



**KIRBY MISPERTON A WELLSITE**

**KM8 PRODUCTION WELL**

**HYDRAULIC FRACTURE STIMULATION**

**DUST MANAGEMENT PLAN**



**APPROVAL LIST**

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## 1 INTRODUCTION

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### 1.1 Third Energy

Third Energy UK Gas Limited (Third Energy) is the operator of gas fields within Ryedale the area and holds an interest in a total of six (6) Petroleum Licences and one (1) Petroleum Appraisal Licence, granted by the Secretary of State at the Department of Energy and Climate Change (DECC). Under the Petroleum Licensing system this permits the licence holder to 'search and bore for and get petroleum within the licence boundary' subject to the granting of planning permission, in accordance with the Town and Country Planning Act 1990.

Many of the Ryedale gas fields were originally discovered by Taylor Woodrow Exploration Limited and subsequently developed by Kelt UK Limited. Kelt sold its interest in the Ryedale gas fields to Tullow Oil and Edinburgh Oil and Gas. Tullow Oil went on to acquire the interest held by Edinburgh Oil and Gas. Third Energy acquired the interests of the Ryedale gas fields from Tullow Oil in 2003 and has subsequently undertaken an active drilling and workover programme to enhance production of gas from the gas fields located at Kirby Misperton, Pickering, Marishes and Malton.

Third Energy also holds a number of exploration licences and has previously constructed and drilled at Ebberston Moor, within the North York Moors National Park.

Third Energy was granted planning permission by North Yorkshire County Council in May 2016, planning decision notice C3/15/00971/CPO, dated 27<sup>th</sup> May 2016, for a hydraulic fracture stimulation of the KM8 well.

The purpose of this document is to outline the dust management arrangements to be implemented at the Kirby Misperton A (KMA) wellsite during hydraulic fracture stimulation and production operations to satisfy planning condition 24 to enable it to be discharged by North Yorkshire County Council.

### 1.2 Site Details

The KM8 hydraulic fracturing operation and subsequent production testing will be undertaken at the following location:

Kirby Misperton A Wellsite  
Off Habton Road  
Kirby Misperton  
North Yorkshire  
YO17 6XS

National Grid Ref: SE 771789

Site Area: 1.465 ha

## 2 SCOPE

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This Dust Management Plan is intended to assist with the control of nuisance dust and fine particle emissions from the proposed hydraulic fracture stimulation and production operations to be conducted at the KMA wellsite.

This Dust Management Plan is applicable to the KMA wellsite and all operations permitted therein, in accordance with existing planning and permitting consents. It is applicable to Third Energy, its contractors and subcontractors and can be used in support of applications to the Minerals Planning Authority, where there is a requirement to provide for the approval of the Minerals Planning Authority, a Dust Management Plan.

This Dust Management Plan can also be used in support of applications to the Environment Agency under the Environmental Permitting (England & Wales) Regulations 2010, as amended, where there is a requirement to provide a Dust Management Plan.

This Dust Management Plan has been prepared in accordance with the requirements of the Planning Practice Guidance *“Assessing environmental impacts from minerals extraction”* and the Environment Agency Environmental Management Guidance *“Control and monitor emissions for your environmental permit”*.

### 3 DEFINITIONS

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ALC:	Agricultural Land Classification
AONB:	Area of Outstanding Natural Beauty
BAT:	Best Available Technique
DECC:	Department of Energy and Climate Change
ha:	Hectare
HSE:	Health, Safety and Environmental
KM8:	Kirby Misperton 8 Well
KMA:	Kirby Misperton A Wellsite
km:	Kilometres
LWS:	Local Wildlife Sites
m:	Metres
PM <sub>10</sub> :	Particulate Matter that 10 micrometres or less in diameter
PM <sub>2.5</sub> :	Particulate Matter 2.5 micrometres or less in diameter
PM:	Particulate Matter
SSSI:	Site of Specific Scientific Interest
TESS:	Third Energy Site Supervisor
µm:	Micron equivalent to one millionth of a metre

## 4 PLANNING AND ENVIRONMENTAL PERMIT CONDITIONS

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### 4.1 Compliance with Planning Consent

Third Energy operations are to be conducted in accordance with current planning consents and regulated by North Yorkshire County Council. This Dust Management Plan has been implemented for the proposed operations to be conducted at the KMA wellsite where there is a requirement to provide for the approval of the Minerals Planning Authority, a Dust Management Plan.

Third Energy submitted a planning application to North Yorkshire County Council in July 2015.

North Yorkshire County Council approved the planning application for the KMA wellsite and granted planning permission in May 2016 and subsequently issued a Decision Notice reference C3/1500971/CPO also in May 2016.

