Cyfoeth Naturiol Cymru
Natural Resources Wales

# Application for an environmental permit:
# Part LPD1 – Application for a deployment

**Use this form for deployments for the landspreading of waste where the operator holds a permit for any of the following standard rules:**

- SR2010No4 Mobile plant for landspreading (land treatment resulting in agricultural or ecological benefit);
- SR2010No5 Use of mobile plant for land reclamation, restoration or improvement of land;
- SR2010No6 Mobile plant for landspreading of sewage sludge; or a
- Bespoke mobile plant permit for landspreading or land reclamation.

Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that come with it. All relevant guidance documents can be found on our website.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it.

Natural Resources Wales
Fully Received
11 MAR 2019
Cardiff

Contents



## 1 About the permit

### 1a Discussions before your application

If you have had discussions with us before your application, give us the case reference or details on a separate sheet.

Case or document reference

### 1b Permit number

Permit number this application relates to: FB3606GC

### 1c What type of permit do you want to deploy under? (Please tick)

SR2010No4 Mobile plant for landspreading (land treatment resulting in agricultural or ecological benefit) ☒

SR2010No5 Use of mobile plant for land reclamation, restoration or improvement of land ☐

SR2010No6 Mobile plant for landspreading of sewage sludge ☐

Bespoke mobile plant permit for landspreading or reclamation, restoration or improvement of land ☐

## 2 About you

Please give us details of the permit holder. For companies, the details must match Companies House.

Organisation name (if relevant): Agrispread Ltd

Title: Mr

First name: R & R

Last name: Piggott

Address: 22 Coniston Drive

| | |
|---|---|
| | Frodsham |
| | Frodsham |
| | Cheshire |
| Postcode | WA6 7LR |
| Telephone - mobile | |
| Telephone - office | 01978 661866 |
| Email address | agrispreadltd@gmail.com |

If you are applying as an organisation of individuals, every partner needs to give us their details, including their title. If necessary, continue on a separate sheet and tell us the reference you have given the sheet.

| | |
|---|---|
| Document reference | |

## 3 Contact details

Who can we talk to about your application? This can be someone acting as a consultant or 'agent' for you.

| | | |
|---|---|---|
| Title | Mr | |
| First name | Richard | |
| Last name | Street | |
| Telephone - mobile | | |
| Telephone - office | 01978 661866 | |
| Email address | agrispreadltd@gmail.com | |

## 4 About the deployment

### 4a Multiple deployments for one area of land

You may spread more than 10 waste streams on the same area of land, provided you submit additional fully completed deployment forms listing the additional wastes. Your benefit statement must take into account the total benefit to the land of all wastes to be spread.

Is this deployment one of a batch (multiple deployments) for the same area of land?

No ☒ *Go to section 4b*

Yes ☐ How many deployments are in the batch?

### 4b Nominated competent person

**4b1** Give us details of the nominated competent person. This is the person who will be responsible for compliance with the permit for this deployment. See the guidance notes on LPD1 for further details.

| | | |
|---|---|---|
| Title | Mr | |
| First name | Richard | |
| Last name | Street | |
| Telephone - mobile | | |

| | |
|---|---|
| Telephone - office | 01978 661866 |
| Email address | agrispreadltd@gmail.com |

**4b2** What evidence are you using to show the nominated competent person has suitable technical skills and knowledge to manage the activity?

An approved technical scheme ☒ *Go to section 4b3*

Documented in-house training ☐ You must provide evidence – see below.

You must provide evidence to show the documented in-house training meets the requirements set out in technical guidance. See the guidance notes on LPD1 for further details and give us the document reference.

Document reference _____ *Go to section 4c*

**4b3** Which approved scheme are you using to show you have the suitable technical skills and knowledge to manage your facility?

CIWM / WAMITAB ☒

ESA / EU ☐

**4b4** Tick to confirm you've included all original *and* continuing competence evidence. ☒

**4c Which risk band does the activity fall within?**

Please complete Table 1 below to indicate which risk band your activity falls within. This is a combination of waste types and proximity to sensitive receptors.

Once you have selected the risk band your activity falls within, the form guidance tells you what additional information you need to send with the application.

The risk banding affects the fee you need to send with your deployment application. See section 6.

**Table 1 – risk band**

| **Permit type** | **Lower risk location**<br>- Not in an SPZ 2, and/or<br>- Over 500 meters from:<br>• European site, and/or<br>• Ramsar, and/or<br>• SSSI | **High risk location**<br>- In a Source Protection Zone 2, and/or<br>- 500 meters or less from:<br>• European site, and/or<br>• Ramsar, and/or<br>• SSSI<br>**You *must* submit a site specific risk assessment.** |
|---|---|---|
| SR2010No4 List A wastes (Lower risk) | Low risk deployment ☐ | Medium risk (2) deployment ☐ |
| SR2010No4 List B wastes (Higher risk) | Medium risk (1) deployment ☐ | High risk deployment ☒ |
| SR2010No5 (Any waste listed) | Medium risk (1) deployment ☐ | High risk deployment ☐ |
| SR2010No6 (Any waste listed) | Medium risk (1) deployment ☐ | High risk deployment ☐ |
| Bespoke mobile plant permit | Low risk deployment ☐ | Medium risk deployment ☐ / High risk deployment ☐ |

**4d Additional information on sensitive receptors**

Is the deployment within an SPZ 2 and/or 500m of a European site, Ramsar or SSSI, or being made under a bespoke permit?

No ☐

Yes ☒ You must submit a site specific risk assessment (see question 4e).

**4e Site specific risk assessment**

Your site specific risk assessment must show how you intend to prevent any harm to any SPZ 2, European site, Ramsar or SSSI. For more information on risk-assessment please see the accompanying guidance to LPD1 and Technical Guidance Note 'TGN 8.01'.

Please tick a box below to indicate which type of risk-assessment you have submitted.

I have attached a site-specific risk-assessment as the deployment is within and SPZ 2 and/or 500m of a European site, Ramsar or SSSI. I have also addressed risks to other receptors in the risk assessment ☒

I am not within an SPZ 2 and/or 500 m of a European site, Ramsar or SSSI but have addressed risks to other receptors in my benefit statement. ☐

I am deploying under a bespoke permit and have attached a site-specific risk assessment (regardless of location). ☐

**4f About the waste**

Please list all the individual waste streams you want to spread/use under this deployment, in Table 2 below. We've included an example to help you.

Please note: You can only spread/use 10 waste types per deployment.

**Table 2 – waste types**

| | **List of Waste code** (6 digit) | **Waste description** | **Physical form** | **Waste producer** | **Total amount being spread/used** (tonnes) |
|---|---|---|---|---|---|
| e.g. | 03 03 05 | De-inked paper | Sludge | Smith's Newsprint | 500 |
| 1 | 02 02 04 | Sludges from on-site ETP from abattoirs, poultry preparation plants, rendering plants or fish preparation plants only | Sludge | Secanim | 5054.4 |
| 2 | 02 03 01 | Sludges from washing, cleaning, peeling, centrifuging and separation | Sludge | English Provender | 3775.2 |
| 3 | 07 07 12 | Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 01 11 only | Sludge | Croda Goole | 936 |
| 4 | 02 05 02 | Sludges from on-site ETP | Sludge | Meadow Foods | 6926.4 |
| 5 | 02 03 05 | Sludges from on-site ETP | Sludge | Croda Widnes | 7800 |
| 6 | 02 07 05 | Sludges from on-site ETP | Sludge | Encirc | 7300.8 |
| 7 | 02 03 05 | Sludges from on-site ETP | Sludge | Kelloggs | 6271.2 |
| 8 | 02 07 04 | Materials unsuitable for consumption or processing | Sludge | Burtonwood Brewery | 748.8 |
| 9 | 02 03 05 | Sludges from on-ETP | Sludge | Authentic Food Compant | 998.4 |
| 10 | 02 02 01 | Sludges from washing and cleaning | Sludge | Maelor Foods | 1123.2 |
| | | | | **Total tonnage** | 40934.4 |

**4g About the land you want to treat**

**4g1** Please give details of the main address of the land to be treated.

| | |
|---|---|
| Address | Cottage Gorse Farm |
| | Bangor-on-Dee |
| | Wrexham |
| | |
| Postcode | LL13 0AL |
| National grid reference (12 digit) | SJ 40708 45795 |

**4g2** What type of land do you want to treat?

Agricultural land ☒ Please give your County/ Parish/ Holding number 56/247/0002

Non-agricultural land ☐

**4h The parcels of land you want to treat**

Please list all the individual areas (parcels) of land you want to include this deployment, in Table 3 below.

Please note: the total area to be treated must not be more than 50 hectares.

**Table 3 – parcels of land**

| | **Field name/ number/ reference** | **Grid reference - centre of field** (12 digit) | **Waste types to be spread/used** (List of Waste code) Separate using commas. | **Size** (hectares) |
|---|---|---|---|---|
| 1 | **1/2** | **SJ 40572 45646** | **See Table 2** | 6.0 |
| 2 | **3** | **SJ 40910 45925** | **See Table 2** | 3.6 |
| 3 | **4/5** | **SJ 40678 45965** | **See Table 2** | 6.8 |
| 4 | **7** | **SJ 40384 45926** | **See Table 2** | 2.6 |
| 5 | **8** | **SJ 40323 45663** | **See Table 2** | 2.8 |
| 6 | **9** | **SJ 40863 46195** | **See Table 2** | 2.8 |
| 7 | **13** | **SJ 40770 45770** | **See Table 2** | 2.6 |
| 8 | **6** | **SJ 40092 45810** | **See Table 2** | 4.0 |
| 9 | | | | |
| 10 | | | | |
| | | | **Total hectares** | 31.2 |

**4i Is the permit holder the owner or occupier of the land you want to spread on/treat?**

Yes ☐ *Go to section 4k*

No ☒ You must give us details of the land owner or occupier, below.

| | | |
|---|---|---|
| Organisation name (if relevant) | | |
| Title | Mr | |

| | |
|---|---|
| First name | Richard |
| Last name | Brereton |
| Address | Cottage Gorse Farm |
| | Bangor-on-Dee |
| | Wrexham |
| | |
| Postcode | LL13 0AL |
| Telephone - mobile | 07888 763 149 |
| Telephone - office | |
| Email address | |

If there is more than one owner or occupant for the area covered by this deployment, you must give us details of each. Please continue on a separate sheet and tell us the reference you have given the sheet.

Document reference

**4j Do you have the consent of the owner or occupier to carry out the activity?**

Yes ☒ *Go to section 4k*

No ☐ You must tell us why you think you can carry out the activity without the consent of the occupier. Please give an explanation in the box, below. Continue on a separate sheet if needed.

| **Explanation** |
|---|
| |

**4k Previous land treatment**

Has any of the land listed in Table 3 been treated with other wastes, sewage sludge, slurries or manures etc. in the last 12 months?

No *Go to section 4l*

Yes ☒ You must give us details in Table 4 below *and* account for them in your benefit statement.

**Table 4 – previous land treatment**

| | **Field name/ number/ reference** | **Describe the waste spread** (in last 12 months) | **Person/ company who spread the waste** | **Quantity spread per hectare** (in tonnes) | **Deployment/ other reference** (if known) |
|---|---|---|---|---|---|
| e.g. | East field | Digested sewage sludge cake | Eastern Waters | 20 | PAN 000000 |

| | | | | | |
|---|---|---|---|---|---|
| 1 | 1/2 | FYM | Farmer | 4 | |
| 2 | 3 | FYM | Farmer | 4 | |
| 3 | 4/5 | FYM | Farmer | 4 | |
| 4 | 7 | FYM | Farmer | 4 | |
| 5 | 8 | FYM | Farmer | 4 | |
| 6 | 9 | FYM | Farmer | 4 | |
| 7 | 13 | FYM | Farmer | 4 | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |

**4l Waste storage**

Are you proposing to store waste in connection with this deployment?

No ☐ *Go to section 5*

Yes ☒ You must give us details in Table 5 below.

| **Table 5 – waste storage details** | | | | |
|---|---|---|---|---|
| | **Grid reference** (12 digit) | **Waste type being stored** (6 digit List of Waste code) | **Storage method** | **Quantity stored at any one time** (in tonnes) |
| 1 | SJ 40650 45570 | See Table 2 | Temporary Storage Tanks | 120 |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

## 5 Payment

**5a Tick an option below to show how you will pay for the application.**

| | | |
|---|---|---|
| Electronic transfer (for example, BACS) | ☐ | *Go to section 5b* |
| Cheque | ☒ | *Go to section 5c* |
| Postal order | ☐ | *Go to section 5d* |
| Credit or debit card | ☐ | *Go to section 5e* |

**5b Paying by electronic transfer**

If you choose to pay by electronic transfer use the following information to make your payment.

| | |
|---|---|
| Company name: | Natural Resources Wales |
| Company address: | Income Dept., PO BOX 663, Cardiff, CF24 0TP |
| Bank: | RBS |
| Address: | National Westminster Bank Plc, 2 ½ Devonshire Square, London, EC2M 4BA |
| Sort code: | 60-70-80 |
| Account number: | 10014438 |

**Reference number**

You can use any reference number but we prefer the number to be 'EPDEP' followed by the first five letters of your organisation name followed by a four-digit number.

