Nenthead Community Event: Q&A transcript: 20th May 2023

Simon - Good afternoon all and thank you very much indeed for coming to this discussion session. My name is Simon Wilson and I'm an independent facilitator so I don't work for either the Environment Agency or the Coal Authority and my job is just to make sure we have as useful as discussion as we can, you get your questions answered. We are also, with your permission, recording the session. And that will then mean that we've got a note of the session. So, if that's okay with you, we'll record the session, we'll have a note and that will obviously be shared with the community. Is that okay with people? Thank you very much.

Overall approach is, there will be a short update from the Environment Agency and the Coal Authority team. Obviously, you've got all of the visuals around the room that you can take a look at, at any time, and then we'll open it up for any questions. We've got until 6 o'clock. If we use all that time – fine, if we finish before that, that's also fine.

This is the latest in a round of sessions we've had like this. It's been my pleasure to come and visit Nenthead for several of these. It's an opportunity to ask questions and to hear your views. I've always found that they have been done in a really nice spirit. Obviously, there are quite often some quite strong views, that's absolutely fine, but we do that in, I hope a courteous way, recognising that everyone's got differing opinions and also, we have colleagues here who are doing their best to do their jobs.

If we just do a quick round of introductions from the team, starting perhaps with Jan.

- Hi, good afternoon, everyone. I'm Jan Brand. I'm the Coal Authority project manager for this scheme.

- Hugh Potter from the Environment Agency, I am the overall lead for the Water and Abandoned Metal Mines Programme in England.

- I'm Nick Cox from the Coal Authority. I'm the Programme Manager for the Metal Mines programme.

- Andy Edwards, I work for the Environment Agency and I'm the North-East lead for the Water and Abandoned Metal Mines programme.

- Holly Dodds from the Coal Authority in the communications, engagement and stakeholder side of things.

- Caroline Wood from the Coal Authority, I'm programme support,

- Sarah Darling, I'm the engagement specialist on the Environment Agency side.

[00:10:00]

Simon - Thanks very much indeed. I'm going to ask Jan just to open things up by giving an update and then we can take any questions from you on any aspect of that. So, Jan – over to you.

Jan - Firstly, it's nice to see people come and we've seen new faces. So, Hugh would like to give a very short introduction to what the scheme and the programme is about and then I will give a project update.

Hugh - Okay, if you can't hear me at the back, please just tell me. The reason we're doing the Water and Abandoned Metal Mines programme is because about one and half thousand kilometres of rivers in England are polluted by the old abandoned metal mines. Because these mines closed before 2000, the people who were running the mines can't be held liable for the pollution that's coming out of these mines. And if we don't take action to deal with it, the pollution will carry on for hundreds more years. So, the government has set a new target passed by parliament in January this year to aim to clean up half the length of polluted rivers by 2038 and that builds on an existing programme through different plans that we already have, objectives to clean up the pollution in these rivers.

In the Nent, the River Nent is the second most metal polluted river in the country, the most metal polluted river is in Cornwall. And it means that we find about half the number of fish and river flies living in the river than that we would expect to find if it wasn't polluted by the metals, and the metal concentrations can be up to two hundred times the level that's safe, or considered safe for fish and river flies, for river wildlife.

That's really why we're doing the work in the Nent Valley. We have the Nent Haggs scheme down the road that is nearing completion, ready to start operating later this year, and the scheme that we're going to talk about this afternoon is the Nenthead scheme, is another one of the schemes that we're trying to do to clean up the River Nent. The Nenthead and Nent Haggs schemes together, they will help to clean up sixty kilometres of river and the Nenthead scheme, there is about four and half tonnes of zinc and cadmium come down out of the two mine water discharges every year and will continue to come out and pollute the river. And that's really why we're here. The scheme is to clean up that pollution..

Jan - When I came and spoke to yourselves and your fellow residents last November, I gave an update of what we've done in the last six months so I'm going to do the same thing now if that's okay. Happy, very happy to talk to the detail from project inception but I think it's probably better just to focus on the progress.

Following feedback from yourselves and others, we have amended the pumping station proposals and behind me on the wall now (Option 4a and Option 5), we've got option 4a, which is very similar to the one we showed in November but with a ninety-degree orientation change on the building. And 5a, which is a new one. I don't know if you can see but there's a section here, which is a little bit of a hammer head on the turning circle in the carpark. Our proposal would be to site it in that location. That, in our view takes up less carpark provision and provides some shelter and visual screening for the Overwater residents. There are a number of advantages - happy to go over those in detail. Some of them are listed below. These are the two favoured options, probably more favoured is option 5 there.

The other things we've been looking at are replacing the timber footbridge that goes from the carpark, over the River Nent to the Hush. That's in a fairly poor state of repair and we've proposed to replace that with a similar footbridge. It's a slightly longer span located a few meters downstream. There are some pictures on that middle board at the top, of what we think that would look like.

We're looking still at reusing some of the older infrastructure on the mine site. I spoke last time about wanting to reuse the pipeline that runs from the reservoir, down the mine's access track to the carpark. It would be really good if we could reuse that. That obviously means bringing in less new material, creating less waste material to take offsite and less disruption. And we are also hoping to take the water from the Caplecleugh adit across the river using the existing pipeline that's got a

kink in it, you'll all be familiar with that. So, again that would result in less disruption on the Caplecleugh side and again a really good use of reusing existing assets.

