Odour Management Plan

H03-0410-16 –

Biomethane Injection Anaerobic Digestion Site

Counter Drain Drove, Tongue End, Lincolnshire

Version 3.1

Prepared by JHWalter LLP on behalf of W D Branton

10 June 2016

Odour Management Plan:

Land south of Counter Drain Drove
Tongue End
Spalding
PE113JJ

Issue No.	Date	Index Ref	Amendment Description
V1.1	23/05/2016		First Draft Issue
V2.1	10/06/2016		Final draft
V3.1	13/06/2016		Final version

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APPENDICIES

1.0 Introduction

1.1 This plan has been prepared for W D Branton Ltd to accompany a planning application for the erection of an anaerobic digestion (AD) plant on land to the south of Counter Drain Drove, Tongue End, Lincolnshire. The purpose of this plan is to:

- Establish the likely sources of odour arising from the AD unit
- Set out the procedures followed at the AD plant in order to prevent or minimise odour levels
- Formalise the procedures for dealing with any odour complaints

2.0 Odour Management Plan

2.1 The proposed odour management plan for the AD plant follows and addresses the various activities which might have cause to create odour. The location of the site is north of the village of Deeping St Nicholas and south of the small village of Tongue End, the latter being the nearest residential properties to the site. The prevailing winds are from the south west.

2.2 The plan has looked carefully at the various issues and considered mitigation where it is necessary and also implements a system of dealing with complaints and modifying the odour plan and/or the operation of the plant in order to minimise odour issues.

2.3 The site itself is currently operated as an agricultural field with an agricultural building also onsite used for the storage of straw.

2.4 It is worth noting that this application sits 330m from any local property that is not owned by the applicant. It is also worth noting that this site will be not be utilising any wastes as only agricultural crops in the form of hybrid rye and maize and sugar beet pulp produced as a by-product of the sugar production process will be used.

3.0 Potential Odour Sources

3.1 Silage – Five silage clamps will be located on site. These will be used to store the feedstock material prior to feeding. The ensiling process must take place without oxygen; in order to achieve this the rye and maize are completely wrapped in plastic sheeting within the clamps. As these feedstocks have no access to the atmosphere there will be no odour during this process.

3.2 Once the silage material is suitable for use within the digester the plastic will be opened; this allows the opportunity for a potential odour. Good ensiling and clamp face management will assure minimum odour release, and also ensures minimal energy loss.

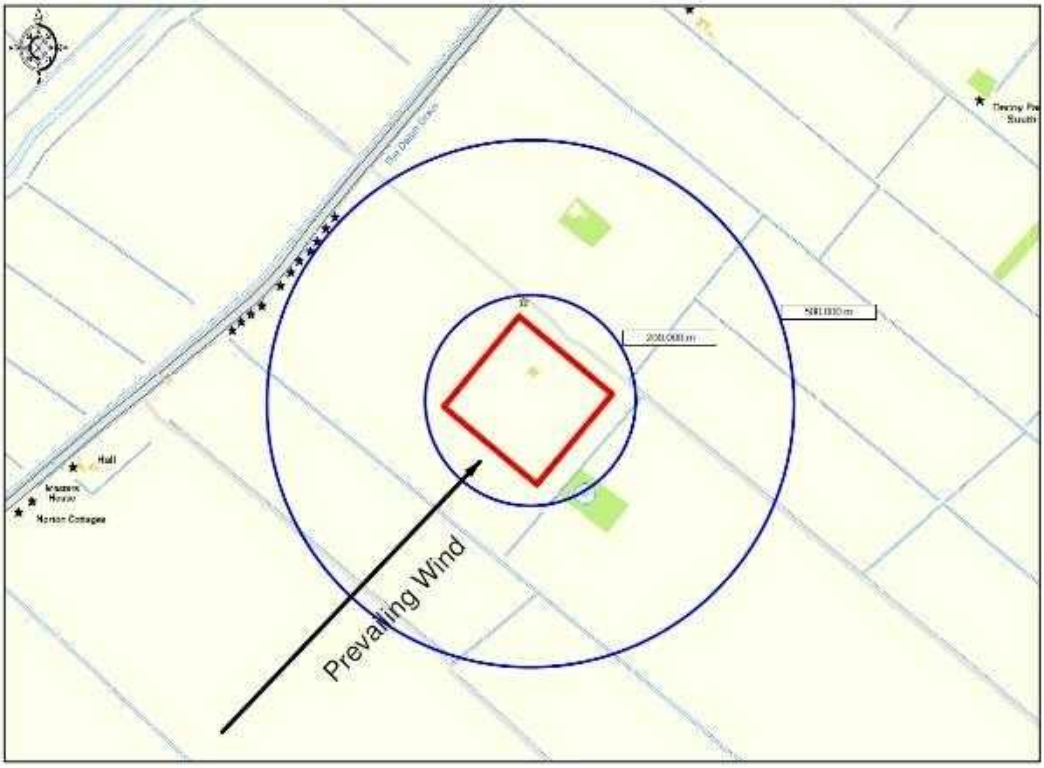
3.3 Sugar beet pulp will also be delivered to site, back loaded onto HGVs that currently supply fresh sugar beet to the British Sugar Wissington site from WD Branton. This will also be stored open on the silage clamps but this will have no more odour than current agricultural operations within the area.