For example, for a company named Joe Bloggs Ltd, the reference number might be EPDEPJOEBL0001. (Remember you can use any four-digit number at the end.)

The reference number you will provide will appear on our bank statements so we can check your payment. We may need to contact your bank to make sure the reference number is quoted correctly.

You should also email your payment details and payment reference number to banking.team@naturalresourceswales.gov.uk / banking.team@cyfoethnaturiolcymru.gov.uk or fax it to 0300 065 3001 and enter it in the space provided below.

| | |
|---|---|
| BACS reference | |
| Amount paid | |

**Making payments from outside the UK**

These details have changed. If you are making your payment from outside the United Kingdom (which must be received in sterling), our IBAN number is GB70 NWBK6070 8010 0144 38 and our SWIFT/BIC number is NWBKGB2L.

If you do not quote your payment reference number, there may be a delay in processing your payment and application.

**5c Paying by cheque or postal order**

You should make cheques or postal orders payable to Natural Resources Wales and they should be marked 'A/c Payee'. We will not accept post-dated cheques (cheques with a future date written on them).

| | |
|---|---|
| Cheque/ postal order number | |
| Amount paid | £994 |

**5d Paying by credit or debit card**

If you are paying by credit or debit card, please fill in the separate form CC1.

You can download this from our Website or you can ask for one of our customer service providers to send one by post. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro UK card only.

## 6 Supporting documents

You must provide all relevant documents to support your application. The information we need depends on the type of deployment application you're making. If you don't provide us with all the information we need, we won't be able to assess your proposal and the application may be rejected.

Better quality deployments result in shorter processing times. If we don't need to come back to you for more information, we'll be able to give you a decision quicker.

**6a What supporting evidence do you need to send?**

Are you applying to spread/use waste under a SR2010 No4 standard rule set permit?

| | | | |
|---|---|---|---|
| Yes | ☒ | Complete the checklist in Table 6 *and* Table 7 | *Go to section 6b* |
| No | ☐ | Complete the checklist in Table 7 only. | *Go to section 6c* |

**6b Checklist for deployments under SR2010 No4 only**

Complete the checklist in Table 6, below. Tick to confirm you've completed the action.

| **Table 6** | |
|---|---|
| Do the grid references (for fields and storage areas) match the map locations? | ☒ |
| Are the grid references in the correct format i.e. AB 12345 67890? | ☒ |
| Have details of previous land treatment been provided? | ☒ |
| Have you included a location map? | ☒ |
| Does the map include all the relevant features as set out in the guidance? | ☒ |
| Have you included a waste analysis? | ☒ |
| Is the waste analysis for each waste less than 12 months old? | ☒ |
| Does the waste analysis include pH, Nitrogen (N), Phosphorus (P), Potassium (K), % dry matter and Potentially Toxic Elements (PTE's)? | ☒ |
| Have you included a soil analysis? | ☒ |
| Is the soil analysis less for each field than 4 years old? | ☒ |
| Does the soil analysis provide the soil pH, Potassium (K), Phosphorus (P), Magnesium (Mg) and PTEs if they are high in the waste? | ☒ |
| Have the soil indices for P, K and Mg for each field been provided? | ☒ |
| Have you included a Certificate of Agricultural Benefit? | ☒ |
| Has the proposed cropping regime been stated? | ☒ |
| Has the waste application rate been stated? | ☒ |
| Has the timing of application been stated and is it appropriate for the cropping regime? | ☒ |
| Has the intended method of waste application been stated? | ☒ |
| Have the total nutrients supplied by the waste been stated and have they been provided in oxide format? | ☒ |
| Has the nutrient requirement for the proposed crop been provided? | ☒ |
| Has the soil nitrogen supply (SNS) for each field been provided? | ☒ |
| If the land has been treated with other wastes, sewage sludge, slurries manures etc. in the last 12 months, has relevant information been provided? | ☒ |
| If more than one waste stream is to be applied to the land; has the benefit for each individual waste stream been demonstrated? | ☒ |
| Have you included a site specific risk assessment? (where relevant) | ☒ |
| Does the Site Specific Risk Assessment; consider all potential receptors, identify all risks from the activity, and include information on all measures you'll use to minimise or mitigate the impact and why they're suitable. | ☒ |

**6c Checklist for all types of deployment application.**

Complete the checklist in Table 7, below. Tick to confirm you've completed the action.

| Table 7 | | |
|---|---|---|
| **Item** | **Complete** | **Your document reference/ description** |
| Location map (required for all deployments) | ☒ | Figure 1 – Appendix A |
| Benefit statement (required for all deployments) | ☒ | Appendix A – Agricultural Benefit Statement |
| Waste analysis (required for all deployments) | ☒ | Appendix D – Waste Analysis and Evaluation |
| Receiving soil analysis (required for all deployments) | ☒ | Appendix C – Soil Analysis |
| Site-specific risk assessment (in accordance with 4e) | ☒ | Appendix B – Site Specific Risk Assessment |
| Any other additional information | N/A | |
| | N/A | |
| | N/A | |
| | N/A | |

## 7 The data Protection Act 1998

We, the Natural Resources Body for Wales (hereafter "Natural Resources Wales"), will process the information you provide so that we can:

- deal with your application;
- make sure you keep to the conditions of the licence, permit or registration;
- process renewals; and
- keep the public registers up to date.

We may also process or release the information to:

- offer you documents or services relating to environmental matters;
- consult the public, public organisations and other organisations (for example, the Health and Safety Executive, local authorities, the emergency services, the Department for Environment, Food and Rural Affairs) on environmental issues;
- carry out research and development work on environmental issues;
- provide information from the public register to anyone who asks;
- prevent anyone from breaking environmental law, investigate cases where environmental law may have been broken, and take any action that is needed;
- assess whether customers are satisfied with our service, and to improve our service; and
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows).

We may pass the information on to our agents or representatives to do these things for us.

## 8 Confidentiality and national security

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

You can ask for information to be made confidential by ticking the box below and enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application.

Please treat the information in my application as confidential. ☐

You can tell the Secretary of State that you believe including information on a public register would not be in the interests of national security. You must enclose a letter with your application telling us that you have told the Welsh Ministers and you must still include the information in your application. We will not include the

information in the public register unless the Welsh Ministers decides that it should be included.

Only tick the box below if you are certain that you wish to claim confidentiality or national security for your application. This may delay your application.

I attach a letter stating that I have written to the Welsh Ministers explaining why my information should not be included on the public register for national security reasons ☐

## 9 Declaration

**You must read this section before making the declaration and sending your form to us.**

A relevant person should make the declaration. You must be a relevant person or have the authority of a relevant person to sign this application on their behalf.

Relevant people means each applicant, and in the case of a company, a director, manager, company secretary or any similar officer or employee listed on current appointments in Companies House. In the case of a Limited Liability Partnership (LLP), it includes any partner. If the permit holder is an organisation of individuals, each individual (or individual trustee) must complete the declaration.

To simplify and speed up the application process we recommend that the declaration is filled in by an officer of a company or one of the partners in a Limited Liability Partnership (LLP).

If you wish a manager, employee or consultant etc. to sign the declaration on behalf of a relevant person, we will need written confirmation from a relevant person; that is, an officer of the company, a partner in the LLP or the individual, confirming that the person has the authority to fill in the declaration.

If you are joint permit holders you should each fill in your own declaration. We have provided a separate sheet for this.

Where the operator is the subject of any insolvency procedure, the declaration must be filled in by the official receiver/appointed insolvency practitioner.

**9a Are you signing the form on *behalf of* a relevant person?**

If you are *not* a relevant person, but want to sign the application on their behalf, you must include confirmation that you can do this.

I have included written confirmation from a relevant person to confirm I can sign on their behalf. ☐

**9b Does your deployment application relate to a standard facility permit?**

If your deployment application is being made in relation to a standard facility permit (SRP), you also need to confirm that you are able to meet all relevant criteria of the standard rule set/sets under which you are applying.

I confirm that my activity/activities will fully meet the rules of the permit deployment I have applied for. ☒

**9c Sign to confirm you understand the declaration.**

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

**I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.**

**I understand that if I knowingly or recklessly make a false or misleading statement:**

- **I may be prosecuted; and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

| | | |
|---|---|---|
| Title | Mr | |
| First name | Richard | |
| Last name | Street | |

| | |
|---|---|
| On behalf of (if relevant) | |
| Today's date (DD/MM/YYYY) | 06/03/2019 |

# Continuing Competence Certificate

## This certificate confirms that

Richard George Street

**Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 23/01/2019**

LS Land Spreading

**Expiry Date: 23/01/2021**

Verification date: 21/01/2019

Authorised:

WAMITAB Chief Executive Officer

Learner ID: 22940

Certificate No.: 5138263

Date of Issue: 23/01/2019

CIWM Executive Director

The Chartered Institution of Wastes Management

00127091

Agrispread Ltd
22 Coniston Drive
Frodsham
Cheshire
WA6 7LR

Natural Resources Wales
29 Newport Road
Ty Cambria
Cardiff
CF24 0TP

5th August 2017

To whom it may concern

**Re: Deployment Applications declarations**

I write to confirm that Richard Street of Trade Effluent Services Ltd is authorised to complete deployment applications and sign declarations on behalf of Agrispread Ltd.

Yours sincerely,

Robert Netzband-Piggott
Company Secretary

# Agricultural Benefit Statement

Report Index



## 1. Permit Details and Appropriate Technical Expertise

The following benefit statement has been written by Richard Street on behalf of Agrispread Ltd. (permit no. FB3606GC).

Relevant Qualifications & Experience include:

- FACTs Qualified – Basis registration no. R/FE/5689
- 7 Years' experience of waste to land recycling operations
- Land spreading of non-farm wastes course (3 day course – May 2010)
- BSc. (Hons) Environmental Management (University of Central Lancashire)

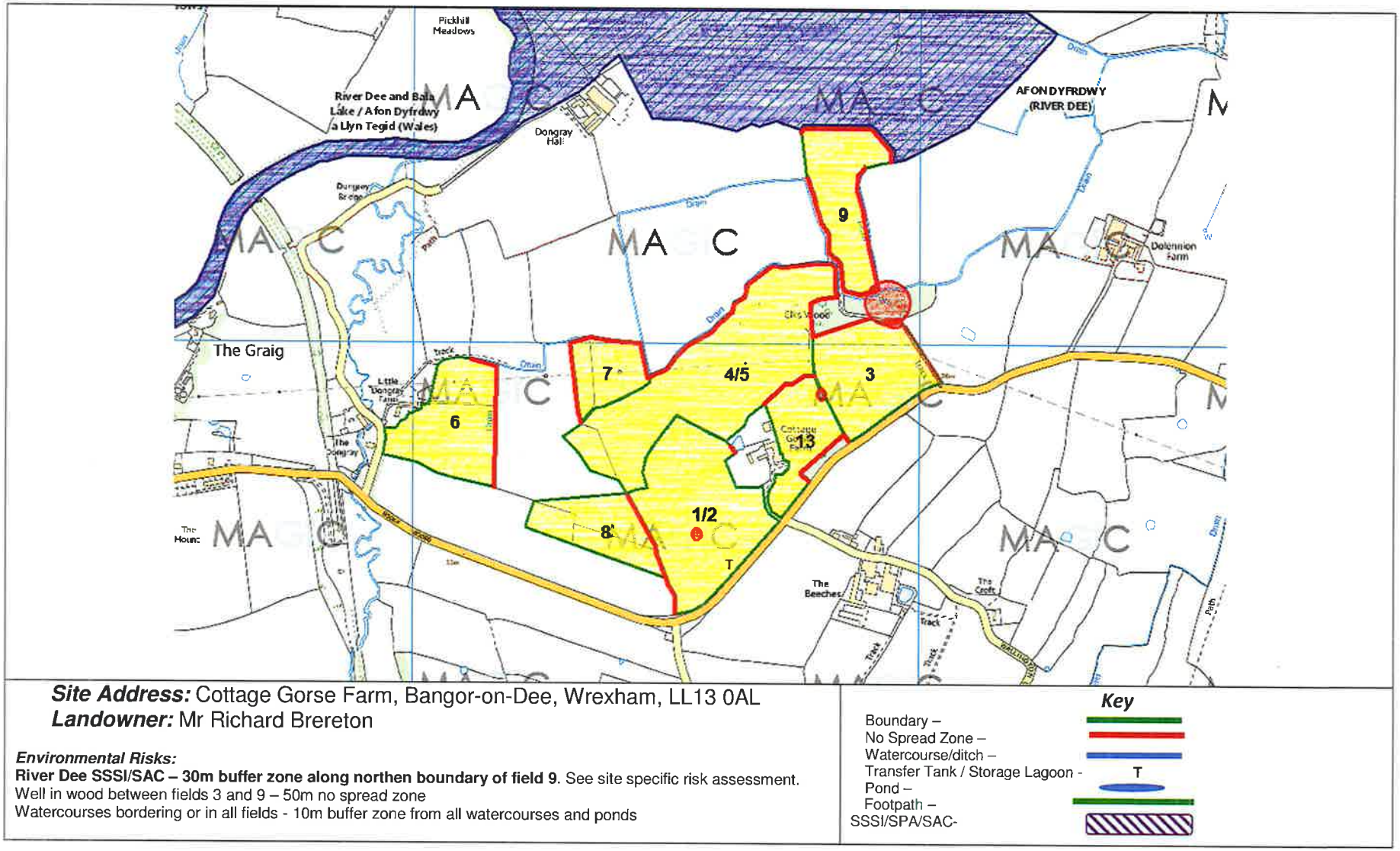
## 2. Land Details

The following benefit statement proposes to spread up to 10 wastes to land. The land details are listed in Table 1, and the site map can be found in Figure 1.