The photographs here, which I appreciate you probably can't see from that position, show our slightly revised pond location. I spoke last time about wanting to move it a little bit further to the south. That now has been fixed in the design, so these visualisations here show what it looks like now, what it would look like a year or so after completion and then three or so years after it's been vegetated so, please come and have a look at these pictures.

While we're talking about the ponds, one of the things I did want to highlight – we've brought these little fishbowls and they contain the material that would be put into the ponds. We've talked before about this being a nature-based solution. It's a passive scheme that doesn't use lots of chemical and power input and the fishbowls contain a representation of what we would have in the ponds. So, that's a mixture of gravel, barley straw and tree bark. And it's within that mix of materials where the microbes do their magic. It's sulphate reducing bacteria if you want the science, but they take the metals out of the water and keep it in the treatment layer.

One of the occasional by-products of that is the odour that we have spoken about. The odour is hydrogen sulphide. We have a system where we would dose a chemical to make sure that there isn't an odour nuisance. Hydrogen sulphide is the smell that, when you're walking through a waterlogged field and your hiking boot gets stuck, it's that eggy smell. Hydrogen sulphide is a naturally occurring gas that would occasionally come from the ponds. I just wanted to reassure you that it's natural materials that we're proposing to use in these ponds.

One of the other things that we've completed, we've got almost nine months of weather station data. We put the temporary device on the moor and that's giving us some really good data. We'll get that published on the website as soon as we can.

We said last time that we would look at more measures to control diffuse pollution. This mine-water treatment scheme treats the polluted water that is coming in directly from the discharge from the adits, but we recognise that there are materials that are being washed off the soils heaps round the site, so there are a number of actions and activities that we can do to reduce the amount of both water damage and erosion and mobilising of the sediment into the river. There are options that we are looking at on that first board. (Slides 19, 32 and 33 of the Event Display Boards – May 2023)

We are also looking at what green energy options we can do, both retrofitting some micro-hydro into the new pipeline system and what green energy tariffs we can explore to power the pumps that we need.

So that's what we've been doing in the last six months. We will shortly be taking an aquatic survey so we understand what will be the likely impact on the receiving watercourse, and we're going to start talking to contractors about how we can minimise disruption to the community. We're committed to do another background noise survey, we did this last year but we're going to repeat it, so we know how quiet it is in Nenthead. And once we know what we're doing with the pipeline, we're going to finalise our pump specification and design which we will share with you. And the final thing that we did, we undertook a peat survey, the fieldwork element was done in March and we're hoping to share that with you as soon as we get the final version.

I think that's what we've been doing in the last six months. And I hope that you can see that some of what we've done has been as a result of feedback from the community. We are listening and we are acting on things that we hear from yourselves.

Simon - Thanks very much indeed for that Jan. So, over to you. It's helpful it you just show your hand if you want to speak and I will get to everybody, even if you have to wait for a minute. Let's start with you please.

- **You're saying you've done this, and you've done that. Have the sand martins come back?**

Jan – We are looking at putting…

- The answer is no isn't it. The answer's no. They haven't come back.

Hugh - As you say, the sand martins haven't come back to the artificial sand martin habitat that we put up, so what we're doing is looking at putting up another one in a slightly different place, a bit further down, closer to where they were before. But they haven't come back yet.

- **It's the same with Garrigill you've actually started work over there in nesting season. Your work has started at that time of year. You've got all this data and all this stuff, yet you still go ahead and do it.**

Nick - Those works at Garrigill weren't allowed to take place without…

- Yes, but birds are nesting at the same time of the year.

Nick - We weren't allowed to undertake the works without doing bird survey work ahead of that so that process was undertaken prior to the works commencing and if there were any nesting birds found then we would have delayed the works.

- They won't come back though, will they?

- There is a lot of nesting birds on this proposed site. There are curlews, there's black grouse up there already, there's visiting geese, duck, even osprey. What are you going to do about encouraging them to come back and…because they won't. It will be completely disturbing for them.

Simon - Do you want to comment on that? Encouraging other species of bird to come back if they're disrupted by this?

Jan - The mitigation that we will have follows on from the survey work that has been done. We did a lot of the survey work last summer. The advice that comes from our construction management plan and the way that we go about the work would be to take on the expert advice from the ecologists. So, for example we wouldn't start during bird nesting activity. And there are activities that we would be prohibited from doing, or doing in a special way. Examples, little examples that I can cite are such as you would go in and do a vegetation cut in order to encourage the reptiles to move out of the way, that kind of thing. There are always examples of, if there are any voids or holes they need to be plated over or ramps put in so if mammals go in for example, they can get out. There are ways in which we will either not do work or do it in a way that's sympathetic to ecology.

Simon - Thank you. Yes please…

- You say that you're listening. Every time you've said that you're listening but you're not because the people of Nenthead don't want it. And then to read in the Herald newspaper last weekend that the planning application will go in towards the end of this year. It's cut and dried.

- It's a done deal.

- You aren't listening. Yet you try to keep everybody happy with moving the pond this way, doing a different style of building, this that and the other. But you're not listening. They don't want it.

- You're actually doing more damage. But as long as you're doing your bit you're happy. As far as nature, you're just decimating it all.