The Notice of Decision of Planning Authority on Application for Permission to Carry out Development (Decision No. C3/1500971/CPO) details the conditions that the “Applicant” (Third Energy) must discharge prior to and during the planned development. Condition 24 of the Decision Notice sets out the requirement for a Dust Management Plan and states: “Control of dust emissions – Dust Management Plan – plan to be submitted

*Prior to the commencement of the development hereby permitted, a detailed Dust Management Plan (including mitigation, measures) shall be submitted to be approved in writing by the County Planning Authority and thereafter implemented in strict accordance with the plan. No activity hereby permitted shall cause dust to be emitted so as to adversely affect adjacent residential properties and/or other sensitive uses and/or local environment. Should such an emission occur, the activity shall be suspended until a revised Dust Management Plan is submitted and approved by the County Planning Authority.*

Reason:

*In accord with Annex 3 (‘Model planning conditions for surface area’) of Part 9 within Section 27 of the National Planning Practice Guidance and in order to reserve the rights of control of the County Planning Authority in the interest of safeguarding the amenity of local residents and the local environment.”*

### 4.2 Compliance with Environmental Permit

The KMA wellsite is permitted under the Environmental Permitting (England & Wales) Regulations 2010, as amended, and regulated by the Environment Agency. An application for an environmental permit for the KMA wellsite was submitted by Third Energy to the Environment Agency and “Duly Made” in June 2015. The Environment Agency approved the environmental permit application for the KMA wellsite and issued Environmental Permit (EPR/DB3002HE) in April 2016.

The environmental permit details the conditions that the “Operator” (Third Energy) must comply with to ensure that activities conducted at the KMA wellsite do not impact on the environment.

Section 3.2.1 of the KMA wellsite Environmental Permit (EPR/DB3002HE) details the conditions of emissions of substances not controlled by emission limits, which includes dust emissions, that Third Energy must comply with to ensure protection of the environment and are detailed below:

3.2.1 *“Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions”.*

3.2.2 *“The operator shall:*

- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;*
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency”.*

For clarity, this Dust Management Plan covers the following proposed operations to be conducted at the KMA wellsite:

- Pre-Stimulation Workover;
- Hydraulic Fracture Stimulation/Well Test;
- Production Test;
- Production; and
- Site Restoration.

## 5 DUST MANAGEMENT PLAN

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### 5.1 Objectives of the Dust Management Plan

The primary objective of this Dust Management Plan is to prevent significant impacts from nuisance dust and fine particle (PM<sub>10</sub>) emissions on local amenities, human health and the environment. This objective will be achieved through:

- Establishment of baseline conditions of existing dust climate within the KMA wellsite;
- Identification of potential dust generating sources and activities;
- Implementation of dust mitigation measures;
- Implementation of a dust monitoring scheme;
- Procedures for the analysis and reporting of dust emissions; and
- Training of operational personnel on dust management techniques and their roles and responsibilities.

### 5.2 Nuisance Dust and Fine Particles

Larger particles, usually termed 'dust', tend to settle out of the air quickly and are mostly a health hazard to the operators of plant and equipment and those in the immediate area. Large particles enter the nose and mouth during breathing and settle in the upper airways.

Smaller particles, known as PM<sub>10</sub> are usually invisible and may not seem to be an obvious hazard. However, they can be carried much further in the air and can cause health hazards both to workers on the site and to people living and working outside the site boundary in the local neighbourhood. They penetrate much further into the airways, down to the alveoli in the deep lung areas. Health effects from particles and fibres from certain materials are immediate while those from other types of materials may take many years to develop. It is therefore essential that exposure to all forms and sizes of particle pollution is kept to a minimum, both for workers onsite and for other people living and working outside the site boundary.

Particulate matter (PM) is the term used to describe condensed phase (solid or liquid) particles suspended in the atmosphere.

Research has identified that health problems have been directly linked to the size of smaller particles, in particular particulate matter less than 2.5 µm in diameter (PM<sub>2.5</sub>).

The body's first line of defence against fine particles is the nasal cavity which can filter large particles in excess of 10 µm.

Dusts contain a wide range of particle sizes and material types (egg silica) and can cause both minor and serious health problems. They can also cause discomfort to the eyes, nose, mouth, respiratory tract and skin.

The deposition of dust particles in the respiratory system have been summarised in Table 5.1 below.

Particle Size	Deposition Site
Above 10 µm	Nasal Cavity
7-10 µm	Conducting airways trachea, bronchi and bronchioles
0.5-7 µm	Respiratory bronchioles and alveoli.
Below 0.5 µm	Most remain airborne and are exhaled. Some diffuse and come into contact with the airway or alveolar membrane.

*Table 5.1 Deposition of Dust Particles in the Respiratory System*

### 5.2.1 Sources of Nuisance Dust

The following sources of nuisance dust have been identified within the proposed hydraulic fracture stimulation and production operations to be conducted at the KMA wellsite:

- Sand;
- Site surface dust; and
- Mud.

### 5.2.2 Sources of Fine Particles

The following sources of fine particles have been identified within the proposed hydraulic fracture stimulation and production operations to be conducted at the KMA wellsite:

- Vehicle and site equipment exhaust systems;

## 5.3 Distribution of the Approved Dust Management Plan

On commencement of operations, Third Energy will issue a copy of the approved Dust Management Plan to the Third Energy Site Supervisor (TESS). The Dust Management Plan may be issued as an electronic version or paper copy and a copy of receipt or transmittal will be recorded by Third Energy.