**Table 1: Farm and Land Details**

| | |
|---|---|
| **Farm Name** | Cottage Gorse Farm |
| **Farm Address and Postcode** | Bangor-on-Dee, Wrexham, LL13 0AL |
| **Farm NGR** | SJ 40708 45795 |
| **Land Address and Nearest Postcode** | Bangor-on-Dee, Wrexham, LL13 0AL |
| **Total Area to be Spread (hectares)** | 31.2 |

Up to 30m$^3$ of waste will be stored in each mobile storage tank at the land to be spread, with no more than 120m$^3$ in total being stored on site. This is suitable storage and the storage tank locations with be situated in appropriate locations. The storage location is marked on the site map in Figure 1, which is at the following grid reference location: SJ 40650 45570.




***Site Address:*** Cottage Gorse Farm, Bangor-on-Dee, Wrexham, LL13 0AL
***Landowner:*** Mr Richard Brereton

***Environmental Risks:***
**River Dee SSSI/SAC – 30m buffer zone along northen boundary of field 9.** See site specific risk assessment.
Well in wood between fields 3 and 9 – 50m no spread zone
Watercourses bordering or in all fields - 10m buffer zone from all watercourses and ponds

**Figure 1: Site map including the fields to spread, receptors, storage (T), and spreading control measures**

## 3. Waste Details

The wastes generally arise from food and beverage manufacturers and are primarily sludge from on-site effluent treatment plants, and materials unsuitable for consumption and processing. The waste details are displayed in Table 2.

**Table 2: Waste Details**

| Waste Producer | EWC Code | Waste Description |
|---|---|---|
| Secanim | 02 02 04 | Sludges from on-site ETP from abattoirs, poultry preparation plants, rendering plants or fish preparation plants only |
| English Provender | 02 03 01 | Sludge from washing, cleaning, peeling, centrifuging and separation |
| Croda Chemicals (Goole) | 07 07 12 | Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 01 11 only |
| Meadow Foods | 02 05 02 | Sludge from on-site ETP |
| Maelor Foods | 02 02 01 | Sludges from washing and cleaning |
| Encirc | 02 07 05 | Sludge from on-site ETP |
| Burtonwood Brewery | 02 07 04 | Materials unsuitable for consumption or processing |
| Croda Widnes | 02 03 05 | Sludges from on-site ETP |
| Authentic Food Company | 02 03 05 | Sludges from on-site ETP |
| Kelloggs (Kellogs) | 02 03 05 | Sludges from on-site ETP |

The wastes have been analysed by NRM laboratories for nitrogen, phosphorous, potash and PTE's, and individual waste analyses are attached in Appendix D.

To avoid the need for multiple deployments when a range of wastes are available, it is necessary to include them all to accommodate such variables as the amount of material produced by the waste producer and the timing of application

Due to the coding of the Secanim and Maelor Foods waste stream (02 02 04 and 02 02 01 respectively), a visual inspection was made to determine if analysis for fats, oil and grease (FOGs) was required. It was deemed not necessary. The waste will be closely monitored during the spreading of this site, and so the requirement for FOGs analysis will be reviewed periodically. The Secanim waste is not expected to contain Selenium, Arsenic, Molybdenum and Fluoride, and so has not been tested for such elements.

## 4. Operational Details

The wastes will be delivered to the site by road tanker and off-loaded into the mobile storage tanks. It is intended to spread the wastes by sub-soil injection to reduce the risk of environmental incidents, such as run-off and odour issues; to minimise disbenefit to the growing crop, such as through smothering or leaf scorch; and to provide nutrients to the root zone. Typically, wastes will be applied by deep-leg injector. However, a shallow injector or surface application may be used dependant on soil/weather conditions at the time of application. In drought conditions, wastes with low odour potential and low risk of smothering crop leaf may be surface applied, and will provide additional benefit through irrigation.

It is intended to spread the wastes to grass fields as a split when the leaf is short or after silage cuts. For this application, the wastes are expected to be applied to all fields in May/June 2019 after cuts of silage. However, this may change due to farmer requirements and weather conditions.

## 5. Fields and Crop Requirement

The sludges will be applied to all fields and so the crop requirements for all fields, as well as the field sizes and grid references, are displayed in Table 3. Fertiliser requirements are based on figures from the RB209 (9th edition). The magnesium recommendation for all fields is 0 kg/ha.

**Table 3: Field Details and Crop Requirements (* denotes crop offtake)**

| Field | Size | Grid Reference | Current Crop | Next Crop | Expected Yield | Nitrogen | Phosphate | Potash |
|---|---|---|---|---|---|---|---|---|
| | ha | | | | t/ha | kg/ha | kg/ha | kg/ha |
| 1/2 | 6.0 | SJ 40572 45646 | Grass | 2 cut silage and grazing | 38 | 325 | 65 | 260 |
| 3 | 3.6 | SJ 40910 45925 | Grass | 2 cut silage and grazing | 38 | 325 | 95 | 210 |
| 4/5 | 6.8 | SJ 40678 45965 | Grass | 2 cut silage and grazing | 38 | 325 | 95 | 170 |
| 7 | 2.6 | SJ 40384 45926 | Grass | 2 cut silage and grazing | 38 | 325 | 95 | 210 |
| 8 | 2.8 | SJ 40323 45663 | Grass | 2 cut silage and grazing | 38 | 325 | 65 | 210 |
| 9 | 2.8 | SJ 40863 46195 | Grass | 2 cut silage and grazing | 38 | 325 | 95 | 120 |
| 13 | 2.6 | SJ 40770 45770 | Grass | 2 cut silage | 38 | 325 | 95 | 210 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | and grazing | | | | |
| 6 | 4.0 | SJ 40092 45810 | Grass | 2 cut silage and grazing | 38 | 325 | 95 | 210 |
| **Total** | **31.2** | | | | | | | |

The soil nitrogen supply (SNS) for all fields is moderate.

## 6. NVZ Compliance

The site falls outside an NVZ designated area, which is illustrated in Figure 2. The majority of wastes do not apply for the closed periods as they contain low percentages of available nitrogen. However, the Maelor Foods waste stream is highly available (36%) in nitrogen, and so will not be spread during the NVZ closed period. The application rates of the wastes will comply with crop requirement as no more than crop offtake of all nutrients will be applied to fields. In order to aid the landowner or farmer with their recording requirements, a post-notification of nutrients applied will be provided after spreading.


**Figure 2: NVZ map for the land to be spread produced from the Welsh Government mapping service on the government website (lle.gov.wales/apps/nvz).**

Application rates are limited to a maximum of 250 kg total N/ha, and any other organic waste or manure applications have been accounted for. Previous nutrients applied to the fields within the last 12 months are listed in Table 4. The nutrients in Table 4 are total applied, and the availability of each can be taken from the standard figures in the RB209 (9th edition, section 2).

**Table 4: Previous Nutrients Applied**

| Field | Waste Applied | Month Applied | Application Rate | Nitrogen | Phosphate | Potash |
|---|---|---|---|---|---|---|
| | | | t/ha | kg/ha | kg/ha | kg/ha |
| JW1 | FYM | March 2018 | 4 | 24 | 12.8 | 32 |
| JW2 | FYM | March 2018 | 4 | 24 | 12.8 | 32 |
| JW3 | FYM | March 2018 | 4 | 24 | 12.8 | 32 |
| JW4 | FYM | March 2018 | 4 | 24 | 12.8 | 32 |
| JW5 | FYM | March 2018 | 4 | 24 | 12.8 | 32 |
| JW6 | FYM | March 2018 | 4 | 24 | 12.8 | 32 |

## 7. Benefits of The Operation

The wastes will be used to provide plant nutrients that will replace a percentage of the fertiliser that the farmer would normally apply to their crop. The wastes will also provide benefit through the addition of organic matter and trace elements. The applied nutrients provided by the wastes may be subject to change: determined by analysis of individual samples during the agreed 12 month deployment period. The sludge is regularly analysed and application rates will be adjusted according to changes in analysis and volumes arising.

A summary of the wastes and the proposed application rates are listed in Table 5.

**Table 5: Summary of Waste Nutrients and Application Rate**

| Waste | App Rate | Nitrogen | | Phosphate | | Potash | |
|---|---|---|---|---|---|---|---|
| | t/ha | (total) | (available) 30% | (total) | (available) 50% | (total) | (available) 90% |
| Secanim | 162 | 145 | 44 | 65 | 32 | 39 | 35 |
| English Provender | 121 | 109 | 33 | 56 | 28 | 14 | 13 |
| Croda Chemicals (Goole) | 30 | 120 | 36 | 56 | 28 | 12 | 11 |
| Meadow Foods | 222 | 155 | 47 | 56 | 28 | 22 | 20 |
| Maelor Foods | 36 | 122 | 37 | 63 | 32 | 8 | 7 |
| Encirc | 234 | 140 | 42 | 56 | 28 | 19 | 17 |
| Burtonwood Brewery | 24 | 84 | 25 | 54 | 27 | 32 | 29 |
| Croda Widnes | 250 | 100 | 30 | 33 | 16 | 15 | 14 |
| Authentic Food Company | 32 | 102 | 31 | 55 | 28 | 6 | 5 |
| Kelloggs | 201 | 181 | 54 | 56 | 28 | 31 | 28 |

Wastes will be applied on an individual basis and applications, which are established for each waste when applied in isolation, will be carefully managed and monitored to ensure that nutrients are applied at or below crop requirement/offtake values. It may however be necessary to apply the wastes as a mix such as during storage during adverse weather. In this case, the waste with the highest nutrient, PTE or other limiting factor is used as the maximum application rate, and thus wastes will be applied at the lowest individual application rate. Application rates will be adjusted by variation in tractor speed and or pump speed. It should be noted that if application rates are adjusted, they will not be increased above the application rates stated in this benefit statement (see Table 5).

**Nitrogen**

The waste analysis shows that the ammoniacal and nitrate nitrogen in the majority of wastes is relatively low; indicating that only a small proportion of nitrogen will be available immediately. The remaining total nitrogen applied will become available to the crop through mineralisation throughout following seasons. The rate of nitrogen release will be affected by several factors including climate, timing and method of application, and soil type.

**Phosphorus**

Applications of wastes are limited to ensure that phosphate is applied at or below crop off take values, as calculated from the RB209, ensuring that the spreading activities do not increase soil P reserves.

**Potash**

The wastes applied will supply up to 120kg/ha of potash, which will not meet crop offtake for all fields, but it will allow the landowner/farmer to considerably reduce the amount of chemical fertiliser required to meet the crop need. Applications of wastes are limited to ensure that potash is applied at or below crop off take values, as calculated from the RB209, ensuring that the spreading activities do not increase soil reserves.

**Organic Matter**

The wastes will also provide a small increase in soil organic matter. This can help to improve soil structure and water, and nutrient holding capacity.

**pH**

English Provender has a pH of 4.54 which is slightly acidic, the receiving soil have pH ranging from 5.8 to 7.2 and will buffer the waste pH with not detrimental effect anticipated. The soils at Cottage Gorse Farm are classified on soil scapes as Loamy and clayey soils floodplain soils with naturally high groundwater. These soil types are at a much lower of risk to the effect of pH than other soils such as Non-calcareous sandy soils.