3.4 As the anaerobic digestion process takes place in an oxygen free environment the whole process will be sealed from the feeding of feedstocks into the digester to the point where the digestate is removed from site. Due to this there is no opportunity for odour emissions from the anaerobic digestion process.

3.5 Digestate – A by-product of the anaerobic digestion process is digestate. Digestate is made up of the indigestible material that goes through the digester and water. This will be stored in covered tanks on site until it is discharged into tankers for use on the land as a biofertiliser.

4.0 Potential Sensitive Receptors

4.1 The map below identifies all possible sensitive receptors within a 200m and ½km area from the centre of the site. The distance of 200m is the standoff distance commonly used by the environment agency. They are all residential dwellings and are represented by a blue star on the map. The yellow star represents the building owned by the applicant.



4.2 The nearest receptors excluding that of the property owned by the applicant is the row of housing which sits 330m away from the closest edge of the silage clamp. The map clearly shows that the prevailing wind will blow any odour from the site away from this location.

4.3 The location of Norton Cottages, Master's House and the building labelled Hall again means that the prevailing wind will blow any potential odour away from these locations. They are also over 500m away from centre of the site and should not be affected.

4.4 The prevailing wind blows directly toward two houses at Pepper Hill Farm, Little in Sight and another property in the same area which are also over 500m from the centre of the AD site. As well as this the distance of these properties from the site will give any odours sufficient time to dissipate.

5.0 Routine Odour Management

5.1 A routine boundary fence olfactory test will be carried out (initially on a daily basis reducing to twice per week after the first three months of operation if there have been no complaints) to identify whether:

- Odours are detected at the site boundary (see L BRA 144 LP The location plan). Observations are made using a 1 to 5 scoring system with 1 being "no odour" and 5 being "severe odour".

More distant off-site assessments will be made downwind of the site at 200m and 500m and 1000m if odour is detected at 500m;

- In the event of a score of 2 or more being detected, the observation is repeated at a distance between 50m and 100m of the site boundary
- These tests are logged including information on wind speed and direction etc
- If an odour is detected downwind of the site the operator will make an assessment upwind of the site as well to determine if odour is coming from another source. The sequence of site odour testing downwind and upwind will be one of the first steps of investigations into odour complaints.

5.2 The person undertaking the olfactory test will either not be involved in the day to day running of the plant or ensure that tests are undertaken prior to arriving at the site to ensure a higher sensitivity to odour.

5.3 The plant when commissioned will include a HACCP (Hazard analysis and critical control point) plan which will list critical control etc. and these will be related to a variety of issues including odour.

5.4 There will be proactive engagement with immediate neighbours of the site on a routine basis (mail out, post drop etc) to receive performance feedback on odour, suggesting half yearly meet with neighbours by the Plant Manager to review.

5.5 Should a complaint be received regarding odour, a complaints procedure will be followed responding to the event within 24 hours and investigating the incident to determine the nature of the complaint. The complaints form included at Appendix 2 will be completed and retained on file.

