

# Operations at Preston New Road

## Keeping you informed

### Control of waste

Cuadrilla have now started to carry out flow testing at the Preston New Road site. Regulation of this phase of operations is led by the Environment Agency. It has received a number of questions on what happens to waste water and gas from the site. This note explains the controls in place to protect people and the environment.

### What is flow testing?

Following hydraulic fracturing, operators carry out testing to measure the rates of gas production. This phase involves allowing the fracturing fluid that was injected to return to the surface. The gas from the shale begins to flow to the surface where it is separated from the water.

### What types of waste are produced during flow testing?

The fluid that returns from the well (also known as flowback) is likely to contain a high concentration of natural minerals and metals that have dissolved into the fluid from the shale. The fluid may also contain naturally occurring radioactive material (NORM) and a small proportion of chemicals (that are non-hazardous to groundwater) added during the fracking process. The flowback fluid that comes back to the surface over a period of weeks and months can be reused for future stages of hydraulic fracturing otherwise it needs to be taken off site for treatment and disposal.

During this early exploratory phase Cuadrilla is required to safely dispose of the waste gas that comes to the surface. This is done using a flare. The flares being used are enclosed to burn the natural gas efficiently and reduce potential air, noise and light impacts.

### How is waste regulated?

The wastes produced are regulated through an environmental permit. As part of the permit, Cuadrilla has an approved Waste Management Plan. This describes the types of extractive waste that will be generated at the site and sets out how Cuadrilla will manage, minimise and dispose safely of the waste.

Environment Agency staff carry out inspections, audits and spot checks to monitor the site to ensure that Cuadrilla is working within the conditions set out in its environmental permit.



Cuadrilla is required by its environmental permit to sample the waste water they produce (composition and volume) and provide full details of the waste to the treatment site. The waste treatment facilities that receive this waste are also required to test the waste upon receipt in accordance with their own waste acceptance procedures.

The environmental permit sets out the monitoring required. The results must be provided to the Environment Agency on request to check compliance with the permit. The Environment Agency plan to audit acceptance procedures of waste water at the site receiving the flowback.



### How is the waste stored?

Flowback can contain minerals that have dissolved into the water from the shale. These have the potential to cause pollution if they leak so their storage and disposal needs to be planned and is regulated by environmental permits.

Storage lagoons are not allowed in England. Waste flowback water needs to be stored in enclosed tanks (as in the photograph above) before it can be moved off site for disposal. Cuadrilla's environmental permit limits the storage of flowback fluid on the site any one time to 3,000 cubic metres.

### How does the composition compare with other industries?

The heavy metals contained in flowback fluids are also found in many other industrial effluents such as mining waters, electroplating, printed circuit board (PCB) manufacturing, wood processing, pigment manufacturing and photographic operations.

The waste water treatment works accepting flowback fluid must have the appropriate permits in place. The effluent discharge from these works has controls in place to protect the receiving environment.

## How is flowback fluid treated?

The techniques used to treat flowback fluid are already used to treat other industrial effluents with similar contaminants. Typically, the waste water will be treated using a chemical process followed by filtration to remove minerals, metals and naturally occurring radioactive material (NORM) from the water.

## What about any naturally occurring radioactive materials in the rock?

Some of the wastes generated contain naturally occurring radioactive material (NORM) which occurs in our natural environment. Cuadrilla has been granted a Radioactive Substances environmental permit for storing and disposing of NORM waste they will unavoidably generate.

The level of radioactivity in the untreated flowback fluid is very low. We are satisfied that it does not represent any risk to people.

## Where will the waste be treated?

Currently in England there are several facilities with permits that would allow for the treatment of flowback fluid from hydraulic fracturing containing NORM. These waste water treatment facilities are also regulated by the Environment Agency.

## How is the waste transported?

Waste fluids must be transported from the Cuadrilla site to a permitted waste treatment facility by a licenced waste carrier. The waste needs to be assessed, classified and transported in line with regulations.

For transportation of NORM in the UK, the transporter must have adequate emergency plans.

## What are the controls for flaring waste gas?

The gas flowing during this initial testing phase is measured and then is classed as extractive waste. It is disposed of through combustion in an enclosed flare at temperatures above 800°C. This converts the natural gas (predominantly methane) into carbon dioxide and water vapour.



The Environment Agency has assessed the potential impact on air quality from the incineration of waste gas, including flare design, to check that its operation will not have a significant impact on local air quality.

The flare stacks are fully enclosed combustion chambers constructed of steel with ceramic insulation to reduce heat loss and provide silencing.

When in operation the flares are supervised 24 hours a day to ensure their effectiveness to incinerate the natural gas.

## What about any leaks?

Potential leaks from the equipment are strictly controlled through conditions in the environmental permit and under well integrity requirements from the Health and Safety Executive. Fugitive releases of gas, for example small leaks from valves and connections, are monitored in line with a leak detection and repair plan required by the environmental permit. The Environment Agency will audit compliance with this procedure during the flow testing phase of operations.

## Who is monitoring air quality?

The environmental permit requires Cuadrilla to monitor methane and other pollutants in ambient air. In addition the Environment Agency has been doing its own air quality monitoring in the community since August 2017 when it deployed a Mobile Monitoring Facility (MMF) close to the site.

Initial monitoring was carried out to understand the background level of the types of pollutants that may be detectable before the hydraulic fracturing and well testing stages commenced. This information has been used to assess the concentrations of each substance in the environment before the flaring stage of operations. The Environment Agency will continue to monitor air quality through all phases of site operations to identify any changes. It has published regular updates on its monitoring to [Citizen Space](#)

The [British Geological Survey \(BGS\) website](#) has been publishing research carried out by the Universities of Manchester and York. The research has been monitoring atmospheric composition since 2014. In addition Public Health England has been monitoring the existing outdoor and indoor radon concentrations in the Fylde. Details are also available on the [BGS website](#).