### Soils

Additionally, full soil analysis of the proposed fields to be spread has been attached in Appendix C, and a summary table has been included in Table 6.

**Table 6: Summary of soil pH and major nutrients for the fields to be spread**

| Field | Soil pH | Phosphate | | Potash | | Magnesium | |
|---|---|---|---|---|---|---|---|
| | | mg/l | Index | mg/l | Index | mg/l | Index |
| 1/2 | 5.8 | 15.6 | 2 | 52.8 | 0 | 87.1 | 2 |
| 3 | 7.2 | 10.6 | 1 | 113 | 1 | 317 | 5 |
| 4/5 | 6.2 | 14.8 | 1 | 151 | 2- | 297 | 5 |
| 7 | 6.0 | 11.6 | 1 | 92.7 | 1 | 262 | 5 |
| 8 | 5.8 | 16.2 | 2 | 118.1 | 1 | 292 | 5 |
| 9 | 6.2 | 15.4 | 1 | 186 | 2+ | 246 | 4 |
| 13 | 6.4 | 11.2 | 1 | 111 | 1 | 216 | 4 |
| 6 | 6.4 | 13.0 | 1 | 94.7 | 1 | 262 | 5 |

The soils were sampled in March 2016 in accordance with the sampling procedures described in the RB209 (9th Edition). Analysis was carried out by NRM laboratories for pH, major plant nutrients, and potentially toxic elements (PTEs) described in the Sludge (Use in Agriculture) Regulations.

Soils were found to be medium loam categorised in accordance with RB209 (9th edition) as mineral soils for crop recommendations.

Soil pH ranges from 5.8 and 7.2, and are generally at or around the target value, although it shouldn't affect crop performance. Soil P index's range from 1 to 2, and the soils are generally at or below the guideline target index of 2. Soil K levels ranged from index 0 to 2+ and are generally below the target index level of 2-. The magnesium index for all fields was satisfactory. PTE concentrations for all fields is low and within the typical range of uncontaminated soil.

## 8. Potential Negative Impacts

There are no known or expected elevated levels of PTEs within the wastes.

### Site Hazards

Hazards have been identified on the site plan in Figure 1, and relevant control measures and buffer zones have been identified. Operations are to be carried out in accordance with the company generic risk assessment for landspreading, which will reduce the impacts of the operation on the receiving soil.

### Odour and Noise Control

The wastes have the potential to cause odour, however storage will be sited away from dwellings, and it is unlikely to cause nuisance odour issues. Additionally, application of sludge via an umbilical cord sub soil injection system will minimise the risk of odour. The operation will be carried out in accordance within normal agricultural hours to minimise the risk of odour and noise complaints.

### Storage Tanks

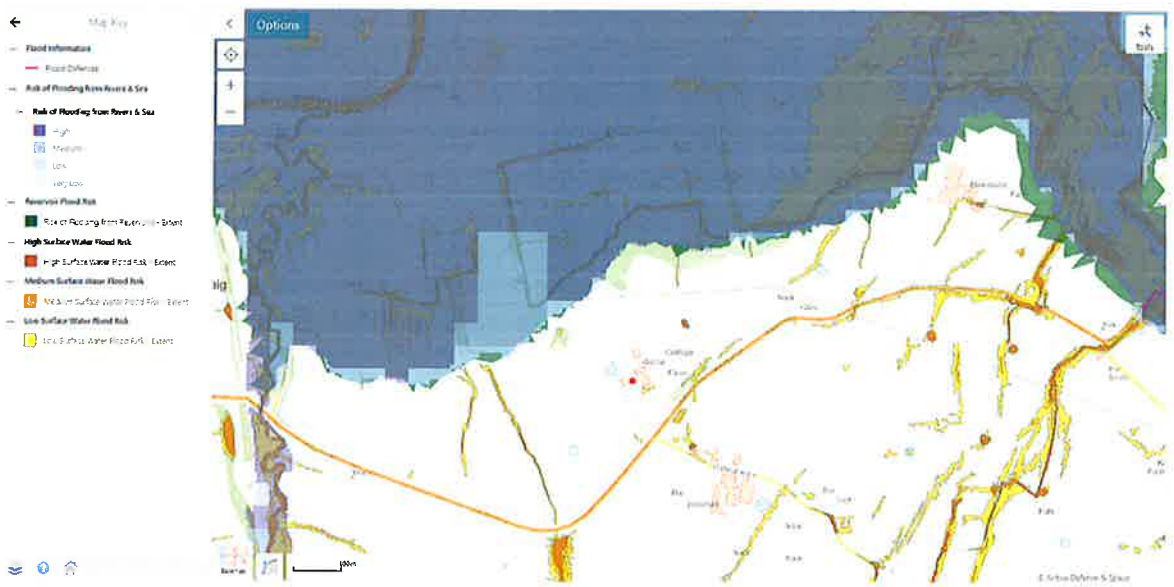
Storage tanks are inspected daily by the operator and wherever possible left empty at the end of the working day. Storage tanks will not be sited within 10m of watercourses or at the top of a steep embankment. Signage on the tanks identifies the company and activity, and has emergency contact details. Anticipated location of storage tanks are shown in Figure 1, but locations may vary slightly due to unforeseen operational requirements.

## 9. Sensitive Receptors

There are a number of properties within 500m of the fields proposed to be spread. Odour and noise will be controlled, as detailed in section 8, in order to minimise the disruption caused to residents.

There are no footpaths or tracks crossing the fields to be spread, and no boreholes, wells or springs have been identified within the spreading area.

The site is within a flood prone area and the land is outside a ground water protection zone (Figure 3). The wastes will be spread in appropriate conditions with weather and field conditions continuously examined.



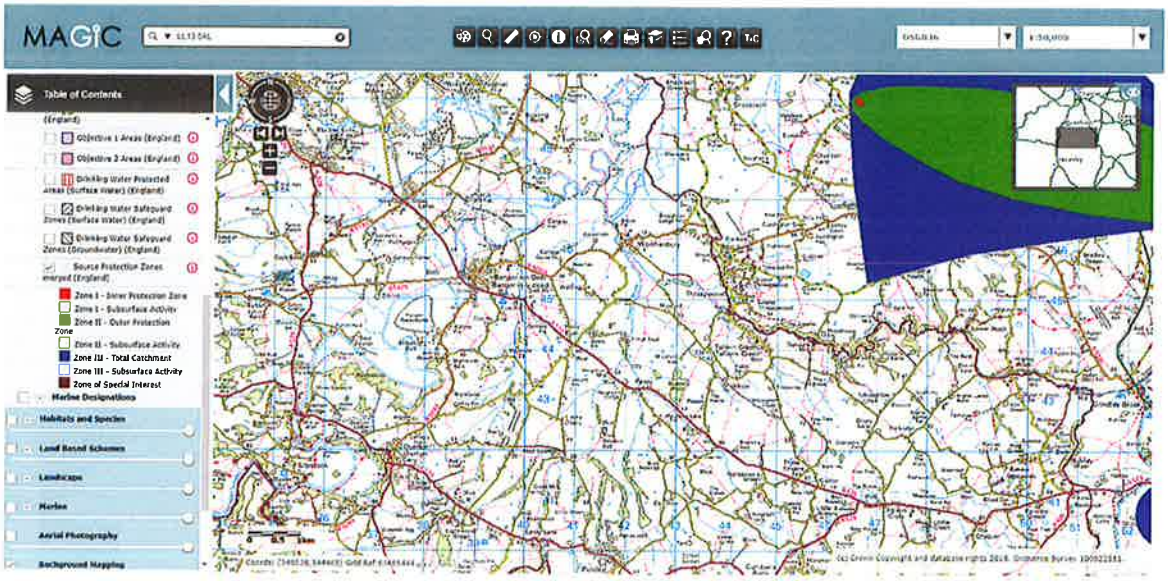



**Figure 3: Maps of flood prone areas and ground water protection zones of the land to be spread. These were obtained from the NRW website (naturalresources.wales/evidence-and-data/maps/long-term-flood-risk) and 'Magic Maps' (magic.defra.gov.uk/MagicMap.aspx) respectively.**

The site is within 500m of a statutory designated environmentally sensitive area as defined by Magic Maps (magic.gov.uk). This is the River Dee and Bala Lake SSSI/SAC, and a site specific risk assessment can be found in Appendix B.

## 10. Contingency Planning

To cover machinery breakdown, replacement machinery is available or can be hired from suppliers and mobile mechanics are available to attend sites. All machinery is regularly serviced.

There is sufficient trained staff to maintain sickness and holiday cover.

Spreading operations will not be carried out when there are adverse weather conditions that are likely to interfere with the operation. These conditions include; heavy rain, or during periods of heavy snow or frozen ground as defined in the Code of Good Agricultural Practice (COGAP).

Site Specific Risk Assessment – To be read in conjunction with landspreading Generic Risk Assessment

Farm Name: Cottage Gorse Farm
Address: Bangor on Dee, Wrexham

Site Specific Risk Assessment for: Mobile Plant for Landspreading – SR2010No4 – Cottage Gorse

Risk Assessment Carried out by: R G Street Date: 05/04/2015

| ***Receptor***<br>What is the risk?<br>What do I wish to protect? | ***Source***<br>The agent or process with potential to cause harm | ***Harm***<br>The harmful consequences if things go wrong | ***Pathway***<br>How the receptor might come into contact with the source | ***Probability of exposure***<br>How likely is contact? | ***Consequence***<br>Severity of the consequences if this occurs | ***Magnitude of risk***<br>The overall magnitude of the risk | ***Justification for magnitude***<br>Basis of my judgement | ***Risk management***<br>How I can best manage the risk to reduce the magnitude | ***Residual risk***<br>Magnitude of the risk after management |
|---|---|---|---|---|---|---|---|---|---|
| SSSI – River Dee | Deterioration of SSSI site through nutrient enrichment. | Nutrient enrichment of river, ponds or associated habitats | Surface run off, Leaching. | Low | High | Moderate | Waste is spread in accordance with COGAP.<br>Wastes that are to be surface applied have low application rates. | • 30m buffer zone on land adjacent to SSSI – **North boundary of field 9**<br>• Waste spread in accordance with COGAP<br>• Operations carried out using best available techniques<br>• Spreading to be carried out during appropriate conditions<br>• Regular checks of watercourses in the area surrounding spreading operations<br>• No travelling on a SSSI or protected site<br>• No activities to occur inside the boundary without written permission<br>• Consult CCW/Natural England websites for classification and details of ESA<br>• ESA Clearly marked on deployment maps | Low |

# Trade Effluent Services Ltd.

## Risk assessment

Risk assessment for proposed land spreading activity at: Cottage Gorse, Bangor-on-Dee, Wrexham

Fields: 1 - 12 Products: COMMERCIAL

Risk assessment carried out by: R. M Piggott..... Date .....24/09/2009

| ***Receptor***<br><br>What is the risk?<br><br>What do I wish to protect? | ***Source***<br><br>The agent or process with potential to cause harm | ***Harm***<br><br>The harmful consequences if things go wrong | ***Pathway***<br><br>How the receptor might come into contact with the source | ***Probability of exposure***<br><br>How likely is contact? | ***Consequence***<br><br>Severity of the consequences if this occurs | ***Magnitude of risk***<br><br>The overall magnitude of the risk | ***Justification for magnitude***<br><br>Basis of my judgement | ***Risk management***<br><br>How I can best manage the risk to reduce the magnitude | ***Residual risk***<br><br>Magnitude of the risk after management |
|---|---|---|---|---|---|---|---|---|---|
| Surface Waters | Concentrations of nutrients in the waste | Surface water pollution | Run-off, leaching or direct contact with waste | Low | High | Low | Location of watercourses on site. | Comply with Water Code, Sludge (Use in Agriculture) Regs, Environmental Permitting Regulations 2008, COGAP. 10m no spread zones around watercourses. | Low |
| Groundwater | Concentrations of nutrients in the waste | Contamination of groundwater | Leaching through the soil | Medium | High | Medium | Sludge analysis, soil types are clay loams | Comply with Water Code, Sludge (Use in Agriculture) Regs, Environmental Permitting Regulations 2008. | Low |
| Local residents | Odour carried to public areas or centres of habitation during spreading | Public odour nuisance | Airborne | Low | Medium | Low | Proximity and density of houses to proposed spreading activity. | The operator will regularly check residential areas for odour and cease operations on that field until the weather conditions are suitable if an odour problem is detected. | Low |
| General public | Direct Contact with the waste. Odour from the sludge | Harm to humans or animals | Direct contact with waste | Low | Low | Medium | Limited public access. Sludge is to be injected. | Will not spread within 2m of footpaths. | Low |
| Environmentally Sensitive Areas<br><br>SSSI, SAC & Ramsar Site | High concentrations of nutrients in the waste | Contamination of SSSI | Run-off, leaching or direct contact | Low | High | Medium | Sludge analysis. Appropriate application times and rates. | No spreading to take place on fields which are located on the River Dee floodplain outside of the months of March to October. Guidelines within the stage 3 Appropriate Assessment to be followed. | Low |
| Humans and animals | Spreading/ storage activities – physical | Harm to humans and animal health | Trespass, accidental contact | Low | Medium | Low to medium | Agricultural area with limited public access. No footpaths in fields to be spread. | Application during appropriate conditions and awareness of public access to site. | Low |
| Soils | Nutrients, aluminium, iron and PTE addition | Build up of nutrients and/or PTE's | Storage and spreading activities | Medium | Medium to High | Low | Sludge analysis shows waste is low in PTE's. Limited application rates | Comply with soil code, COGAP and EPR 2007. Apply at specified rates. Regular monitoring of soils for aluminium, iron and pH. | Low |
| | | | | | | | | | Low |

# SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 1/2

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MR BRERETON
COTTAGE GORSE

SOILS

| | |
|---|---|
| Date Received | 26-MAR-2015 |
| Date Reported | 31-MAR-2015 |

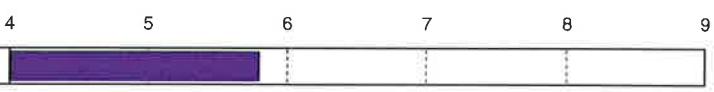
Laboratory References

| | |
|---|---|
| Report Number | 64350 |
| Sample Number | 272339 |

ANALYTICAL RESULTS *on 'dry matter' basis.*

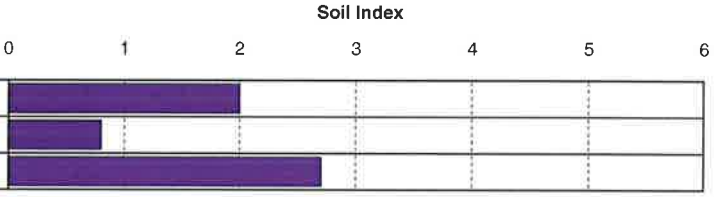
**pH** (1)

| Determinand | Result |
|---|---|
| Soil pH | 5.8 |



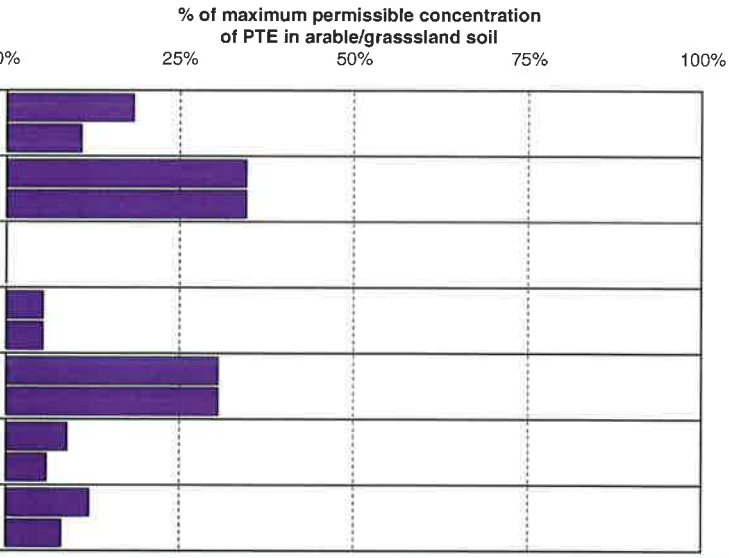

**Soil Nutrients** (1)

| Determinand | Result mg/litre | Soil Index |
|---|---|---|
| Soil Phosphorus as P | 15.6 | 2 |
| Soil Potassium as K | 52.8 | 0 |
| Soil Magnesium as Mg | 87.1 | 2 |




**Potentially Toxic Elements** (2)

| Determinand | Result mg/kg | | Maximum mg/kg |
|---|---|---|---|
| Total Copper as Cu | 18.3 | Arable | 100 |
| | | Grassland | 170 |
| Total Zinc as Zn | 69.2 | Arable | 200 |
| | | Grassland | 200 |
| Total Nickel as Ni | <10 | Arable | 60 |
| | | Grassland | 100 |
| Total Cadmium as Cd | 0.16 | Arable | 3 |
| | | Grassland | 3 |
| Total Lead as Pb | 91.8 | Arable | 300 |
| | | Grassland | 300 |
| Total Chromium as Cr | 35.2 | Arable | 400 |
| | | Grassland | 600 |
| Total Mercury as Hg | 0.12 | Arable | 1 |
| | | Grassland | 1.5 |




(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by *Andy Chase* Date *31/03/15*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

# SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 3

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MR BRERETON
COTTAGE GORSE

SOILS

| | |
|---|---|
| Date Received | 26-MAR-2015 |
| Date Reported | 31-MAR-2015 |

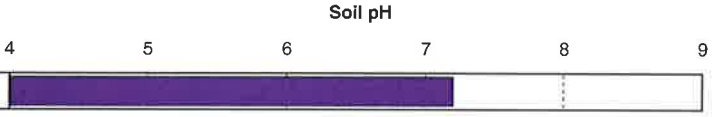
Laboratory References

| | |
|---|---|
| Report Number | 64350 |
| Sample Number | 272340 |

ANALYTICAL RESULTS *on 'dry matter' basis.*

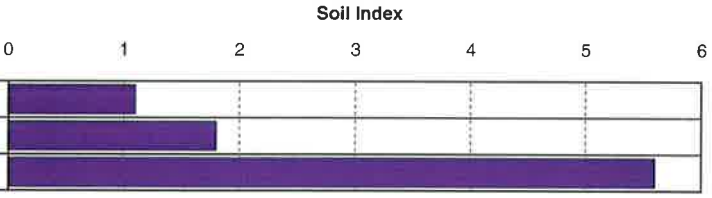
**pH** (1)

| Determinand | Result |
|---|---|
| Soil pH | 7.2 |



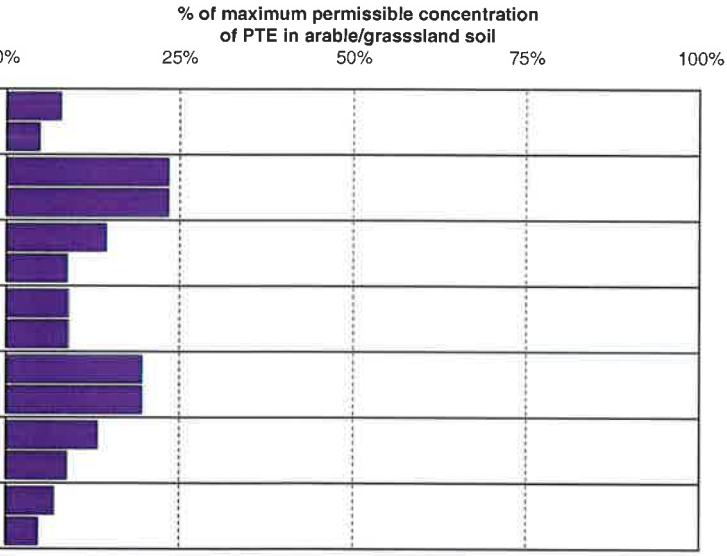

**Soil Nutrients** (1)

| Determinand | Result mg/litre | Soil Index |
|---|---|---|
| Soil Phosphorus as P | 10.6 | 1 |
| Soil Potassium as K | 113 | 1 |
| Soil Magnesium as Mg | 317 | 5 |




**Potentially Toxic Elements** (2)

| Determinand | Result mg/kg | | Maximum mg/kg |
|---|---|---|---|
| Total Copper as Cu | 15.7 | Arable | 200 |
| | | Grassland | 330 |
| Total Zinc as Zn | 70.2 | Arable | 300 |
| | | Grassland | 300 |
| Total Nickel as Ni | 15.9 | Arable | 110 |
| | | Grassland | 180 |
| Total Cadmium as Cd | 0.27 | Arable | 3 |
| | | Grassland | 3 |
| Total Lead as Pb | 58.9 | Arable | 300 |
| | | Grassland | 300 |
| Total Chromium as Cr | 53.0 | Arable | 400 |
| | | Grassland | 600 |
| Total Mercury as Hg | 0.07 | Arable | 1 |
| | | Grassland | 1.5 |




(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by *Andy Chase* Date *31/03/15*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

# SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 4/5

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MR BRERETON
COTTAGE GORSE

SOILS

| | |
|---|---|
| Date Received | 26-MAR-2015 |
| Date Reported | 31-MAR-2015 |

Laboratory References

| | |
|---|---|
| Report Number | 64350 |
| Sample Number | 272341 |

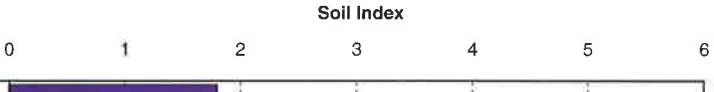
ANALYTICAL RESULTS *on 'dry matter' basis.*

**pH** (1)

| Determinand | Result |
|---|---|
| Soil pH | 6.2 |

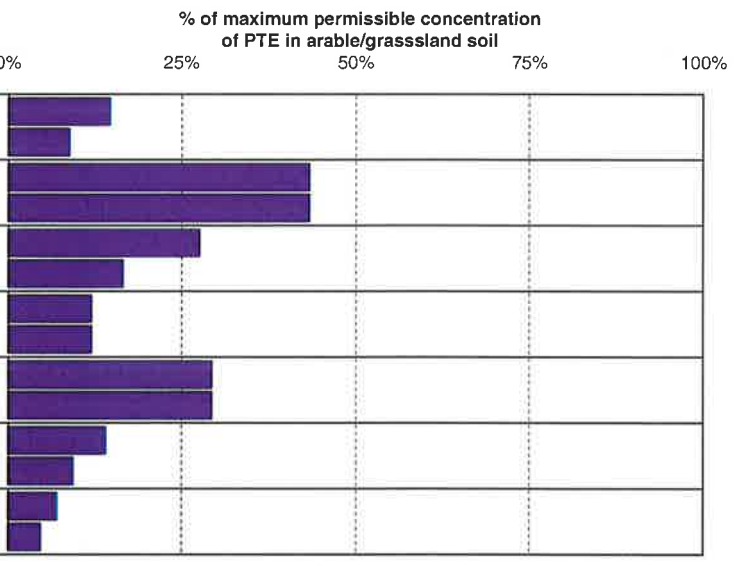

**Soil Nutrients** (1)

| Determinand | Result mg/litre | Soil Index |
|---|---|---|
| Soil Phosphorus as P | 14.8 | 1 |
| Soil Potassium as K | 151 | 2- |
| Soil Magnesium as Mg | 297 | 5 |




**Potentially Toxic Elements** (2)

| Determinand | Result mg/kg | | Maximum mg/kg |
|---|---|---|---|
| Total Copper as Cu | 19.8 | Arable | 135 |
| | | Grassland | 225 |
| Total Zinc as Zn | 86.7 | Arable | 200 |
| | | Grassland | 200 |
| Total Nickel as Ni | 20.7 | Arable | 75 |
| | | Grassland | 125 |
| Total Cadmium as Cd | 0.36 | Arable | 3 |
| | | Grassland | 3 |
| Total Lead as Pb | 88.2 | Arable | 300 |
| | | Grassland | 300 |
| Total Chromium as Cr | 56.2 | Arable | 400 |
| | | Grassland | 600 |
| Total Mercury as Hg | 0.07 | Arable | 1 |
| | | Grassland | 1.5 |




(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by ..... Andy Chase ..... Date ..... 31/03/15 .....

