitters (Southern Water and Ford STW)."*

As detailed in Section 3.7 of the submitted Odour Impact Assessment, the Environmental Permit for the Grundon Waste Management and Transfer Facility states "emissions from the activities shall be free from odour at levels likely to cause pollution outside the site." It therefore must be assumed that the appropriate mitigation measures to ensure the facility is in line with its permit are in place. Odours from waste transfer stations can be effectively controlled.

9. *"The model run is based on a single model scenario, no sensitivity or cross checks have been undertaken. It is normal to run, or as a minimum describe, some sensitivity checks so as to better inform impacts under various scenarios when specific assumptions have been made."*

An additional sensitivity test was undertaken using a 5-year average of meteorological data at Shoreham compared to an inter-year maximum. The isopleths for both models were submitted as part of the Air Quality and Odour ES Chapter. Furthermore, Section 7 of the submitted Odour Impact Assessment details the sensitivity test that was completed using an alternative meteorological station at Thorney Island. The results of this sensitivity test did not produce a larger isopleth in any direction across the Proposed Development compared to the isopleth when using meteorological data from Shoreham which was the preferred meteorological site by ADC. No other sensitivity test, such as differences in topographical input, was considered necessary as the Application Site is relatively flat. As such, we consider the sensitivity tests completed as part of the Odour Impact Assessment to be appropriate for the Proposed Development.

Conclusion

Southern Water were consulted early in the odour assessment process and all model inputs were discussed and agreed prior to submission of the planning application for the proposed Ford Airfield development. We have provided responses to the key findings raised by Atkins. It should be noted that all current emissions inputs have been agreed by Southern Water.



We hope this letter has answered the main concerns raised by Atkins on behalf of Southern Water but if any further questions arise, we are happy to assist.

Yours sincerely,

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