

Responses to outstanding questions

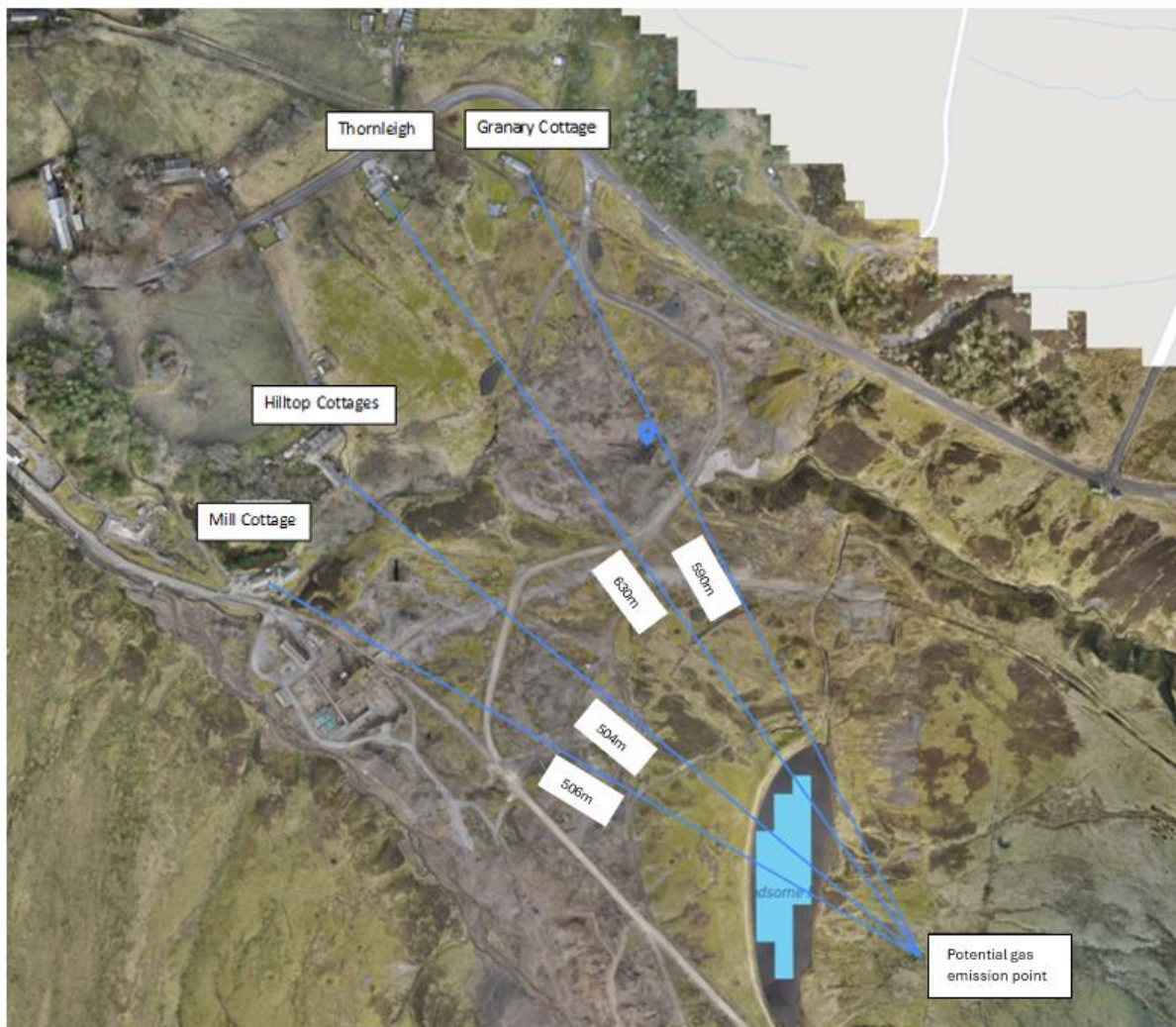
18 March 2024 Question and Answer Session

At the Question and Answer session held on the 18 March 2024 at Nenthead Village Hall, there were a number of questions that we committed to providing responses to after the event.

Below are the questions asked and our response to those questions.

Which are nearest residents to ponds? Please provide distances and dates measured.

Below is an image showing the distances to selected properties from the nearest potential gas emission point at the treatment pond site.



Response time to attend site:

What will the response time be for someone to attend the scheme site in the event of a power loss?

In the event of power loss to the site, the treatment scheme will stop operating and operators will be notified via the remote telemetry network.

The remote alarm system will work similarly to a household alarm system, where if power is lost then the alarm noise is generated. If appropriate, operators will be sent to the site within 2 hours to assess the situation.

The mine water capture system will be designed so that if the pumps and any back-up systems fail, then the mine water would discharge to the river as it does now. In this scenario, the water in the treatment ponds would slowly fall to a pre-set level. Contingency plans will be developed as part of the design process and the potential for winter impacts on access, electricity and other factors will be explicitly considered.

Precipitation (rain and snow) volume directly onto treatment ponds:

At the event we committed to doing a calculation based on historical records of snow and rainfall events to provide an indication of the amount of water that would melt on the surface of treatment ponds and go into the treatment system.