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

# SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 6

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MR BRERETON
COTTAGE GORSE

SOILS

| | |
|---|---|
| Date Received | 26-MAR-2015 |
| Date Reported | 31-MAR-2015 |

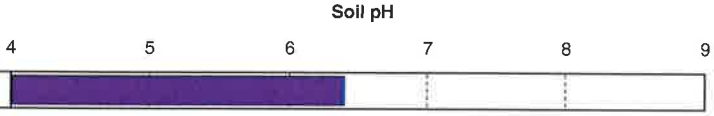
Laboratory References

| | |
|---|---|
| Report Number | 64350 |
| Sample Number | 272342 |

ANALYTICAL RESULTS *on 'dry matter' basis.*

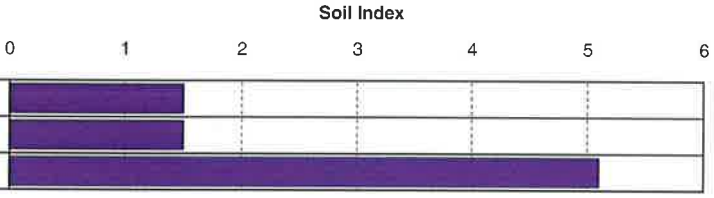
**pH** (1)

| Determinand | Result |
|---|---|
| Soil pH | 6.4 |



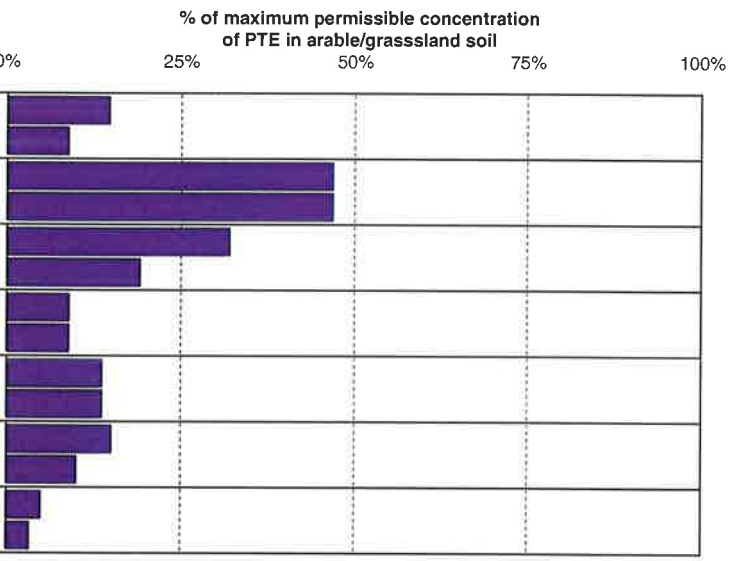

**Soil Nutrients** (1)

| Determinand | Result mg/litre | Soil Index |
|---|---|---|
| Soil Phosphorus as P | 13.0 | 1 |
| Soil Potassium as K | 94.7 | 1 |
| Soil Magnesium as Mg | 262 | 5 |




**Potentially Toxic Elements** (2)

| Determinand | Result mg/kg | | Maximum mg/kg |
|---|---|---|---|
| Total Copper as Cu | 19.9 | Arable | 135 |
| | | Grassland | 225 |
| Total Zinc as Zn | 93.8 | Arable | 200 |
| | | Grassland | 200 |
| Total Nickel as Ni | 24.0 | Arable | 75 |
| | | Grassland | 125 |
| Total Cadmium as Cd | 0.27 | Arable | 3 |
| | | Grassland | 3 |
| Total Lead as Pb | 41.3 | Arable | 300 |
| | | Grassland | 300 |
| Total Chromium as Cr | 60.6 | Arable | 400 |
| | | Grassland | 600 |
| Total Mercury as Hg | 0.05 | Arable | 1 |
| | | Grassland | 1.5 |




(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by ..Andy Chase..... Date ..31/03/15.....


**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

# SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 7

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MR BRERETON
COTTAGE GORSE

SOILS

| | |
|---|---|
| Date Received | 26-MAR-2015 |
| Date Reported | 31-MAR-2015 |

Laboratory References

| | |
|---|---|
| Report Number | 64350 |
| Sample Number | 272343 |

ANALYTICAL RESULTS *on 'dry matter' basis.*

**pH** (1)

| Determinand | Result | Soil pH 4 5 6 7 8 9 |
|---|---|---|
| Soil pH | 6.0 | |

**Soil Nutrients** (1)

| Determinand | Result mg/litre | Soil Index | Soil Index 0 1 2 3 4 5 6 |
|---|---|---|---|
| Soil Phosphorus as P | 11.6 | 1 | |
| Soil Potassium as K | 92.7 | 1 | |
| Soil Magnesium as Mg | 262 | 5 | |

**Potentially Toxic Elements** (2)

| Determinand | Result mg/kg | | Maximum mg/kg | % of maximum permissible concentration of PTE in arable/grassland soil 0% 25% 50% 75% 100% |
|---|---|---|---|---|
| Total Copper as Cu | 17.3 | Arable | 100 | |
| | | Grassland | 170 | |
| Total Zinc as Zn | 67.7 | Arable | 200 | |
| | | Grassland | 200 | |
| Total Nickel as Ni | 20.5 | Arable | 60 | |
| | | Grassland | 100 | |
| Total Cadmium as Cd | 0.24 | Arable | 3 | |
| | | Grassland | 3 | |
| Total Lead as Pb | 42.8 | Arable | 300 | |
| | | Grassland | 300 | |
| Total Chromium as Cr | 51.9 | Arable | 400 | |
| | | Grassland | 600 | |
| Total Mercury as Hg | 0.05 | Arable | 1 | |
| | | Grassland | 1.5 | |

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by *Andy Chase* Date *31/03/15*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

# SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 8

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MR BRERETON
COTTAGE GORSE

SOILS

| | |
|---|---|
| Date Received | 26-MAR-2015 |
| Date Reported | 31-MAR-2015 |

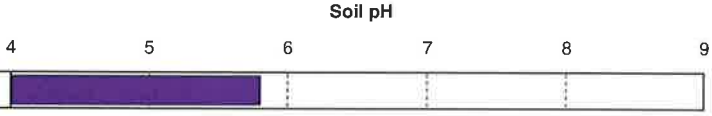
Laboratory References

| | |
|---|---|
| Report Number | 64350 |
| Sample Number | 272344 |

ANALYTICAL RESULTS *on 'dry matter' basis.*

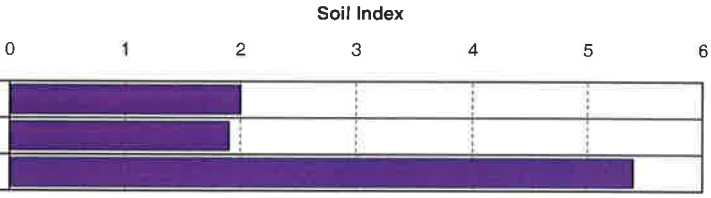
**pH** (1)

| Determinand | Result |
|---|---|
| Soil pH | 5.8 |



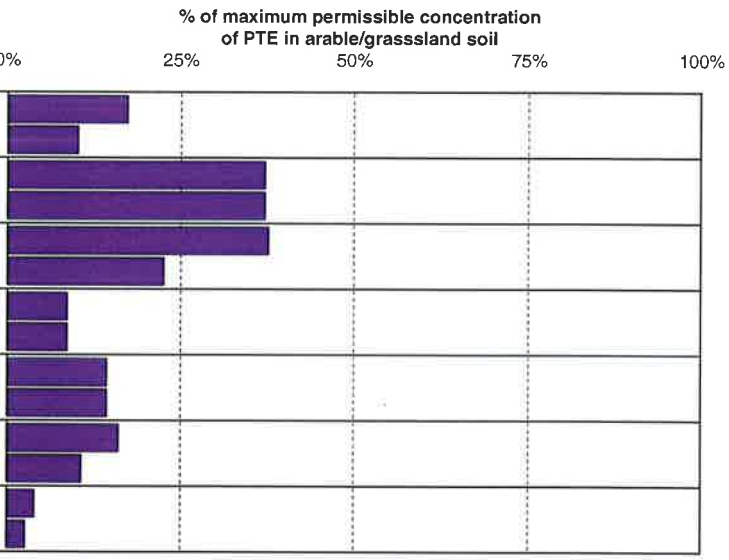

**Soil Nutrients** (1)

| Determinand | Result mg/litre | Soil Index |
|---|---|---|
| Soil Phosphorus as P | 16.2 | 2 |
| Soil Potassium as K | 118 | 1 |
| Soil Magnesium as Mg | 292 | 5 |




**Potentially Toxic Elements** (2)

| Determinand | Result mg/kg | | Maximum mg/kg |
|---|---|---|---|
| Total Copper as Cu | 17.3 | Arable | 100 |
| | | Grassland | 170 |
| Total Zinc as Zn | 74.3 | Arable | 200 |
| | | Grassland | 200 |
| Total Nickel as Ni | 22.6 | Arable | 60 |
| | | Grassland | 100 |
| Total Cadmium as Cd | 0.26 | Arable | 3 |
| | | Grassland | 3 |
| Total Lead as Pb | 43.1 | Arable | 300 |
| | | Grassland | 300 |
| Total Chromium as Cr | 64.4 | Arable | 400 |
| | | Grassland | 600 |
| Total Mercury as Hg | 0.04 | Arable | 1 |
| | | Grassland | 1.5 |




(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by *Andy Chase* Date *31/03/15*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.nrm.uk.com**

# SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 9

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MR BRERETON
COTTAGE GORSE

SOILS

| | |
|---|---|
| Date Received | 26-MAR-2015 |
| Date Reported | 31-MAR-2015 |

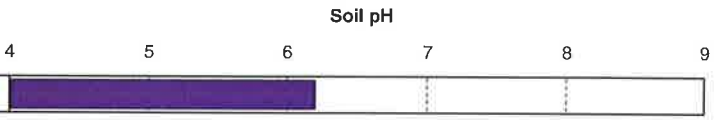
Laboratory References

| | |
|---|---|
| Report Number | 64350 |
| Sample Number | 272345 |

ANALYTICAL RESULTS *on 'dry matter' basis.*

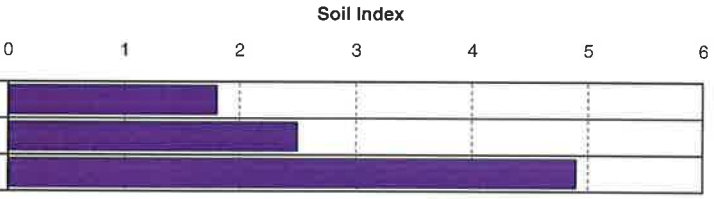
**pH** (1)

| Determinand | Result |
|---|---|
| Soil pH | 6.2 |



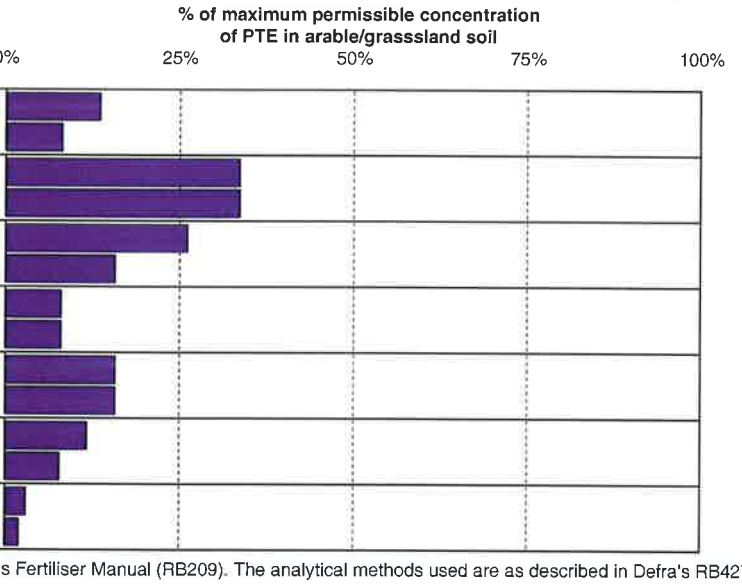

**Soil Nutrients** (1)

| Determinand | Result mg/litre | Soil Index |
|---|---|---|
| Soil Phosphorus as P | 15.4 | 1 |
| Soil Potassium as K | 186 | 2+ |
| Soil Magnesium as Mg | 246 | 4 |




**Potentially Toxic Elements** (2)

| Determinand | Result mg/kg | | Maximum mg/kg |
|---|---|---|---|
| Total Copper as Cu | 18.2 | Arable | 135 |
| | | Grassland | 225 |
| Total Zinc as Zn | 67.4 | Arable | 200 |
| | | Grassland | 200 |
| Total Nickel as Ni | 19.6 | Arable | 75 |
| | | Grassland | 125 |
| Total Cadmium as Cd | 0.24 | Arable | 3 |
| | | Grassland | 3 |
| Total Lead as Pb | 47.2 | Arable | 300 |
| | | Grassland | 300 |
| Total Chromium as Cr | 46.7 | Arable | 400 |
| | | Grassland | 600 |
| Total Mercury as Hg | 0.03 | Arable | 1 |
| | | Grassland | 1.5 |




(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by *Andy Chase* Date *31/03/15*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

# SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 13

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MR BRERETON
COTTAGE GORSE

SOILS

| | |
|---|---|
| Date Received | 26-MAR-2015 |
| Date Reported | 31-MAR-2015 |

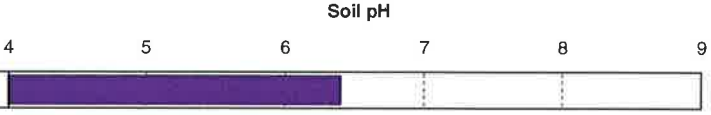
Laboratory References

| | |
|---|---|
| Report Number | 64350 |
| Sample Number | 272346 |

ANALYTICAL RESULTS *on 'dry matter' basis.*

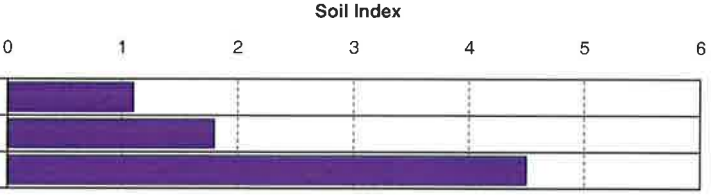
**pH** (1)

| Determinand | Result |
|---|---|
| Soil pH | 6.4 |



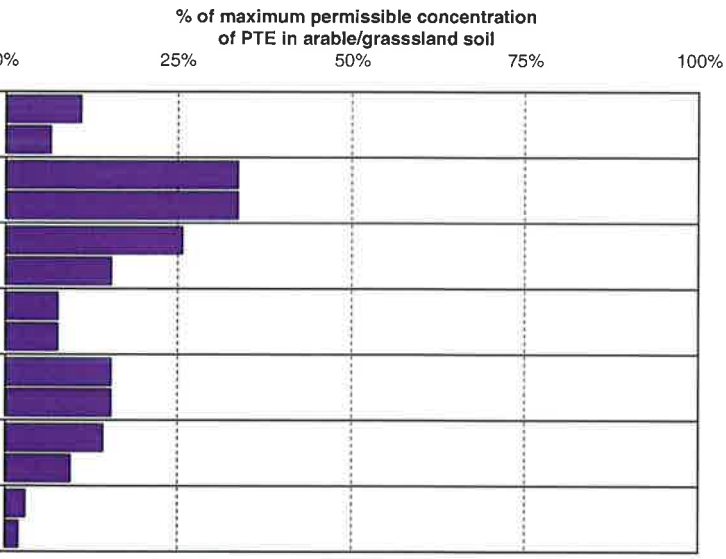

**Soil Nutrients** (1)

| Determinand | Result mg/litre | Soil Index |
|---|---|---|
| Soil Phosphorus as P | 11.2 | 1 |
| Soil Potassium as K | 111 | 1 |
| Soil Magnesium as Mg | 216 | 4 |




**Potentially Toxic Elements** (2)

| Determinand | Result mg/kg | | Maximum mg/kg |
|---|---|---|---|
| Total Copper as Cu | 14.8 | Arable | 135 |
| | | Grassland | 225 |
| Total Zinc as Zn | 67.3 | Arable | 200 |
| | | Grassland | 200 |
| Total Nickel as Ni | 19.3 | Arable | 75 |
| | | Grassland | 125 |
| Total Cadmium as Cd | 0.23 | Arable | 3 |
| | | Grassland | 3 |
| Total Lead as Pb | 46.3 | Arable | 300 |
| | | Grassland | 300 |
| Total Chromium as Cr | 57.2 | Arable | 400 |
| | | Grassland | 600 |
| Total Mercury as Hg | 0.03 | Arable | 1 |
| | | Grassland | 1.5 |




(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by ..... *Andy Chase* .....  Date ..... *31/03/15* .....


**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

SECANIM

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 45668 |
| Sample Number | 79668 |

| | |
|---|---|
| Date Received | 27-FEB-2019 |
| Date Reported | 05-MAR-2019 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 7.93 | | | |
| Oven Dry Solids | % | 1.43 | 14.30 | 3972 | kg DM |
| Total Nitrogen | % w/w | 0.090 | 0.90 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | <50 | < 0.01 | | kg NH4-N |
| Nitrate Nitrogen | mg/kg | 67.6 | 0.07 | 18.78 | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 173 | 0.40 | 110.05 | kg P2O5 |
| Total Potassium (K) | mg/kg | 204 | 0.24 | 68.00 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 30.7 | 0.05 | 14.16 | kg MgO |
| Total Sulphur (S) | mg/kg | 379 | 0.95 | 263.20 | kg SO3 |
| Total Copper (Cu) | mg/kg | 0.312 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 3.63 | < 0.01 | | kg Zn |
| Total Sodium (Na) | mg/kg | 1094 | 1.47 | 409.65 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 239 | 0.24 | 66.39 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 277.78 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by ..... Darren Whitbread ..... Date 05/03/19

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

SECANIM

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 45668 |
| Sample Number | 79668 |

| | |
|---|---|
| Date Received | 27-FEB-2019 |
| Date Reported | 05-MAR-2019 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 830 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | 0.224 |
| Total Chromium (Cr) | mg/kg | <0.2 |
| Water Soluble Magnesium | mg/kg | 9.75 |
| Water Soluble Phosphorus | mg/kg | 5.08 |
| Water Soluble Potassium | mg/kg | 146 |

Released by *Darren Whitbread* Date *05/03/19*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/l) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MAELOR FOOD

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 45666 |
| Sample Number | 79666 |

| | |
|---|---|
| Date Received | 27-FEB-2019 |
| Date Reported | 04-MAR-2019 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 7.52 | | | |
| Oven Dry Solids | % | 4.56 | 45.60 | 3353 | kg DM |
| Total Nitrogen | % w/w | 0.340 | 3.40 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | 901 | 0.90 | 66.25 | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 770 | 1.76 | 129.66 | kg P2O5 |
| Total Potassium (K) | mg/kg | 190 | 0.23 | 16.76 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 243 | 0.40 | 29.66 | kg MgO |
| Total Sulphur (S) | mg/kg | 762 | 1.90 | 140.07 | kg SO3 |
| Total Copper (Cu) | mg/kg | 3.51 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 19.1 | 0.02 | 1.40 | kg Zn |
| Total Sodium (Na) | mg/kg | 674 | 0.91 | 66.81 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 1047 | 1.05 | 76.99 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 73.53 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by *Darren Whitbread* Date *04/03/19*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MAELOR FOOD

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 45666 |
| Sample Number | 79666 |

| | |
|---|---|
| Date Received | 27-FEB-2019 |
| Date Reported | 04-MAR-2019 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 1806 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | 0.592 |
| Total Chromium (Cr) | mg/kg | 1.17 |
| Water Soluble Magnesium | mg/kg | 145 |
| Water Soluble Phosphorus | mg/kg | 0.136 |
| Water Soluble Potassium | mg/kg | 180 |

Released by *Darren Whitbread* Date *04/03/19*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

Purchase Order : 000234

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MEADOW FOODS

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 18179 |
| Sample Number | 70327 |

| | |
|---|---|
| Date Received | 02-JUL-2018 |
| Date Reported | 11-JUL-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 7.11 | | | |
| Oven Dry Solids | % | 0.870 | 8.70 | 3107 | kg DM |
| Total Nitrogen | % w/w | 0.070 | 0.70 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | 207 | 0.21 | 73.93 | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 111 | 0.25 | 90.78 | kg P2O5 |
| Total Potassium (K) | mg/kg | 81.4 | 0.10 | 34.89 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 17.9 | 0.03 | 10.61 | kg MgO |
| Total Sulphur (S) | mg/kg | 24.9 | 0.06 | 22.23 | kg SO3 |
| Total Copper (Cu) | mg/kg | 0.460 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 1.79 | < 0.01 | | kg Zn |
| Total Sodium (Na) | mg/kg | 212 | 0.29 | 102.06 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 114 | 0.11 | 40.71 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 357.14 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by *Darren Whitbread* Date *11/07/18*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

Purchase Order : 000234

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MEADOW FOODS

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 18179 |
| Sample Number | 70327 |

| | |
|---|---|
| Date Received | 02-JUL-2018 |
| Date Reported | 11-JUL-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 448 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | <0.2 |
| Total Chromium (Cr) | mg/kg | <0.2 |
| Water Soluble Magnesium | mg/kg | 0.628 |
| Water Soluble Phosphorus | mg/kg | 59.2 |
| Water Soluble Potassium | mg/kg | 79.6 |

Released by *Darren Whitbread* Date *11/07/18*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

AUTHENTIC FOOD CO

SLUDGE

# SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 33299 |
| Sample Number | 75510 |

| | |
|---|---|
| Date Received | 06-NOV-2018 |
| Date Reported | 12-NOV-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 7.16 | | | |
| Oven Dry Solids | % | 4.42 | 44.20 | 3453 | kg DM |
| Total Nitrogen | % w/w | 0.320 | 3.20 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | 1362 | 1.36 | 106.41 | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 756 | 1.73 | 135.26 | kg P2O5 |
| Total Potassium (K) | mg/kg | 145 | 0.17 | 13.59 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 379 | 0.63 | 49.15 | kg MgO |
| Total Sulphur (S) | mg/kg | 446 | 1.12 | 87.11 | kg SO3 |
| Total Copper (Cu) | mg/kg | 3.11 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 16.0 | 0.02 | 1.25 | kg Zn |
| Total Sodium (Na) | mg/kg | 677 | 0.91 | 71.30 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 1127 | 1.13 | 88.05 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 78.13 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by J Doyle Date 12/11/18

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

AUTHENTIC FOOD CO

SLUDGE

# SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 33299 |
| Sample Number | 75510 |

| | |
|---|---|
| Date Received | 06-NOV-2018 |
| Date Reported | 12-NOV-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 2267 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | 0.727 |
| Total Chromium (Cr) | mg/kg | 1.49 |
| Water Soluble Magnesium | mg/kg | 299 |
| Water Soluble Phosphorus | mg/kg | <0.01 |
| Water Soluble Potassium | mg/kg | 131 |

Released by J Doyle Date 12/11/18

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availabilily figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

BURTWOOD BREWERY

SLUDGE

# SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 33298 |
| Sample Number | 75509 |

| | |
|---|---|
| Date Received | 06-NOV-2018 |
| Date Reported | 12-NOV-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 6.42 | | | |
| Oven Dry Solids | % | 3.81 | 38.10 | 2721 | kg DM |
| Total Nitrogen | % w/w | 0.350 | 3.50 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | 1400 | 1.40 | 100.00 | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 987 | 2.26 | 161.45 | kg P2O5 |
| Total Potassium (K) | mg/kg | 1116 | 1.34 | 95.66 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 181 | 0.30 | 21.46 | kg MgO |
| Total Sulphur (S) | mg/kg | 169 | 0.42 | 30.18 | kg SO3 |
| Total Copper (Cu) | mg/kg | <0.2 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 0.709 | < 0.01 | | kg Zn |
| Total Sodium (Na) | mg/kg | 52.3 | 0.07 | 5.04 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 4678 | 4.68 | 334.15 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 71.43 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by J Doyle Date 12/11/18

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

BURTWOOD BREWERY

SLUDGE

# SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 33298 |
| Sample Number | 75509 |

| | |
|---|---|
| Date Received | 06-NOV-2018 |
| Date Reported | 12-NOV-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 3308 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | <0.2 |
| Total Chromium (Cr) | mg/kg | <0.2 |
| Water Soluble Magnesium | mg/kg | 176 |
| Water Soluble Phosphorus | mg/kg | 457 |
| Water Soluble Potassium | mg/kg | 1103 |

Released by ..... J Doyle ..... Date ..... 12/11/18 .....

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

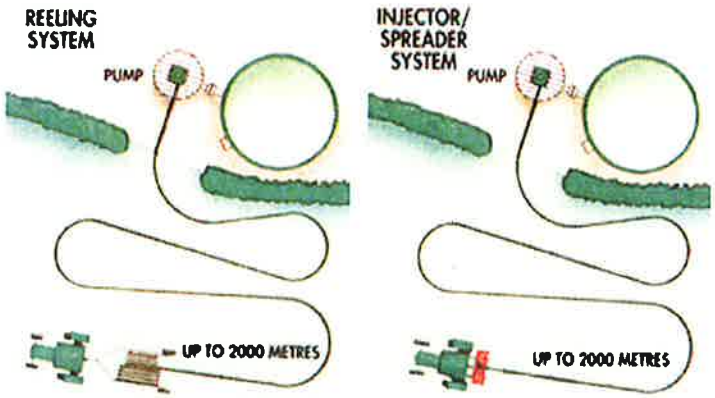
## On-field sludge application methods to ensure consistent nutrient inputs across the field

Nutrient inputs, as pre-notified, are based on the actual nutrient inputs from sludge applications during recent operations.

On delivery of the sludge the driver contacts the field operator to make him aware of the quantity and type of waste being deposited into the transfer tanks.