A copy of the approved Dust Management Plan is to be held within the TESS office, be available for review by regulatory bodies, communicated to site personnel and a copy made available onsite to all personnel during operations.

## 5.4 Alterations to the Dust Management Plan

No changes to, or deviations from, this plan are to be implemented until the required changes or deviations have been reviewed and approved by Third Energy. Alterations to the plan will be captured in an amended Dust Management Plan and submitted to the Minerals Planning Authority and the Environment Agency for approval, however, alterations may be implemented as an immediate control measure to resolve an identified dust emission problem prior to notification to the Minerals Planning Authority and the Environment Agency.

The TESS is responsible for ensuring that alterations are recorded within the Dust Management Plan, communicated to site personnel and a revised copy of the Dust Management Plan displayed onsite.

## 5.5 Dust Emissions Risk Assessment

A Dust Emissions Risk Assessment has been carried out prior to commencement of the pre-stimulation workover and the hydraulic fracture stimulation operation at the KMA wellsite and is included in Appendix 1 of this Dust Management Plan.

Third Energy will review the Dust Emissions Risk Assessment prior to each phase of operations to ensure that potential dust emission release points and the necessary control measures are identified.

## 5.6 Pre-Task Dust Emissions Risk Assessment

A Pre-Task Dust Emissions Risk Assessment will be undertaken by the TESS after mobilisation and installation of equipment to the KMA wellsite. The review will be undertaken prior to commencement of operations to identify any alterations or changes to processes, equipment or dust emission control measures that had originally been assessed in the Dust Emissions Risk Assessment. This may include alterations or changes due to equipment availability or equipment replacement etc.

If alterations or changes to the Dust Emissions Risk Assessment are identified, a revised Dust Emissions Risk Assessment will be produced and communicated by the TESS.

For clarity, this Dust Management Plan covers the following proposed operations to be conducted at the KMA wellsite:

- Pre-Stimulation Workover;
- Hydraulic Fracture Stimulation/Well Test;
- Production Test;
- Production; and
- Site Restoration.

## 5.7 Changes to Operations, Processes or Equipment

In the event that there are significant or material changes to operations, processes or equipment, the TESS will review the Dust Management Plan.

Alterations to the plan will be captured in an amended Dust Management Plan and submitted to the Minerals Planning Authority and the Environment Agency for approval.

## 6 SOURCE MATERIALS

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### 6.1 Use of Alternative Products

The use of products that have the potential to emit dust i.e. powders etc. will be substituted where possible, for alternative products that do not emit dust which are deemed safe and effective.

If products cannot be substituted, these products will be identified prior to mobilisation and arrangements will be established to ensure that where practicable, products are contained to prevent accidental release during transportation, storage, handling, use and disposal.

To ensure that the risk of dust emissions is minimised, quantities of products stored onsite that have the potential to emit dust are to be kept to a minimum where possible.

### 6.2 Identification of Potential Dust Emitting Products and Equipment

An inventory of potentially dust emitting products and equipment including description and quantities will be undertaken by service providers during initial mobilisation and installation of equipment required for the operations.

The TESS will collate service provider inventories and produce a consolidated product and equipment dust emitting inventory ensuring that it is updated on receipt/disposal of dust emitting products and equipment and a current copy is held within the TESS office and be available for review by regulatory bodies.

#### 6.2.1 Sand used within the Hydraulic Fracture Stimulation

The sand proposed for the KMA Hydraulic Fracture Stimulation Operation is 30/30 sand which has a size of circa 600  $\mu\text{m}$  (microns). To put this into context, 600  $\mu\text{m}$  is comparable to the size of various sands located within beaches within the United Kingdom.

In the event that dust is generated from the sand proposed for the KMA Hydraulic Fracture Stimulation Operation, it would pose insignificant health risk due to the particle size of the sand selected. Nasal hairs within the human body filter out particle sizes above 10  $\mu\text{m}$ , particle sizes 60 times smaller than the sand proposed as part of the operation. The risk to health from the sand is therefore considered negligible.



### 6.3 Storage Arrangements

Where possible, materials with the potential to emit dust shall be stored inside buildings/containers to reduce dust emissions.

Storage areas will be clearly marked and site personnel informed of specific storage requirements for individual areas when receiving site induction.

Where practicable, storage areas are to be protected from the effects of weather and ingress of water to prevent degradation of containers/sacks etc.

The TESS is to conduct regular checks of storage areas and products for potential leaks or damage to containers/sacks etc. Records of checks are to be held onsite within the TESS office and be available for review by regulatory bodies.

Due to the short duration of the hydraulic fracture stimulation operation it is not envisaged that products will be held onsite for a period of time that will allow for degradation of containers/sacks.

### 6.4 Management of Storage Areas

The TESS is responsible for ensuring that storage areas are kept clean, tidy, monitored regularly for signs of spillages, leaks or damage to containers or collection of surface water. Containers/sacks identified as leaking or damaged, are to be segregated and provisions implemented for the containment, immediate use or offsite disposal by an Environment Agency licensed waste carrier to an Environment Agency licensed waste facility.