- I also have a photograph on my phone here. There's a young around lad here that goes down, exploring the mines quite a bit. And it's a picture of a fish in the mine. So, how can it be polluted if there's a fish swimming around inside that mine?

Simon - I think there are three things here. One is the question about the pollution. The second is, is there more damage to nature than is the benefit from cleaning up the mine and the third is, it's cut and dried because you've put in the planning application. So, could you comment on those please?

Jan - The planning application goes in to the authorities, as I know you're aware that it would go in the new council, Westmorland and Furness Council, with regard to individual matters there are a number of consultees. They themselves will have their own ecology specialist and they will also buy in ecology specialisms so the ecology that we include in our application will be assessed and considered by specialists from there. The consultation itself, members of the community will be invited to comment on that, as are other stakeholders such as Natural England, Historic England, the North Pennines Area of Outstanding Natural Beauty. It isn't a done deal. I wholeheartedly would like this application to proceed and we're working hard to put together a robust and sensible application and I'm sorry you don't think we are listening. I know how many times we've changed our plans or altered our design because we have heard comments from members of the public and we have taken that on board. There is a weather station on the moor, that was as a result of one of the comments that was made in this room. The ninety-degree rotation of the pumping station building, was at a suggestion of one of your fellow residents so we are listening, and we are acting on what we hear.

- I get all that and fair do to you, but we don't want it. We just don't want it. They don't want your pond, they don't want your redesign of your shed, they don't want your new bridge, they just don't want it.

- The river's been cleaning itself up for years. You said you're going to clean it up – it's doing it itself. You are just crucifying the place

Andy - If I can come in there and address some of those. The Environment Agency has a responsibility to improve water quality. Within the North-East areawe deal with rivers across the NorthEast including South Tyne, everything in Northumberland, Wear, Tees. How we will improve water quality in the North East is set out in the River Basin Management Plan. One of the things that 5ails within that plan is the metal pollution in the River Nent, the River South Tyne and that is the reason this project is set up. The Environment Agency has that responsibility to improve those things that aren't meeting the required standard. The metal pollution comes from these abandoned mines. We've gathered the information, we've been doing the monitoring since 2014, which identifies exactly where it comes from, which is the two adits, which is why we need to put something in place, to remove the metal and doing it as close to source as possible means that we're not removing water from the system. We can't take the water from elsewhere, because that will reduce the amount of water in the system that any river needs. And to address the fact that the river's cleaning itself up, we have monitoring data from Alston, which goes back to 1974 which suggests it's not. It does fluctuate, it fluctuates through summer and winter but the long term, the metal concentrations in the river are within the same band.

- Can I just say that the Environment Agency and Defra programme of the river cleaning priorities, everything, like sewage, agricultural waste, industrial waste, pharmaceutical waste, that is all way prioritised. Actually, cleaning metal mines is the last priority on the list and the most expensive.

Andy - It doesn't mean it's not an issue. I agree there are a whole host of other issues that affect rivers across the North East and there are other places within the Environment Agency, there are other organisations, that are tasked with those. There are other organisation, other bits of the Environment Agency, other teams that we work with who are addressing those other pollutant sources. We can't all be working on the same thing. We don't have hundreds of colleagues here sat here working on metal mines. The result you have is to address all of those priorities and to say 'it's the lowest priority' – it's still a priority and the funding is made available through Defra for, specifically for tackling abandoned metal mine pollution from abandoned metal mines, which is the focus of this programme and this project, which is what we're here to deliver.

- I just wanted to say that when you mentioned funding, one of my questions is about funding actually. Third party funding will be required - Defra has said this – as leverage for the construction of the Nenthead treatment site. Which organisations have you approached or are you considering and how many are from the North East region? And will regional funding be required for the future running of this project?

Hugh - In terms of funding, the text that Defra have put into their plan that was published about funding is that yes, they would like to leverage third party funding, so not through Defra they would like other people to contribute. It doesn't mean that it's actually required. It is a government obligation to target and clean up this pollution. In the past, so between 2016-17 and 2019-20, the metal mines programme for the work for the South Tyne, received £2.6million from the North-East Local Enterprise Partnership's Local Growth Fund, which is related to the shipping port of Tyne. And for the Horse and Wagon field, part of the Haggs project, Northumbrian Water contributed some funding, (off the top of my head I can't remember the exact amount, one of my colleagues may have it) to combine with the money that we put in so the Tyne Rivers Trust can do the works that they've done to improve the Horse and Wagon field. In terms of long-term funding and for the operation: each year in Defra's accounts, they publish what their liabilities are for all manner of things, and one of the lines that they have in there, one of the specific budget lines is to make financial provision for operating the abandoned metal mines schemes that they have built through the programme. The provision is made for 100 years, so it's in their accounts with a liability associated with it. As each new scheme is built and starts operating, the cost of that to operate for the next 100 years will be added to that and then put into the accounts alongside the other liabilities that Defra has. That is the commitment the government makes that once built, the funding will be provided to continue to operate these schemes, so they won't be built and left to not run properly.

- So, they've estimated how much it's going to cost for 100 years have they?

- Yes.

- Strange. When you can't even estimate how much it's going to cost to complete the project.