The treatment ponds are designed so that surface water run-off will not enter the ponds. Therefore, only precipitation (rain or snow) falling directly on the ponds will be added to the mine water being pumped to the ponds for treatment.

The ponds are designed so they can hold more water than when at the normal operating level. If this additional capacity is filled, then water would leave the ponds through an engineered overflow channel and be returned to the river in the same drainage system used for the treated mine water.

The water level in each pond is continuously measured and the levels can be monitored on-site and remotely via the internet. If water levels did approach the overflow level, the mine water pumping rate would be decreased until the water levels lowered.

It is important to note, this is not a static system so water levels will naturally fluctuate, particularly in response to rainfall. Once it stops raining, water levels would naturally start to return towards the normal operating level.

At the normal operating water level, the two ponds will contain about 2,800 m³ water. At the proposed pumping rate of 20 litres per second (L/s), 1,728 m³ mine water would be pumped to the two ponds in each 24-hour period (about the same volume will be released back to the river after treatment). The two ponds have an additional capacity of about 900 m³ above the normal operating level before water would overflow through the engineered overflow system. As an example, 10mm rainfall would provide an additional 46m³ in a 24-hour period.

The average daily (24 hour) rainfall measured since 2002 at the nearest raingauge – [Garrigill Noonstones Hill](#) – is 4.5mm.

Arsenic concentrations in the River Nent:

After discussion about other contaminants within the river and the Environment Agency's conclusion that the measured concentrations of other contaminants are not considered to be a concern for river water quality, we committed to sharing with you the arsenic concentrations measured in the River Nent.

The Environment Agency has monitored for a large range of metals and other substances in the River Nent. The only substances which are causing pollution, i.e. the measured concentrations are higher than the statutory "Environmental Quality Standards" (EQS), are zinc, cadmium and lead.

Between 2002 and 2014, the Environment Agency monitored for arsenic (dissolved) 24 times in the River Nent near Alston (see online water quality archive at [NENT AT ALSTON](#)). The concentrations were always below the laboratory reporting level of 1 µg/L (1 part per billion). Since the EQS is 50 µg/L, it was decided to stop analysing for arsenic in the River Nent since there was no evidence of pollution.

If you are interested in any other elements within the water samples, you can see our results by searching the water quality archive - [Open WIMS data](#).

Can we share pre-planning application advice sought from the local planning authority?

We contacted the local planning authority and the lead planning officer has agreed to discuss the case in more detail with the local councillor who asked this question.

Hydrogen peroxide:

To help provide reassurance around the use and storage of hydrogen peroxide on site, we committed to sharing a recent response to a Freedom of Information request regarding use of Hydrogen Peroxide.

The following information was made available as part of a larger Freedom of Information request in January 2024.

Odour Control and Management

The WAMM team has repeatedly stated in public that if the normal operating procedures do not prevent an odour nuisance, operation of the treatment ponds would be stopped until a solution is found. The potential generation and release of any hydrogen sulphide has been modelled and assessed by an external air quality specialist, AECOM. There will not be a nuisance odour or health risk to residents posed by the routine operation of the treatment scheme. In the unlikely event that proposed scheme does generate an odour nuisance, the steps that will be taken will be set out in a site-specific odour management plan.

Based on the Nent Haggs scheme, we expect that if planning permission is granted, there will be conditions requiring the control of any odours. The planning conditions for the Nent Haggs scheme are available within the planning documentation on the Cumbria County Council Planning Portal - <https://planning.cumbria.gov.uk/Planning/Display/3/18/9001> under Decision and within the Decision Notice.

The Coal Authority currently doses mine water with hydrogen peroxide at 6 sites on a permanent basis across Great Britain at treatment schemes for abandoned coal mine water. Hydrogen peroxide is also used periodically on schemes during certain maintenance operations e.g., reed bed refurbishment. Hydrogen peroxide dosing is done in two ways; through either a fixed permanent installation or through mobile trailers, both of which dose at either fixed rates or flow proportional depending on the facilities and requirements. Transportation of the hydrogen peroxide is undertaken by specialist licenced transport companies with delivery and storage meeting appropriate standards.

An example of the effectiveness of hydrogen peroxide in reducing sulphide levels can be demonstrated by works at the Six Bells coal mine water treatment site in September 2021. Natural sulphide levels in the mine water were measured at 0.22mg/L and when the peroxide dosing system was started, dissolved sulphide concentrations were below the detection limit of <0.02mg/L. The distance from the cascade to the nearest residential property boundary is approximately 80metres.

Delivery and Transport of Hydrogen Peroxide

The current design of the scheme allows for four 1000litre tanks of hydrogen peroxide (35% solution) to be stored on the site, inside a locked building with appropriate health, safety and environmental measures in place. Transport and delivery of hydrogen peroxide to the site will be done in line with industry standards. We expect there will be up to 8 deliveries of hydrogen peroxide to the site each year. These will be scheduled so that there is always plenty of hydrogen peroxide available to operate the scheme without causing an odour nuisance, allowing for potential disruption due to winter weather. We do not expect the local conditions to negatively impact on the safe storage of hydrogen peroxide on the site.

Weather station data:

We said we would share the weather data being collected at the temporary weather station installed adjacent to the Handsome Mea reservoir.

We are investigating how best to share the weather station data via our scheme website. We hope to make these data available online soon.