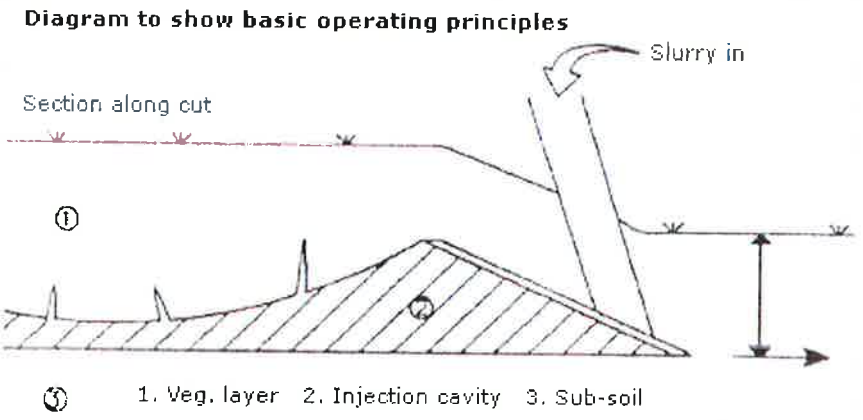
Once the level of the transfer tank has been checked and the field operator gives permission, the waste gets deposited into the transfer tank/s.

The field operator then activates the pump which pumps the sludge through an umbilical cord system to the sub soil injector mounted on the back of the field operator's tractor.




The waste is forced through four individual pipes and into four hollow injector legs.

Each injector leg is preceded by a disc which slices the soil in front of the injector leg. The injector leg has a set of angled wings which travel beneath the soil lifting it to create a pocket which will accommodate the sludge that is injected from the leg.



The sludges are injected at different speeds/volumes depending on their nutrient content. This approach helps to ensure that the nutrients are deposited as evenly as possible. The sludge delivery to the injector can be controlled by adjusting the speed of the pump and by adjusting the driving speed of the tractor. For example, if sludge with high total nitrogen content is applied to the land, the pump engine revs can be lowered to reduce the injection rate. The operator can also adjust the speed of travel of the tractor to reduce the amount of sludge being injected to the soil.

Waste streams are generally controlled on total nitrogen input apart from where available phosphates or potash are likely to be greater than crop requirement/off take.

The above application methods help to ensure that field application rates are met and that the distribution of nutrients across the field is as even as possible, providing the required agricultural benefit to all areas of the crop, as well as providing other advantages (as stated by the manufacturer) as follow:

## THE ADVANTAGES OF THE SUB-SOIL INJECTOR

- Completely eliminates the environmental and nuisance problems previously associated with sludge and slurry disposal bringing more land into use closer to housing and sewage works.
- Higher application rates and significant transport economies.
- Un-rivalled nutrient benefit to crops no leaching occurs to atmosphere
- Even application with the absolute minimum of surface contamination and none of the surface run-off problems that can occur with top-spreading systems.

### Control of waste quantities applied to the land-spreading site

For each site a "field pack" is issued to the operator which consists of a map (showing spreading area, risks and hazards), a copy of the risk assessment, a spreading limit sheet and if available information about field drainage.

All waste which comes to the site is accompanied by a waste transfer note which is left at the field site for the operator. The operator uses this information to keep a daily check on the loads to the site. The waste transfer notes are brought to the main office on a weekly basis, where they are processed and documented. This provides a secondary system to ensure limits are not exceeded.

Trade Effluent Services Ltd.
Hugmore House, Hugmore Lane
Llan-Y-Pwll, Wrexham
LL13 9YE

Tel: 01978 661866
Fax: 01978660372

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

CRODA WIDNES

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 45669 |
| Sample Number | 79669 |

| | |
|---|---|
| Date Received | 27-FEB-2019 |
| Date Reported | 05-MAR-2019 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 7.45 | | | |
| Oven Dry Solids | % | 0.710 | 7.10 | 4438 | kg DM |
| Total Nitrogen | % w/w | 0.040 | 0.40 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | <50 | < 0.01 | | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 56.6 | 0.13 | 81.01 | kg P2O5 |
| Total Potassium (K) | mg/kg | 50.7 | 0.06 | 38.03 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 98.0 | 0.16 | 101.68 | kg MgO |
| Total Sulphur (S) | mg/kg | 87.7 | 0.22 | 137.03 | kg SO3 |
| Total Copper (Cu) | mg/kg | 0.219 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 0.741 | < 0.01 | | kg Zn |
| Total Sodium (Na) | mg/kg | 561 | 0.76 | 472.64 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 228 | 0.23 | 142.50 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 625.00 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by *Darren Whitbread* Date *05/03/19*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

CRODA WIDNES

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 45669 |
| Sample Number | 79669 |

| | |
|---|---|
| Date Received | 27-FEB-2019 |
| Date Reported | 05-MAR-2019 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 656 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | <0.2 |
| Total Chromium (Cr) | mg/kg | <0.2 |
| Water Soluble Magnesium | mg/kg | 74.0 |
| Water Soluble Phosphorus | mg/kg | <0.01 |
| Water Soluble Potassium | mg/kg | 35.0 |

Released by *Darren Whitbread* Date *05/03/19*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

CRODA GOOLE

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 94988 |
| Sample Number | 65553 |

| | |
|---|---|
| Date Received | 13-MAR-2018 |
| Date Reported | 19-MAR-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 6.53 | | | |
| Oven Dry Solids | % | 5.02 | 50.20 | 3138 | kg DM |
| Total Nitrogen | % w/w | 0.400 | 4.00 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | 357 | 0.36 | 22.31 | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 812 | 1.86 | 116.22 | kg P2O5 |
| Total Potassium (K) | mg/kg | 327 | 0.39 | 24.52 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 129 | 0.21 | 13.38 | kg MgO |
| Total Sulphur (S) | mg/kg | 2107 | 5.27 | 329.22 | kg SO3 |
| Total Copper (Cu) | mg/kg | 0.911 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 18.0 | 0.02 | 1.13 | kg Zn |
| Total Sodium (Na) | mg/kg | 4036 | 5.44 | 340.03 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 352 | 0.35 | 22.00 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 62.50 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by *Darren Whitbread* Date *19/03/18*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

CRODA GOOLE

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 94988 |
| Sample Number | 65553 |

| | |
|---|---|
| Date Received | 13-MAR-2018 |
| Date Reported | 19-MAR-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 3150 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | 1.62 |
| Total Chromium (Cr) | mg/kg | 6.09 |
| Water Soluble Magnesium | mg/kg | 42.8 |
| Water Soluble Phosphorus | mg/kg | 282 |
| Water Soluble Potassium | mg/kg | 314 |

Released by ..... *Darren Whitbread* ..... Date ..... *19/03/18* .....

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

Purchase Order : 000344

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

ENCIRC

SLUDGE

# SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 21767 |
| Sample Number | 71789 |

| | |
|---|---|
| Date Received | 02-AUG-2018 |
| Date Reported | 07-AUG-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 7.06 | | | |
| Oven Dry Solids | % | 0.640 | 6.40 | 2667 | kg DM |
| Total Nitrogen | % w/w | 0.060 | 0.60 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | 114 | 0.11 | 47.50 | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 104 | 0.24 | 99.23 | kg P2O5 |
| Total Potassium (K) | mg/kg | 65.8 | 0.08 | 32.90 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 22.0 | 0.04 | 15.22 | kg MgO |
| Total Sulphur (S) | mg/kg | 196 | 0.49 | 204.17 | kg SO3 |
| Total Copper (Cu) | mg/kg | 0.579 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 9.43 | 0.01 | 3.93 | kg Zn |
| Total Sodium (Na) | mg/kg | 438 | 0.59 | 246.01 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 69.7 | 0.07 | 29.04 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 416.67 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by ..... J Doyle ..... Date 07/08/18

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

Purchase Order : 000344

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

ENCIRC

SLUDGE

# SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 21767 |
| Sample Number | 71789 |

| | |
|---|---|
| Date Received | 02-AUG-2018 |
| Date Reported | 07-AUG-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 439 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | 0.296 |
| Total Chromium (Cr) | mg/kg | 0.999 |
| Water Soluble Magnesium | mg/kg | 3.78 |
| Water Soluble Phosphorus | mg/kg | 49.1 |
| Water Soluble Potassium | mg/kg | 51.4 |

Released by ..... J Doyle ..... Date 07/08/18

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

ENGLISH PROVENDER

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 97117 |
| Sample Number | 66115 |

| | |
|---|---|
| Date Received | 28-MAR-2018 |
| Date Reported | 05-APR-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 4.54 | | | |
| Oven Dry Solids | % | 16.4 | 164.00 | 45556 | kg DM |
| Total Nitrogen | % w/w | 0.090 | 0.90 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | <50 | < 0.01 | | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 201 | 0.46 | 127.86 | kg P2O5 |
| Total Potassium (K) | mg/kg | 93.3 | 0.11 | 31.10 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 18.3 | 0.03 | 8.44 | kg MgO |
| Total Sulphur (S) | mg/kg | 126 | 0.31 | 87.50 | kg SO3 |
| Total Copper (Cu) | mg/kg | 0.840 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 7.61 | 0.01 | 2.11 | kg Zn |
| Total Sodium (Na) | mg/kg | 691 | 0.93 | 258.74 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 173 | 0.17 | 48.06 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 277.78 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by Darren Whitbread Date 05/04/18

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

ENGLISH PROVENDER

SLUDGE

# SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 97117 |
| Sample Number | 66115 |

| | |
|---|---|
| Date Received | 28-MAR-2018 |
| Date Reported | 05-APR-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 605 |
| Total Lead (Pb) | mg/kg | 2.07 |
| Total Cadmium (Cd) | mg/kg | 0.028 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | 1.61 |
| Total Chromium (Cr) | mg/kg | 3.59 |
| Water Soluble Magnesium | mg/kg | 15.8 |
| Water Soluble Phosphorus | mg/kg | 17.0 |
| Water Soluble Potassium | mg/kg | 83.9 |

Released by *Darren Whitbread* Date *05/04/18*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

Purchase Order : 000234

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

KELLOGGS

LIQUID WASTE

# LIQUID WASTE (Metric Units)

Sample Reference : KELLOGS

Sample Matrix : LIQUID WASTE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 18178 |
| Sample Number | 70326 |

| | |
|---|---|
| Date Received | 02-JUL-2018 |
| Date Reported | 10-JUL-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result | Amount per fresh tonne or m3 | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 7.20 | | | |
| Oven Dry Solids | % | 1.11 | 11.10 | 3083 | kg DM |
| Total Nitrogen | % w/w | 0.090 | 0.90 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | 175 | 0.17 | 48.61 | kg NH4-N |
| Nitrate Nitrogen | mg/kg | <10 | < 0.01 | | kg NO3-N |
| Total Phosphorus (P) | mg/kg | 121 | 0.28 | 76.97 | kg P2O5 |
| Total Potassium (K) | mg/kg | 127 | 0.15 | 42.33 | kg K2O |
| Total Magnesium (Mg) | mg/kg | 22.3 | 0.04 | 10.28 | kg MgO |
| Total Sulphur (S) | mg/kg | 25.1 | 0.06 | 17.43 | kg SO3 |
| Total Copper (Cu) | mg/kg | 0.392 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 1.37 | < 0.01 | | kg Zn |
| Total Sodium (Na) | mg/kg | 106 | 0.14 | 39.69 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 111 | 0.11 | 30.83 | kg Ca |
| Equivalent field application rate | | — | 1.00 | 277.78 | tonnes or m3 / ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by Darren Whitbread Date 10/07/18

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

Purchase Order : 000234

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

KELLOGGS

LIQUID WASTE

# LIQUID WASTE (Metric Units)

Sample Reference : KELLOGS

Sample Matrix : LIQUID WASTE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

| Laboratory References | |
|---|---|
| Report Number | 18178 |
| Sample Number | 70326 |

| | |
|---|---|
| Date Received | 02-JUL-2018 |
| Date Reported | 10-JUL-2018 |

## ANALYTICAL RESULTS *on 'as received' basis.*

| Determinand on a fresh weight basis | Units | Result |
|---|---|---|
| Conductivity 1:6 | uS/cm | 320 |
| Total Lead (Pb) | mg/kg | <0.5 |
| Total Cadmium (Cd) | mg/kg | <0.01 |
| Total Mercury (Hg) | mg/kg | <0.05 |
| Total Nickel (Ni) | mg/kg | <0.2 |
| Total Chromium (Cr) | mg/kg | <0.2 |
| Water Soluble Magnesium | mg/kg | <0.01 |
| Water Soluble Phosphorus | mg/kg | 27.0 |
| Water Soluble Potassium | mg/kg | 42.0 |

Released by *Darren Whitbread* Date *10/07/18*

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.