Jan - One of the other things regarding your point about other pollution inputs, one of the things that has been recognised is that in the majority of rivers where metal mines pollution is being addressed, were it not for the metal mine pollution, the rivers wouldn't be failing the standards. So, there isn't this obligation to address these other things that you're talking about in the majority of these catchments. So, the River Nent isn't failing on anything other than the metal mine pollution.

- I still don't understand why you think that the run-off from the land – this land has always been rich in metals. It's natural part of the land is part of the river, the species of plants and animals that adapted to it, which is going to decimate them once you start all this. What are you going to do about the run-off? Every time it rains, metal is going into the river.

- The whole place is waste slag heaps from historic mining over years and years.

- Yes, it's like trying to take sand out of the desert.

Andy - To address some of that. Yes, the geology of the area is what it is. Which is why the mines exist in the first place here, because the metals are there. But don't forget, the situation now has evolved over the last two or three hundred years. And it's because of the mining that a lot of the plant communities exist. They exist because of human, man-made activity. And whilst there will always be the higher background levels, the metals in this area because of the geology, it is so high because of man's activities in mining, that anthropogenic impact. And yes, run-off from spoil heaps is going to happen in the rain. Obviously it's going to continue for the next hundred years but by tackling the point sources that we've got, it still reduces the level of metals in the river, particularly through the summer months when there is less rain, of course you do get rain in the summer, there's less rainfall which means the concentrations in the river are increased. They are higher, which in turn has a bigger impact on aquatic life. By putting treatment schemes in place, through the summer months when you do have those lower river flows, the impact will be significantly reduced on what it is now.

Hugh - Can I just add to that. To illustrate a couple of numbers. When there's not a lot of water in the river like at the moment, and most of the metal is certainly coming through the adits, the concentration of metals in the river just downstream of where the mine water comes in by the carpark, it'd be typically up to about two hundred times the safe level. When it's really wet, which is when more of the metals get washed out of the spoil heaps or the mine waste, typically – because there's so much more water in the system – it's typically only about twenty times the safe level for fish and wildlife. So, although it's important to deal with the run-off from the spoil heaps, and we are putting some measures in place, we want to put some measures in place to do that, in terms of environmental damage and harm to aquatic wildlife, it's not anything like as significant in terms of making it easier, healthier, and a more healthy environment for fish and wildlife.

- The reservoir is currently jumping with fish.

Hugh - The reservoir is clean. It only takes rainwater going into it that's falling on the top of the hills. It's doesn't go through…

- But the fish come out of the mine adits. They do! I sit with my feet in the river. Baby fish come out of the adits and go to the reservoir.

Andy - Fish will still be able to access to the river. By reducing metal concentrations and improving that water quality there will be more fish. The surveys that are carried out in the main river show that the fish that live there, in the main stem of the river, we didn't find any fish that were under two years old so there obviously are fish that are under two years old because the population is being maintained but they aren't living, they aren't existing in the main river because the concentrations are so high.

- They are!

Andy - I'm only speaking to the surveys that we've done. They surveys that we've carried out over three years, there were no fish under two years old. I can only speak to those.

- You said something about the spoil heaps, you've got plans to sort that out about those before they drain off all the cack? What are they then? What plans are these?

Hugh - On one of the boards up there [see slides 19 and 33 of Nenthead Event Display Boards – May 2023], it has some proposals of options. Nothing is set in stone. We've got some proposals. This is the areas where we'd like to do things and it's mostly around keeping the clean water (the rainfall, effectively) away from the dirtiest bits, the most contaminated bits, keeping the clean water away from running through the spoil heaps. We've also looked at, as we have done at the Garrigill mine site over the hill, there are areas where, if it's flatter areas of land, then we can encourage the growth of vegetation that will be the metal tolerant plants, and the priority will be species like that, we encourage those to grow if we can stop the actual movement of the soil and spoil, because they grow really well there, they can be encouraged to grow, but when the spoil heaps are all moving they are prevented from rooting. So that would be a proposal. We've been speaking to the Nenthead Mines Conservation Society as well about this, because they're the landowner, about their…

-…they've just completely washed their hands of all this.

Hugh - This is an area wherewe know is a contaminated section of material that has been washed away, is there also anything on the site that they think we can combine what we are interested in, stopping pollution, with what they're interested in, which in a large part is protecting industrial archaeology. They've got some sites where industrial archaeology is being washed away, it's also washing away contaminated material so it's in both of our interest to try and do that sort of thing together. But there are a series of options and as we develop the plans, we will be including all that in the planning application.**- I'm a little bit confused by some of the things you've said. You talk about the ecology and obviously you're talking about economics as well. I just find you're contradicting yourself in as much as you're saying you're using this straw base or whatever you want to call it for the treatment pond but then you're adding chemicals to deodorise it. That just doesn't make sense, it's either one thing or the other. It can't be both. You're saying you're caring for the environment but if you're adding chemicals to the environment then you are contradicting yourself. So can you explain that.**

Hugh - The way that the treatment process works is that you put the mine water which contains all the metals and also has lots of sulphates naturally in it occurring over time. That goes through this mixture here and, as Jan says various bacterial processes happen within that, naturally occurring in there, and that strips the metals out, it sort of binds the metals up onto the material that's there, the treatment material. But the way that it does that is, from a chemical point of view it changes the sulphate into sulphide. The sulphide has the potential to cause smells if it is then released into the atmosphere. So, what we then have to do is we have to stop that. We can't clean up a river and make a smelly treatment scheme. That would be not what we would want to do because we're trying to clean up the overall environment. We don't want to create another problem at the same time. So, to prevent there being an odour nuisance we then add hydrogen peroxide, which is a widely used chemical that's used for lots of different purposes and that reacts with the sulphide and basically converts it back into sulphate and it gets rid of the smell, the potential for smell.