5.6 Information will normally be collected by visiting the complainant although in some cases, contact may be made by telephone. After details of the complaint have been compiled, the cause(s) will be investigated with reference to:

- The activities taking place on the unit/farm at the time
- The timing of the complainant whether weekday, weekend etc
- The weather conditions at the time
- The likely reasons for the complaint will be added to the form and the complainant will be contacted as appropriate

5.7 Where such an investigation identifies an odour issues remedial action will promptly be implemented and a record of the action reduced using the pro forma at Appendix 3

5.8 The plan shall be reviewed at least every three years or as soon as practical after a complaint (whichever is the earlier) and changes recorded in the format shown in Appendix 4 of this plan. Ultimate responsibilities for ensuring due processes are followed and completed lies with the director of W D Branton.

5.9 Assessment record will be kept for a minimum of two years

Appendix 1 – Odour Source & Risk Management

Odour source	Potential Risks and Problems	Receptor	Pathway	Actions Taken to Minimise Odour and Odour Risks	Possibility of Exposure	Consequence	Overall Risk
Silage clamps	Odour from ensiling maize and rye	Impact within site boundary	Wind	Silage will be sheeted down as part of ensiling process reducing odour emissions. Clamp management will ensure a tightly packed face to the clamp which will as well as reducing silage deterioration reduce odour emission.	Low given: ensiling process in Sept/Oct when prevailing winds are south-westerly. Clamp face management will avoid odour dispersion beyond immediate clamp area. Silage clamps are over 200m from third party dwellings	Negligible odour annoyance	Not significant
Solid Feeder odours	Odour from daily feeding	Neighbouring properties	Wind	The hoppers have approximately a single day's HRT (hydraulic retention time) supply and will as a matter of course be only loaded once per day with feedstock. The feeding units are also fitted with an automatically closing lid to prevent any odour release following feeding.	Low given nature of material and small surface area of the hopper and automatically closing lid.	Negligible odour annoyance	Not significant
Engine	Odour from chimney	Neighbouring properties	Wind	Chimney stack height ensures any odour is at sufficient height to minimise any issue with neighbours – in line with Environment Agency guidelines	Height of chimney and prevailing south westerly winds means very low exposure risk	Negligible odour annoyance	Nor significant
Separator	Odour from digestate	Neighbouring properties	Wind	Digestate is fed directly to separator by pump from digester. Liquid is extracted and pumped to store. The solid element is transferred to trailer and removed to storage pad	There will be no exposure of the liquid element. Fibre relatively inert material.	Negligible odour annoyance	Not significant
Liquid digestate store	Odour from storage and possible risk on emptying	Neighbouring properties	Wind	Digestate is stored within covered tanks while on site. This will avoid potential odour release.	Small as storage tanks are covered	Negligible odour annoyance	Not significant

Application of liquid digestate	Odour from application and digestate being left on field	Neighbouring properties	Wind/Air	Application of digestate to be in accordance with Good Agricultural Practice . If applied to bare land suitable soil incorporation will follow if there is an odour issue Application of liquid will be with an applicator that achieves low trajectory and large droplet minimising odour (and ammonia loss) eg with a dribble bar. Weather and wind direction will be considered when handling digestate	There is deemed to be "probable exposure" to possible digestate odour but this will be minimised by following Good Agricultural Practice	Possible odour annoyance	Not significant if carefully managed and respond swiftly to any complaints

Appendix 2 – Odour Complaint Report Form

	Date recorded	**Reference number**
Name and address of caller (complainant)		
Telephone number		
Details of complaint		
Date, time and duration of offending odour		
Odour description e.g. comparison with other odours, strong / weak, continuous, fluctuating		
Any other comments from complainant		
Weather conditions (e.g. dry, rain, fog, snow)		
Wind strength and direction (e.g. light, steady, strong, gusting) or use Beaufort scale		
Any other previous complaints relating to this	Yes / No	

odour?			
Any other relevant information			
Potential odour sources that could give rise to the complaint			
Operating conditions at the time offending odour occurred			
Follow-up			
Date and time caller contacted			
Action taken			
Amendment required to the odour management plan?	Yes / No		
Form completed by		**Signed**	

Appendix 3 – Odour Improvement Programme – Pro Forma

Odour problem	Remedial action needed to reduce odour	Completion date

Appendix 4 – Review of Odour Management Plan – Record

Date of Review	Summary of Changes Made	Signature