Third Energy UK Gas Ltd

# Proposal for Variation of Monitoring at the KMA Well Site

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## 1 Introduction

Third Energy UK Gas Limited (Third Energy) have been engaged in operations building up to the hydraulic fracture stimulation of the Kirby Misperton 8 well (KM-8), situated at the Kirby Misperton A Site (KM-A) off Habton Road Kirby Misperton. The Secretary of State for Business, Energy and Industrial Strategy, having reviewed technical issues needed to grant hydraulic fracture consent, has determined that further work is required to examine the financial viability of Third Energy prior to issuing the consent. As a result of this decision, Third Energy need to release some contractor equipment and have therefore taken the necessary step to demobilise as much equipment as possible pending receipt of the final consent.

The purpose of this document is to set out proposals from Third Energy in relation to environmental monitoring at the site during the period when operations are suspended. These operations are governed by the following permits:

- EPR/DB3002HE (mining waste, non-hazardous waste facility and a groundwater activity for discharge of fracture fluid to the target formation); and
- EPR/KB3098DE (radioactive substances regulations).

No permitted activities will take place during the period when operations are suspended.

## 2 Water quality protection and monitoring

In order to justify opening the interceptor outlet, essentially returning the site to normal production mode, Third Energy wish to minimise the chemicals inventory onsite and implement a temporary management process to control the small residual risk arising from storage on the site. The management process is separately documented and consists of monitoring procedures for leakage checks and rainwater management, with requirements for records of the checks. Physical storage will be in 'Spillguard' temporary bunds.

The risk is seen as small because the pathway to ground is blocked by the under-site membrane and temporary bunds; the pathway to surface waters is blocked by the temporary bunds, the capacity of the site matrix, the site containment ditch (part open) and the interceptor on the lower site.

### 2.1 Chemical Storage

Third Energy proposes that the following chemicals will be stored on site in temporary bunds with a storage capacity equal to 25% or greater of the total volume stored within them:

- Acetic Acid Solution: 2 x 110 gallon drum = ~ 1$m^3$
- CLLAU303: 224 x 5 gallon drum = 5.092$m^3$
- CLBEAU196: 21 x 25kg box = ~ 0.525$m^3$
- CLLAU301: 15 x 1000 litre IBC = 15$m^3$
- CLLAU302: 5 x 1000 litre IBC = 5$m^3$
- CLSAU352: 4 x 1000 litre IBC = 4$m^3$
- DCA-13002: 10 x 25kg sack = ~0.25$m^3$

**Total Volume = 30.87$m^3$**

The following bunds will be used to store these chemicals on site:

- **One** 10ft(3.048m) x 40ft(12.192m) x 1ft(0.3048m) = 11.327m$^3$
- **One** 10ft(3.048m) x 23ft(7.0104m) x 1ft(0.3048m) = 6.513m$^3$

**Total Storage Volume = 17.84m$^3$**

The dry chemicals will be stored on pallets within the bund covered over using Visqueen sheeting to protect them from rainfall and UV damage during the suspension of operations.

The following chemicals will be stored in the control room, on a drip tray, due to the very low amounts in stock:

- Starcide: 1 x 25 litre = 0.025m$^3$

The following chemicals (which have no eco-toxic components) will also be stored on site:

- CLBXTAU121: 15 x 53 gallon drum = 3.614m$^3$
- DCA-14003: 106 x 5lb sacks = ~0.24m$^3$
- CLWGAU421: 24 x 800kg bulk bags = ~19.2m$^3$

The proppant (frac sand) will be stored on site in its existing location as there is no credible pathway to ground or surface waters.

Please note that the formaldehyde-based corrosion inhibitor referenced in Schedule 4 of the WMP is not on site.

## 2.2 Equipment storage

All equipment will be removed from site during the suspension of operations with the exception of the fracture stimulation spread. This consists of the following equipment:

- 5 x pumps;
- 2 x blenders;
- 3 x sand silos;
- 3 concrete pads for the silos;
- 1 x tool container; and
- 1 x Hyster (support frame for the injector head).

All bulk fuel has been removed from the site, however the pump and blender engines contain lubricating oil. Consequently, the management process document contains monitoring procedures for checking signs of leakage on the engines fitted to pumps and blenders.

The sand silos will be checked for signs of leakage purely to ensure operational integrity. No credible pathway has been identified for sand to reach ground or surface waters.

### 2.3 Water quality monitoring

During the suspension of operations Third Energy proposes to carry out risk-based water quality monitoring focussing on the wellsite boreholes and adjacent Sugar Hill Drain. It is proposed that the following parameters are measured monthly to reflect the operations and chemicals that are being stored on site:

- Major cations/anions;
- Dissolved metals;
- Hydrocarbons, including dissolved methane;
- Acetic acid;
- Anionic surfactants;
- Sodium persulphate; and
- Glycol.

*The above parameters have been chosen specifically as they are key indicators for the chemicals that will be stored on site during the pause in operations.*

The full suite of water quality monitoring will then resume at all sampling locations at a period in line with the length of the pause in operations. In the event of a short delay, the full suite of water quality monitoring will recommence 1 month before operations covered under the EA permit resume at the KMA well site. In the event of an extended pause in operations the full suite of monthly water quality monitoring will resume 3 months before operations covered under the EA permit resume at the KMA well site. As per the permit weekly water quality monitoring will resume during permitted operations.

## 3 Air Quality Monitoring

During the suspension of operations Third Energy proposes to cease air quality monitoring at the site with immediate effect. Third Energy will then resume air quality monitoring 4 weeks before equipment is remobilised to the site for recommencement of permitted operations.

## 4 Noise and vibration monitoring

No activity beyond normal production operations and the monitoring and checks proposed above will take place during the suspension of operations. As the support structure was designed for short term use and there have been a number of issues relating to the security of the sound mats during high winds, Third Energy proposes to remove the sound barrier surrounding three sides of the site. The noise barrier will be reinstated before equipment is remobilised to the site for recommencement of permitted operations.

Surface vibration monitoring has been ceased until permitted operations recommence. Recommencement will be implemented as defined in the Hydraulic Fracture Plan.

## 5 Seismic Monitoring

Third Energy have not entered the hydraulic fracturing phase of operations and as such both the surface and down-hole seismometers have been removed. Third Energy will reinstall the seismometers 5 to 10 days before hydraulic fracturing commences, as defined in the Hydraulic Fracture Plan (HFP).

## 6 Consultation

North Yorkshire County Council will be consulted on the proposals set out in this document. Ryedale District Council will be consulted on the noise monitoring proposal. BEIS will be notified of the planned monitoring at such time as these proposals are formally agreed.

## 7 Appendix 1 – Chemical Description

**Acetic Acid Solution:** PH (low) control.

**CLLAU303:** Delayed crosslinker.

**CLBEAU196:** Low temperature breaker.

**CLLAU301:** Instant crosslinker.

**CLLAU302:** Delayed crosslinker.

**CLSAU352:** Surfactant.

**DCA-13002:** Sodium persulphate breaker.

**Starcide:** Biocide.

**CLBXTAU121:** High temperature breaker.

**DCA-14003:** PH (high) control.

**CLWGAU421:** Gelling agent.