- Would that be done automatically on a regular basis, or do you have something that's picking up the smell, some sensor that's saying 'yes the smell's way up here' or 'there's no pong at all?

Hugh – The way it works is, we have the water comes out of the bottom of the ponds, it then goes into a pipe where we add the hydrogen peroxide…

- So, you're adding it automatically?

Hugh – Yes, adding it automatically at a pre-set rate based on how much flow there is and how much oxidation we need to have happen. Then that's in a tank that mixes for an hour because it needs that long for the reaction to take place fully, and then that water comes out of the other end and it doesn't have the odour nuisance, the potential odour nuisance and we've removed the metals from it as well. There are also sensors at different points through this which tell us, is it working effectively enough. If it's not removing all of the sulphide then it would automatically add more. There's a sensor at the bottom end that says we have a potential odour issue we would then add more. The amount that we need to add is a very, very small amount. The number that we have estimated that we're going to need, I think for 20 litres a second that we're treating in the scheme, is 40 litres per day. So, 20 litres per second, whatever that is in cubic meters per day but a couple of full buckets…

- Yes, but it's not a natural process, is it? It is then not a natural process. You are adding chemicals to it. So, it is going through this treatment pond system, you've added stuff there, it then goes down to the reed beds, is that right?

Hugh – Yes.

- That can't be right. You're adding pollution in effect, you're adding chemicals, you're robbing Peter to pay Paul, which doesn't make sense.

Hugh - Hydrogen peroxide, when it breaks down it breaks down to water and oxygen. That's all it is. The Environment Agency uses it to deal with some pollution incidents. When there is a pollution incident that strips all of the oxygen, maybe a spill of some organic chemical that strips all of the oxygen out of a river and so the fish can't cope without the dissolved oxygen in the river, one of the things we would sometimes do in an incident is to add hydrogen peroxide directly to the river because it's a way of getting oxygen back into the water. And we do that to protect fish. So, it is a chemical but…it's not an entirely natural process, I accept that but…

- If it wasn't for the siting of the pumping station where you're having the treatment, you wouldn't be needing to add any hydrogen peroxide to it because there would be nobody living close by when there is an element of pong. It does not make sense to me. You're contradicting yourself.

Andy – That touches on why it is, where it is. And the reason it is where it is, this is where the mines are. I touched on it earlier. Taking the water further away would mean putting it back somewhere further away from where it currently goes which, in itself can create its own problems.

- Such as?

Andy - Water wouldn't be in the river for fish to exist in. In the summer months. If we took water at the top of the hill and it had to go over the other side and into the Garrigill Burn for example, we would be taking, in the summer months, 15 litres a second out of the river and it would only be left with what runs off the fells. And that can be as low as five litres per second. That's all that would be left in the river. Taking it further away, you run the risk of drying the river up. As well as cost.

- Why can't you just follow on downstream to where you're doing all your treatment stuff now?

Andy – Because then, for exactly the same reason. If we moved it further on downstream, if we took this Nenthead water and we installed a pipeline down the road to carry the water to the Nent Haggs

treatment scheme, that would be the same as I've just described. We would be taking 15 litres a second in the summer out of the river and we would be leaving very little water in there for the fish to exist in. That would create a whole new problem. That's one of the constraints we've had to work with. We can only move the water so far and cost does come into that as well…

- Sorry…if you're taking water out, maybe I'm being really dense here. If you're taking water out of the river, it's going through various treatments, ponds, filtration, it's got to come out the other end, doesn't it?

- Yes.

- So, you're not taking it away from the original, you're taking it from the river, cleaning it, putting it back again.

Jan – Taking the water out at A, here…

- Yes well, I'm not taking about A, I was saying if it was closer down to where you've got it there.

Andy – If we moved the water…

- You've still got the volume of water coming down the river. You're not touching that.

Andy - We can't treat the whole river. With this treatment scheme, we're treating 20 litres per second. This river in the winter months gets up to three, four, five hundred litres per second. We don't have capacity to treat that. The reason…

- So, what happens to the rest?

Andy - The reason we're capturing the water before it gets to the river is because that's when it's most concentrated. Dealing with it before it gets to the river means you're dealing with a known amount, and you can deal with it when it's most concentrated. Once it gets into the river, there's more water to deal with, there's a wider range of scenarios to deal with, including capacity of a treatment scheme. It's far more efficient to deal with it before it gets into the river.

Simon – Can I take a point from the gentleman there?

- I think you may not want to cover it now. Are you suggesting you're going to take the water from here and pump it to where the site is, so you're taking the water from upstream and pumping it to wherever the site is?

Andy – The site at the moment, the site for this treatment scheme is up above Handsome Mea reservoir.

- So, what I'm saying is, if the site were to be somewhere else, i.e. downstream are you saying you'll be taking the water from upstream and pumping it past us and then treating it at the site further downstream?

Jan - And then returning it downstream?

- I think that's what we're trying to say is, why aren't you just taking the water from lower down the stream, below us?