### 6.5 Waste Storage

Waste products will be stored in a designated area onsite prior to offsite disposal by an Environment Agency licensed waste carrier to an Environment Agency licensed waste facility. Where practicable, enclosed skips will be used for storage of waste products. Where the use of enclosed skips is not practicable, these skips shall be covered to reduce the potential for dust emissions.

Skips identified as damaged or loss of integrity are to be withdrawn from service and arrangements made for a replacement skip.

The TESS is to conduct regular checks of waste storage areas and a record of checks is to be held onsite within the TESS office and be available for review by regulatory bodies.

Third Energy will conduct regular audits on waste procedures to ensure compliance.

## 7 DUST EMISSIONS

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### 7.1 Identification of Dust Emission Points

A Dust Emissions Risk Assessment has been undertaken prior to commencement of operations and identifies potential dust emission points and the control measures required to mitigate potential dust emissions. A copy of the assessment is included as Appendix 1 of this Dust Management Plan.

### 7.2 Measures to Prevent the Spread of Dust

Dust emission control measures shall be implemented to prevent the spread of dust during operations and include, but are not limited to:

- Where possible, bunds and stockpiles shall be used to shield process areas around the site to limit dust generation;
- Conduct the transfer of products inside buildings wherever possible;
- Cover products/reseal containers to minimise dust generation;
- Use enclosed conveyors and minimise drops, or use pneumatic or screw conveying;
- Install filters to vents, extractors and conveying systems;
- Vehicles keep to paved roads and traffic management plan;
- Regularly clean and dampen roadways and vehicle wheels;
- Clean spillages with vacuum cleaners rather than washing down;
- Stockpiles shall be used for as short a period as possible to minimise dust generation; and
- Stockpiles shall be kept as far away from sensitive receptors as possible.

### 7.3 Containment of Dust Emissions

There is the potential for dust to be contained within pipework and enclosed tanks of equipment used within the operations. Where practicable, pipework and enclosed tanks will remain sealed until cessation of operations thus reducing the likelihood of potential dust emissions.

Where possible, purging of the system is to be undertaken prior to breaking containment. Liquids used for purging are to be transferred to sealed tanks for offsite disposal by an Environment Agency licensed waste carrier to an Environment Agency licensed waste facility.

Tanks and pipework containing potential dust emissions are to be checked on a regular basis by the service provider and the TESS for leaks and/or damage to the containment system. All checks are to be recorded and a record held within the TESS office and be available for review by regulatory bodies.

### 7.4 Dispersion

Meteorological monitoring will be undertaken to provide information on weather conditions including wind direction and wind strength. This will assist in local modelling for any air dispersion

from the KMA wellsite and provide an early indication of any additional dust emission control measures that may be required.

## 8 ADDITIONAL CONTROL MEASURES

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### 8.1 Engineering Controls

Engineering controls eliminate or reduce dust emissions through the use or substitution of engineered machinery or equipment. Third Energy will require, where possible, service providers to provide the Best Available Techniques (BAT) during the operations. BAT machinery and equipment will assist in eliminating potential dust emissions at source using oil and gas industry engineering control measures which may include, but is not limited to the following:

- Equipment designed to minimise potential dust emissions;
- Design the process to minimise potential dust emissions;
- Use of alternative non-dust emitting products; and
- Enclosed systems.

### 8.2 Equipment Design

Equipment provided by service providers are to meet current oil and gas industry BAT. Equipment identified as not meeting the required oil and gas industry BAT will be notified to the service provider and they will be asked to source alternative and available equipment to ensure compliance with current oil and gas industry BAT.

### 8.3 Maintenance and Servicing Procedures

To ensure that maintenance and servicing of equipment is kept to a minimum, Third Energy will request that general maintenance and servicing of equipment is conducted by service providers prior to mobilisation. This will ensure that the risk of potential dust emissions from the breaking of containment during maintenance and servicing of equipment onsite is reduced to a minimum and the potential for equipment failure is reduced.

If there is a requirement for maintenance or servicing of equipment onsite, control measures to eliminate or reduce potential dust emissions include, but are not limited to:

- Purging equipment prior to breaking containment;
- Conducting maintenance or servicing inside buildings or covered areas where practicable;
- Containment of dust emissions;
- Dust emission mitigation techniques; and
- Compliance with waste storage/disposal procedures.

## 8.4 Promotion of Good Housekeeping

Third Energy promotes good housekeeping at all times ensuring that procedures for the storage and containment of products and waste are maintained at all times. Housekeeping is part of the site induction process and housekeeping audits are to be undertaken on a regular basis by the TESS.

## 9 IMPACTS

### 9.1 Local Receptors

Receptors are classed in to the following categories:

- Low – Footpath or road;
- Medium – Industrial or commercial workplaces; and
- High – Housing, pubs, hotels etc.

The KMA wellsite is located within open countryside in the county of North Yorkshire, in the District of Ryedale and within the Parish of Kirby Misperton.

The nearest receptors are set out in Table 9.1 below.