Andy - Because even at thesewage treatment works],one of the monitoring places we use is just by the sewage works further down here and through the winter months the flow there can be up to four or five hundred litres per second, which is a huge amount of water to have to physically deal

with. And it's already diluted by that point. By taking it where it's most concentrated and reducing the metal content before it gets to the river.

Nick - The flow fomr the adits itself is quite constant all year round. And obviously the base flow in the river changes depending on rainfall so in the summer the base flow in the river may only be, as Andy said, five litres per second. In the winter months with high rain flow it will be more like 300 litres per second or more, so we have to capture it at the adit now and then pump it somewhere to treat. What we're saying is, this current proposal is pumping it uphill to the old Nenthead mine site, it's being treated there and feeding back down by gravity to pretty much where it's being discharged at the moment. What you're describing there is letting it travel down to the river, that would just not be feasible for us to collect the water.

- I see what you're saying about it getting diluted.

Andy - I think the final element - this is hypothetical - if we did move the water further downstream, because of the issues that would be created in adjusting the amount of water in the river, in all likelihood we will have to bring it back up and put it back in here, which would mean another pumping station, which would mean extra work. I mean to get the water that far down, we would probably have to go in the road, disruption in making that happen. Whilst there will be some disruption during the construction there…

- A lot of disruption.

Simon - Could I just say, I've got three hands, so I'd just like to make sure everyone gets to speak so you first, then you, then you.

- Just watching the screen, I can understand how the technology works for the one you've got in the Lake District. I think the key difference is with this one, there's a community and I was just wondering what consideration or assessment has been done to the effect on the community. It seems like Nenthead's got a lot to lose in terms of people. We've already spoke about the wildlife here, but also during the construction phase, we've got the only employer, that could potentially have a big impact, we've got a pump that's going to be running 24 hours a day, is there going to be a noise impact of that, are there going to be vibrations from that. I've no doubt that this will work in terms of cleaning up the river but I just wondered what assessment has been done on the local impact because it doesn't seem like there's a lot of consideration to the community here.

Jan - You raised quite a few separate issues there but with regards to noise and vibration, we are going to design and specify the pumps, and the building and the pumping station so there is no noise or vibration disturbance. In terms of the impact on the community, we are going to work with yourselves, with your input and minimise the…we would schedule the work so we wouldn't end up with, for example work at the bottom at the same time as the top, that could be an example – the scheduling.We want to know from the community what events you might have that are key in your calendars, because if we know what they are we can build them in and make sure that we don't disrupt. We are aware of a few cycling events for example. But one of the things that we would like to learn from the community is what events matter to you so we can build those in. Business: one of the discounted options for the pumping station was taking up space in the carpark, because we'd been told it was really key for businesses not to reduce the car parking capacity for example. So, things like that are being taken into account with the design and it is evolving.

- I just wanted to ask, just going on from what Steve said about the community, more about the physical and mental wellbeing of people in the village and has there been any assessment around

that because this has been a huge thing for people that live here, especially people that are going to be living and looking at that. Mental health will be affected by that, it already is being affected. People have been to previous meetings and have talked about this and about how it has been really upsetting to them. So, what are the Coal Authority and the Environment Agency doing to assess physical and mental wellbeing for people in this community, and the impact that this is going to have on that particular issue?

Jan – We listened to the comments made by yourself and the other members of the residents, and one of the things that we have done since that meeting was to consult a specialist. They were a Director of Health and Social Impact at a very large consultants who deals with a number of developments including things like airports, power stations and we asked and said what ought we to be doing above and beyond what we are doing? And one of the key things that they told us was that there are always going to be concerns in communities and one of the things that we can do is to fill the information void because in the absence of data and facts people do have worries and concerns. One of the reasons we're here on a Saturday is because you guys said you wanted a presence so we could speak to more people. And if you have individual concerns, we have asked you and we encourage you to let us know and we will try and address them individually. Because we do know that people have concerns, they worry about things and some of these worries and concerns, we can address.

- So, what else has this company said…with the biggest respect airports and things are massive. Nenthead- it's a small community. This is a huge thing to have in this community if it goes ahead. There are people worried, particularly around possibly selling houses from a financial aspect, there's huge worry around businesses and we are represented today by some of our businesses. We only have our shop, we have our bike shop, we have the Hive, the pub's gone. This will, this *will* affect businesses. So, what safeguarding has been put in place to help businesses whilst this is happening. What is going to happen to these businesses?

Andy – Just to counter, how are you anticipating this will affect businesses?

- They will go out of business.

Andy – What's your view on how it will affect them?

- The thing is, the disruption of this will have a huge coast to coast… there's a lot of cyclists who come through here who will be affected. Dave has a bike shop that's the heart of the village for the coast to coast.

- They're here all year round.

Hugh - Specifically on that sort of thing, one of the things that we clearly know from how you have experienced the construction of the Haggs project is we can try and learn all the lessons we can from that and apply them to how we would plan to build this scheme. My opinion is, the construction phase, I accept there will be some disruption, it's a big construction project. Our challenge is to make sure that's as minimal as possible and once it's built, I genuinely do not believe there will any negative impact on the village, it will actually be an enhancement to the village because it's showing how it's possible to clean up these long legacies of pollution from the industrial revolution. So it's actuallya beacon of how to do things really, really well. In terms of the actual construction, I completely understand that is a major concern for people, we haven't got the detail worked out, but we clearly know that we have to absolutely minimise the disruption in the road corridor in particular. And as you say, you've got the coast to coast coming down from Garrigill and up the hill,

which I will actually be cycling this summer myself so, I do understand what it's like. We know that we won't be doing roadworks in the main transport corridor. We know that we'll be doing works in the Nenthead carpark and that's something we have to work to minimise the impact that's going to have. But in terms of disrupting the flow of traffic and bikes and so on, through the village, I really don't think there will be an impact.

- I think having the road closed, Hugh would finish it off. We know what has happened around Alston in the past with lots of different things with road closures. Businesses were decimated when we had road closures. It will kill the business.

- There's only one road.

Hugh – I completely understand that and that's what we have to make sure that we plan around. It is likely that, we expect we will need to have some traffic lights at the entrance, if we get planning permission, at the entrance to the quarry access track, just to improve that access but that will be a short section, for a relatively short period - I can't tell you whether it's days, weeks or months. It will be at the shorter end, and it will be a small section, just as we improve thatbecause we absolutely know that there is just a road going through, it can't be closed.

Simon – Can I just, if you don't mind, I've got three hands. So, first of all to the gentleman at the back in the grey.

- My statement has changed as I've listened. The very fact that the gentleman on the right is saying how is it going to affect businesses. It jumped into my mind that you don't understand Nenthead on site because if you have got to ask that question you haven't done your homework.

Andy - Well, I want hear it from yourselves. I don't live here, I'm down here for work…

- You guys disappear afterwards but we get a lot of people coming to the village for the wildlife. We've already talked about how the sand martins have disappeared and not come back. Tick – that's one bit of wildlife gone. We've got a red squirrel population. We can see that disappearing because would you hang around a building site? I certainly wouldn't. Tick – there's another bit gone. Why would people want to come here. If we lose all our wildlife, why would people want to come here? Would you like to come and visit a building site? I certainly wouldn't.

Andy – We're not talking about turning the whole village into a building site. Me asking the question is we want to hear it from yourselves…

- You can come back as many times as you like. The area you're talking about is a haven for wildlife. And people come to that haven of wildlife. And everything that you're talking about doing is going to disrupt that. I'll go back to what my statement was before I listened to that last five minutes.

Simon - I think the issue here is around, as I understand it: first of all disruption to the wildlife during the construction, but then, I think there is also concern that wildlife that may be disrupted then, will not come back, which I think is the experience that you've had with the sand martins. Is that right?

- Yes, it is. That wasn'tmy main statement. Just to add to that argument, especially after the gentleman made the statement that he made: I've been to numerous of these events, I've read all the literature you've put through our letterboxes, I've looked at your website etc etc. And it still feels that nobody can say to me: 'the benefit for Nenthead and the wildlife is X'. All I hear is what it's going to do for the river further down the river. I don't hear anything about the benefits for Nenthead. We're a very small community, we're a very close-knit community for want of a better

word. We rely on those tourists coming through. We've got a number of businesses in the village and every single thing that you talk about sounds like a negative for Nenthead. I don't see the benefits and I've been to a number of your events now and I still haven't seen a benefit for Nenthead.

- Most people I speak to in this village cannot see any benefit and do not want this project it's as simple as that.

Simon – Can I ask, would anybody like to comment on this issue about benefits for Nenthead? …Or do we just take that as a statement?

- Silence is golden.

Andy – I think we've always acknowledged that the benefits specific to the local area, yes – the majority benefits of the water treatment scheme are further downstream…

- If there are benefits, what are they?

Simon - If you don't mind, just let Andy speak.

Andy – One of the things that we will address through the planning process is biodiversity net gain. That's going to be a requirement that we will need to address because as of November of this year, we have to do that…

- Tell us about this net gain. Tell us about it. Come on. Tell us about it. Where's the gain?

Andy – It is what it says. It's biodiversity net gain. We don't have specific plans yet as to exactly what that will be so I can't sit here and tell you that we will plan X number of trees here, we will create this… we don't have that level of detail yet but…

- You need that quite soon. No, no, no…if you're saying you need that for part of your planning application, why haven't you got it now? Why can't you tell us the benefits now?

Andy – Because…

- You're just saying to me biodiversity again. It doesn't mean anything.

Andy – Because we aren't submitting the planning application tomorrow. We're going to submit the planning application early next year…

- Late this year. That's what it said in the newspaper.

Hugh - Late this year or early next year.

Andy - There's no fixed date for submitting the planning application. Once we have all the information available it will be submitted, and part of that information will be how we will provide that biodiversity net gain which is increasing the amount of habitat available. An increase of ten percent on what there is existing here as a baseline, that is going to be the requirement. I can't tell you the specifics of how, but it is a requirement for us to address and so that is where some of the local benefit will come in because we are going to plant more trees, we're going to improve…

- Trees don't grow on the top here.

Andy – Trees is just an example. There's a wide variety of things…

- [inaudible]

Andy - Because this is new legislation, we are still trying to understand exactly what it is we need to deliver to address that. Trees is an example, but it could be a wide variety of things.

- What about the Nent Force?