Receptor Classification	Local Receptor	Distance from KMA wellsite
Low	Habton Road	180 metres South East
High	Marlin Bungalow	210 metres South
High	Kirby-O-Carr Farm	210 metres South
High	Alma Farm	300 metres West
High	Ashfield Caravan Park	500 metres North East
High	Glebe Farm	570 metres North
High	Tuiffit Manor	700 metres South West
High	High Grange Farm	645 metres East
High	Manor Farm	1,120 metres North West
High	North West Farm	1,140 metres South East

*Table 9.1 Local Receptors*

The nearest conurbations are Kirby Misperton, 700m to the North East and Little Barugh, 1.2 km to the North West.

There are no Local Wildlife Sites (LWS) identified within the local area, however an Area of Outstanding Natural Beauty (AONB), Howardian Hills is located 6 km to the South.

The KMA wellsite is not situated on or within a statutory or non-statutory designated site. There are eight (8) statutory designated sites located within the local area with the nearest, The Ings, which is a Site of Specific Scientific Interest (SSSI) located approximately 4 km South West. However, these

have not been classed as sensitive receptors to dust emissions due to their distance from the site boundary.

The site is located within the Vale of Pickering which is a relatively low lying area of land. It is a predominantly agricultural landscape with pockets of woodland and interspersed hedgerows. The farmland upon which the KMA wellsite is constructed has been given an Agricultural Land Classification (ALC) of three (3).

## 9.2 Impact Upon Community

Given that the pre-stimulation workover and hydraulic fracture stimulation operations are temporary and that the movement of vehicles and equipment onsite, which will give rise to the highest potential for dust emissions, will be carried out over a period of 8 weeks, the impact on the local receptors is classed as minimal.

The production test phase of the operation will require minimal equipment to be brought onsite. HGV movement during this phase will be limited to the delivery and installation of the welded flowline, which is anticipated to be two single HGV movements, and the removal of produced water, which is separated at the wellsite via the existing production separator.

HGV movements during the production phase will be limited to the delivery and installation of the permanent flowline pipe supports and associated groundworks, which is anticipated to be four single HGV movements.

There will therefore be limited HGV movement during the production test and subsequent production phase and the impact on the local receptors is classed as negligible.

The restoration phase of the operation will require the offsite removal of materials used for the construction of the wellsite and the movement of topsoil from bunds located within the wellsite boundary to restore the wellsite to its pre-existing condition.

It is expected that the wellsite restoration works would be undertaken over a period of 6 weeks and the implementation of dust mitigation measures identified in the Dust Emissions Risk Assessment should ensure that the impact on the local receptors is classed as minimal.

## 10 DUST EMISSION MONITORING

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### 10.1 Establishment of Baseline Dust Emissions

A baseline dust monitoring programme has been undertaken by Third Energy's independent air quality consultant in first quarter 2015. The dust monitoring programme established a baseline of dust emissions at four (4) sampling points located on the KMA wellsite perimeter using Frisbee dust deposition gauges.

### 10.2 Dust Emission Monitoring

During operations, a dust monitoring programme will be undertaken by Third Energy's independent air quality consultant. The dust monitoring programme will enable Third Energy to establish a comparison between baseline and operational dust emissions and identify if additional dust control measures are required.

In addition to the dust monitoring programme, site personnel will receive dust emissions monitoring training from Third Energy or Third Energy's independent air quality consultant which will provide real time monitoring of dust emissions within the KMA wellsite during operations.

Real time monitoring of dust emissions by site personnel will assist in the early identification of dust generation enabling Third Energy to implement any additional dust mitigation measures.

Dust emissions monitoring will be carried out continuously by site personnel throughout the operations as detailed in sections 10.3 and 10.4 of this Dust Management Plan.

To ensure the effectiveness of dust emissions control measures, monitoring shall be undertaken immediately following the assessment and implementation of control measures. Thereafter, periodic monitoring shall be undertaken to ensure the continued effectiveness of such control measures.

### 10.3 Steady State Dust Emission Monitoring

To ensure that dust emissions monitoring is conducted across the entire wellsite, steady state dust emissions monitoring will be undertaken. This will provide real time monitoring and ensure the early detection of any potential dust emissions.

All personnel working on the KMA wellsite shall receive steady state dust emissions monitoring training and a record of training will be recorded by Third Energy.

Steady state dust emissions monitoring shall be carried out by means of visual observation. All site personnel will conduct continuous visual observation for dust emissions during their shift and are to report any dust emissions not associated with standard wellsite operations as detailed within Section 11.1 of this Dust Management Plan.

## 10.4 Release Point Monitoring

Potential dust release points shall be identified on the Dust Emissions Risk Assessment and shall be monitored, by means of visual observation, for potential dust emissions. Site personnel involved in release point monitoring shall receive 'release point monitoring' training from Third Energy or Third Energy's independent air quality consultant.

To ensure that the dust control measures are sufficient, specific dust monitoring at the potential dust release points identified will be undertaken regularly throughout the operation.

## 10.5 Reporting and Recording of Dust Emissions

Due to the rural location of the KMA wellsite, there is the potential for dust emissions not associated with the oil and gas industry, i.e. agricultural, to be identified within the wellsite boundary or localised area.

To ensure that dust emissions not associated with wellsite operations are recorded and identified, monitors are to report dust emissions not associated with standard wellsite operations to the TESS using the "*Safety Observation card*" reporting system.

If a dust emission is reported, an investigation of the dust emission is to be undertaken as detailed in Section 11 of this Dust Management Plan.

Third Energy uses a "*Safety Observation Card*" reporting system during operations. Safety Observation Cards are completed by site personnel for reporting positive and negative observations throughout the operation and will be used to report the early identification of dust emissions by site personnel. The early reporting of dust emissions will ensure that corrective actions are actioned as soon as reasonably practicable thus reducing the potential of dust emissions impacting on the local environment.

## 11 DUST EMISSION INVESTIGATION

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### 11.1 Dust Emission Identification

As soon as reasonably practicable, once a dust emission has been reported, an investigation will be conducted by the TESS to determine the dust emission release point, dust emission source and the substance creating the dust emission.

### 11.2 Recording of Dust Emission Investigations

Each dust emission investigation shall be recorded on the Third Energy Dust Emission Report Form and communicated to the Third Energy Management Team. The Third Energy Dust Emission Report Form shall include the following information:

- Date, time and location of dust emission;
- Weather conditions;
- Description of the dust emission;
- Receptor Sensitivity;
- Details of dust emission release point;
- Source of dust emission;
- Dust emission constant or intermittent;
- Substance identified as causing the dust emission;
- Activities being undertaken at the time of dust emission detection; and
- Dust emission control measures to be implemented.

### 11.3 Dust Emissions Tracking

All dust emissions reported during operations shall be recorded on the Third Energy Dust Emission Report Form and the Third Energy Action Log by the TESS to ensure that the complaint is tracked to conclusion and closed out.

The Third Energy Action Log shall include all reports and investigations of the dust emission. The Third Energy Action Log may help identify, if any, potential sources of dust emission, prevent potential reoccurrences of dust emissions and assist in investigation of dust emission complaints.

## 12 TRAINING OF PERSONNEL

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All personnel involved in dust emission monitoring and dust emission management procedures will receive training prior to commencement of their responsibilities. Training will be undertaken by Third Energy and a record of training will be recorded by Third Energy.

## 13 ENGAGING NEIGHBOURS

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Third Energy communicates details of their activities to the local community via community liaison meetings. Third Energy is committed to engaging with local neighbours and will investigate all dust complaints reported as detailed in Section 14 below.

## 14 DUST EMISSION COMPLAINTS

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In the event that a complaint is received by Third Energy from persons not associated with the exploratory operations, the complaint shall be investigated by Third Energy in accordance with Third Energy's complaints procedure. Complaints relating to the environment will be reported to the Environment Agency by Third Energy.

## 15 RECORDING DUST EMISSION COMPLAINTS

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Dust emission complaints shall be recorded on Third Energy Dust Emission Complaint Form and an entry made in the Third Energy Action Log to monitor the frequency at which complaints are received. The Third Energy Action Log shall include a subjective description of each complaint, allowing Third Energy to calculate the number of complaints relating to dust emission. The TESS is to record and investigate all dust emission complaints and communicate their findings and recommendations to Third Energy Senior Management.

## 16 INCIDENTS AND EMERGENCIES

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Incidents and emergencies may cause dust emissions. In the event of an incident or emergency site personnel are to follow onsite emergency procedures. All emergency actions must be carried out to make the wellsite and personnel safe in the first instance before dust emission assessments can be conducted.

## APPENDIX 1 – DUST EMISSIONS RISK ASSESSMENT

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## Dust Emission Risk Assessment

Source ID	Potential Dust Emission Release Point	Potential Sources of Dust Emissions	Operations being carried out which may lead to dust emissions	Receptor	Pathway	Probability of Exposure	Consequence	Magnitude of Risk	Risk Management	Residual Risk	Responsible Person for Monitoring Release Point
KM8-001	Storage areas	Sand	Loading/unloading of sand	<b>Local Residents:</b> Habton Road – 180m South East Marlin Bungalow - 210m South Kirby-O-Carr Farm – 210m South Alma Farm – 300m West Ashfield Caravan Park – 500m North East Glebe Farm – 570m North Tuffit Manor – 700m South West High Grange Farm – 645m East Kirby Misperton - 700m North East Manor Farm – 1,120m North West North West Farm – 1,140m South East Little Barugh - 1,200m North West	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Compliance with safe working procedures for loading/unloading of product.</li> <li>Screening/bunds to be used within storage areas.</li> <li>Working area controlled to prevent unauthorised access.</li> <li>Where possible, minimise drop height during loading/unloading.</li> <li>Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor
KM8-002	Storage areas	Sand	Storage of sand	<b>Local Residents:</b> Habton Road – 180m South East Marlin Bungalow - 210m South Kirby-O-Carr Farm – 210m South Alma Farm – 300m West Ashfield Caravan Park – 500m North East Glebe Farm – 570m North Tuffit Manor – 700m South West High Grange Farm – 645m East Kirby Misperton - 700m North East Manor Farm – 1,120m North West North West Farm – 1,140m South East Little Barugh - 1,200m North West	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Stockpiles to be covered within storage areas.</li> <li>Compliance with safe working procedures for handling/use of product.</li> <li>Screening/bunds to be used within storage and work areas.</li> <li>Where practicable, handling/use/transfer and storage of products and materials to be conducted inside buildings.</li> <li>Storage areas to be kept clean and free from dust.</li> <li>Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor
KM8-003	Storage areas	New/used products and materials	Loading/unloading of dust emitting products and materials	<b>Local Residents:</b> Habton Road – 180m South East Marlin Bungalow - 210m South Kirby-O-Carr Farm – 210m South Alma Farm – 300m West Ashfield Caravan Park – 500m North East Glebe Farm – 570m North Tuffit Manor – 700m South West High Grange Farm – 645m East Kirby Misperton - 700m North East Manor Farm – 1,120m North West North West Farm – 1,140m South East Little Barugh - 1,200m North West	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Compliance with safe working procedures for loading/unloading of product.</li> <li>Screening/bunds to be used within storage areas.</li> <li>Working area controlled to prevent unauthorised access.</li> <li>Where possible, minimise drop height during loading/unloading.</li> <li>Check load for damage/leaks (where applicable) prior to loading/unloading.</li> <li>Damaged/leaking loads (packages/containers etc.) to be contained/re-packed/sealed prior to loading/unloading.</li> <li>Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor

KM8-004	Storage areas	New/used products and materials	Storage of dust emitting products and materials	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Where practicable, storage of products and materials to be inside buildings.</li> <li>• Products/materials stored outside to be covered.</li> <li>• Compliance with safe working procedures for storage of product/material.</li> <li>• Screening/bunds to be used within storage and work areas.</li> <li>• Protect products and materials from impact of weather.</li> <li>• Storage areas to be kept clean and free from dust.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor
KM8-005	Storage areas	New/used products and materials	Containment failure	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Protect products and materials against impact from vehicles etc.</li> <li>• Use of competent MHE operators.</li> <li>• Equipment to be serviced/maintained prior to mobilisation.</li> <li>• Regular inspection of storage containers/sacks etc. for failure or leaks.</li> <li>• Personnel inducted/trained on emergency response procedures.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor
KM8-006	Storage areas	New/used products and materials	Uncovered/opened products	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Where practicable, products and materials to be stored inside buildings.</li> <li>• Products and materials to be covered when not in use.</li> <li>• Containers/sacks to be sealed after use.</li> <li>• Empty containers/sacks to be stored in enclosed skips prior to offsite disposal.</li> <li>• Regular inspection of storage containers/sacks etc. for failure or leaks.</li> <li>• Storage areas to be kept clean and free from dust.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor
KM8-007	Work process areas	New/used sand	Use of product within work process	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Where practicable, handling/use/transfer and storage to be undertaken inside buildings.</li> <li>• Use of sealed systems within the work process.</li> <li>• Waste product to be stored in sealed tanks prior to offsite disposal.</li> <li>• Process areas to be kept clean and free from dust.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor

KM8-008	Work process areas	New/used sand	Equipment failure	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Equipment to be regularly serviced and maintained.</li> <li>• Daily checks of equipment to be undertaken for leaks and potential equipment failure points.</li> <li>• Personnel inducted/trained on emergency response procedures.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor
KM8-009	Work process areas	New/used sand	Planned breaking of containment	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Plan for breaking containment operations at cessation of operations.</li> <li>• Purge equipment prior to breaking containment.</li> <li>• Plug/cap tanks, pipes, hoses etc. after breaking containment.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor
KM8-010	Work process areas	New/used products and materials	Use of product/material within work process	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Where practicable, handling/use/transfer and storage to be undertaken inside buildings.</li> <li>• Use of sealed systems within the work process.</li> <li>• Waste product to be stored in sealed tanks prior to offsite disposal.</li> <li>• Process areas to be kept clean and free from dust.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor
KM8-011	Work process areas	New/used products and materials	Equipment failure	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Equipment to be regularly serviced and maintained.</li> <li>• Daily checks of equipment to be undertaken for leaks and potential equipment failure points.</li> <li>• Personnel inducted/trained on emergency response procedures.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor
KM8-012	Work process areas	New/used products and materials	Planned breaking of containment	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>• Plan for breaking containment operations at cessation of operations.</li> <li>• Purge equipment prior to breaking containment.</li> <li>• Plug/cap tanks, pipes, hoses etc. after breaking containment.</li> <li>• Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor

KM8-013	Combustion engines and exhaust systems	Exhaust gases	Unnecessary running of engines	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Engines switched off when not in use.</li> <li>TESS to monitor for compliance.</li> <li>Vehicles/equipment regularly serviced and maintained.</li> <li>Daily checks of vehicles/equipment to be undertaken for leaks/excessive generation of exhaust emissions.</li> <li>Inspection of vehicles/equipment for leaks or failures within engine/exhaust systems.</li> <li>Exhausts should be directed away from the ground and other surfaces (preferably upwards) to avoid road and site surface dust being re-suspended in to the air.</li> <li>Exhausts to be positioned at a sufficient height to ensure adequate local dispersal of emissions.</li> <li>Position vehicles and equipment away from sensitive receptors near to the site.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor
KM8-014	Combustion engines and exhaust systems	Exhaust gases	Equipment failure	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Equipment to be regularly serviced and maintained.</li> <li>Daily checks of equipment to be undertaken for leaks and potential equipment failure points.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor
KM8-015	Vehicle road wheels	Road and site surface dust	Movement of vehicles	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Compliance with site speed limit.</li> <li>Drivers given instructions/briefing on arrival.</li> <li>Communication of Traffic Management Plan to all service providers and drivers prior to mobilisation.</li> <li>Dampening down of wellsite surface.</li> <li>Provision of wheel washing facilities prior to egressing the wellsite.</li> <li>Monitoring of site surface for areas of potential dust generation.</li> <li>Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor / Service Contractor
KM8-016	Skips and receptacles used for waste storage	Waste products and materials	Storage of site waste prior to offsite disposal	<p><b>Local Residents:</b>  Habton Road – 180m South East  Marlin Bungalow - 210m South  Kirby-O-Carr Farm – 210m South  Alma Farm – 300m West  Ashfield Caravan Park – 500m North East  Glebe Farm – 570m North  Tuffit Manor – 700m South West  High Grange Farm – 645m East  Kirby Misperton - 700m North East  Manor Farm – 1,120m North West  North West Farm – 1,140m South East  Little Barugh - 1,200m North West</p>	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Monitor waste levels to prevent overflowing/spillage.</li> <li>Personnel inducted on waste procedures.</li> <li>Segregation of waste.</li> <li>Equipment to be serviced/maintained prior to mobilisation.</li> <li>Regular inspection of skips and receptacles for failure or leaks.</li> <li>Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor

KM8-017	Skips and receptacles used for waste storage	Waste products and materials	Equipment failure	<b>Local Residents:</b> Habton Road – 180m South East Marlin Bungalow - 210m South Kirby-O-Carr Farm – 210m South Alma Farm – 300m West Ashfield Caravan Park – 500m North East Glebe Farm – 570m North Tuffit Manor – 700m South West High Grange Farm – 645m East Kirby Misperton - 700m North East Manor Farm – 1,120m North West North West Farm – 1,140m South East Little Barugh - 1,200m North West	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Protect skips and receptacles against impact from vehicles etc.</li> <li>Equipment to be serviced/maintained prior to mobilisation.</li> <li>Personnel inducted/trained on emergency response procedures.</li> <li>Regular inspection of skips and receptacles for failure or leaks.</li> <li>Identification of short term or long term dust emitting sources.</li> </ul>	Negligible	Third Energy Site Supervisor
KM8-018	Site surface	Road and site surface dust	Dust emissions generated from weather conditions	<b>Local Residents:</b> Habton Road – 180m South East Marlin Bungalow - 210m South Kirby-O-Carr Farm – 210m South Alma Farm – 300m West Ashfield Caravan Park – 500m North East Glebe Farm – 570m North Tuffit Manor – 700m South West High Grange Farm – 645m East Kirby Misperton - 700m North East Manor Farm – 1,120m North West North West Farm – 1,140m South East Little Barugh - 1,200m North West	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Weather to be monitored regularly to identify potential risks onsite from excessive wind and dry spells.</li> <li>Where possible, site surfaces should be paved/tarmacked to minimise dust generation.</li> <li>Where possible, site hoardings should be erected to minimise dust dispersing over site boundary.</li> <li>Use bunds/screening to protect areas of work, storage and waste.</li> <li>Monitor site surfaces for signs of potential dust generation.</li> <li>Use damping methods during dry spells.</li> <li>Where possible, conduct work processes inside buildings.</li> </ul>	Negligible	Third Energy Site Supervisor
KM8-019	Various - within the site boundary	Accidents/incidents	Spillages	<b>Local Residents:</b> Habton Road – 180m South East Marlin Bungalow - 210m South Kirby-O-Carr Farm – 210m South Alma Farm – 300m West Ashfield Caravan Park – 500m North East Glebe Farm – 570m North Tuffit Manor – 700m South West High Grange Farm – 645m East Kirby Misperton - 700m North East Manor Farm – 1,120m North West North West Farm – 1,140m South East Little Barugh - 1,200m North West	Air - Prevailing winds from south west (average statistics from the Met Office)	Low	Low	Low	<ul style="list-style-type: none"> <li>Spillages to be remediated as soon as reasonably practicable.</li> <li>Use of vacuums to remediate spillages.</li> <li>Personnel inducted/trained on emergency response procedures.</li> <li>Used spillage equipment to be segregated and contained to prevent dust emissions prior to offsite disposal.</li> </ul>	Negligible	Third Energy Site Supervisor

### Risk Matrix

	Probability very low	Probability low	Probability medium	Probability high
Consequence very low	Negligible	Negligible	Low	Medium
Consequence low	Negligible	Low	Medium	Medium
Consequence medium	Low	Medium	Medium	High
Consequence high	Medium	Medium	High	High