- It's easy to write on a piece of paper what the gains are going to be. It's proving it on the ground. Now, the only examples we've got as a community is, and we keep coming back to it, and rightly so, is the sand martins. You did some work in a habitat for sand martins, they've disappeared, you've tried to do something to bring them back, they haven't come back, that's the evidence we've got. If we lose our other wildlife for this area, we've got no…nobody's got any assurance and nobody's got a hundred percent guarantee. But we've got no evidence to say the work that you're doing is encouraging things to come back. We look at the treatment works down the road that and quite rightly it looks an absolute mess compared to what it used to be. That was a beautiful, beautiful area, wildflower meadows etc etc, lots of wildlife round there. Now it just looks like, I don't know…I've seen shopping centre carparks that have better environmental bits around the edges. That's the only evidence we've got at the moment, we've got nothing other than what we've seen with our own eyes, recently, both here and down the road. We've got no other evidence that says, what you guys sat there are saying, is going to come into fruition.

Hugh - I guess, in terms of the Nent Haggs scheme, obviously the main treatment facility is still a construction site, the Horse and Wagon field, the site 38 field in Nentsberry - we did the work in that last autumn, obviously through the winter it looked very muddy and it is now, it is definitely greening up now as we expected it would do, with the planting we've done with the Rivers Trust and we see both bushes and trees and there are wildflower areas. And there is also an increasing amount of the metal tolerant calaminarian grasses beginning to grow in the material that we put down there last summer as well. So, I hope that through this summer growing season you will have a little bit more confidence that we will be able to at least grow plants successfully when we say we will. Over the hill at the Garrigill culvert downstream of the B6277 road, it used to be an unstable, plant-less spoil heap that was washing into the river every year, causing pollution all the way down beyond Alston. It has now been stabilised, because we have reprofiled it andkept the river out of the spoil heaps, and we have successfully re-vegetated that and you can see that it's now a mostly green area of what was spoil heaps. There is also a particular type of plant called Thrift that was on the site beforehand, a couple of patches of it. We moved it away during construction and we put it back in and it has now successfully re-taken and is now growing as well as mountain pansies growing as well. So, I accept completely on the sand martins, and we are still trying, we going to try another approach to try to get them to come back. We're going to be putting some other artificial nest boxes in there, but we have been successful at re-grassing and re-vegetating areas and enhancing the areas.

- I just moved into Overwater recently and I would consider myself a big advocate for the environment and I completely understand the importance of trying to get these metals out of the river and I completely respect that. However, I now deem this as my community and the people who are here are very close knit and they're very welcoming and they're also very, very passionate about this. So, I've read everything that you guys have put out. However, when I look out of my window in the morning now, I've got the lovely view, I'm not going to have that, I'm going to have a building site. So, when I bought that house, thinking I can sit in my sunroom, drink my coffee, enjoy the wildlife, it's now difficult to deal with that not being the way it was. Because that's been there for hundreds of years before I was even a twinkle in my mother's eye. And it's just difficult because there's things like, my house doesn't have any foundation and I know you're saying that the noise won't be a disturbance and the vibration won't be a disturbance but where's my

guarantee that it won't affect my house, the other houses on my row. You're saying the noise won't be…I can't hear it but how do I know that. I don't want to be lying bed at night with this pump less than a hundred meters away from my window. I've got livestock animals, they're going to be disturbed by it. I've got poultry – they're skittish and it's just all of these things. Yes, the environment's important but the local community that makes Nenthead, Nenthead, that's been here for the mine, it's been built around this mine and that's just a priority here. And I really think it should be seen that way. People should be put first. Our decisions should be taken into account. Because I think, if you listen to everything that was being said you are jumping through hurdles to get this project going, we're jumping through hurdles to stop it and we're butting heads all the way along. I think a project like this really needs the support of a community to succeed and to go well because what happens when you bring your heavy machinery in and for example, people protest it being there? It's going to be a difficult exchange.

Andy - I think everything that you've raised there is why we're sat here. It's why I'm sitting, saying 'what exactly are your concerns?' so that we can understand them, and then we can put things in place to address them. The reality, we're not sitting here…we've just put the planning in and gone ahead without considering all these things. We're sat here, we are listening. Yes, there are changes. There will be a construction phase and there will be change (assuming we get planning permission) but I think everything you've raised is why we're sat here, to understand what those concerns are so that we can put the effort in to jump through the hoops to address them and minimise them. The foundations, we have recognised that that's an issue so we go away and look at what we can do within the construction phase to reduce that.

- I completely understand that and I really respect that you're doing so much community engagement and I do think it's really important. However, what I personally want reassurance on is that my house isn't going to fall down because of the vibrations and that I won't have to sit out all summer long and look at a building site. And I know that's personal to me but all of us in here will have something that's personal to them, but I just don't see how we're going to come to a solution because the village is saying no.

Simon - Does anyone want to comment further on that?

Nick – Firstly, thanks for your honesty. Obviously, we've had an open day today, there are some people in the community who have come in who are pro the scheme, exactly as you are describing – they want to clean up the environment and they want us to proceed. There are others who have come along to…not this event but to other events who recognise the pollution who suggested other forms of treatment. The reasons that we're trying to engage like this is so that, as Andy is suggesting, we can note these things down, we can listen. Concerns about things like vibration and noise, there's an existing pumping station that provides all of the town water and pumps it over the hill to get to here. We can have a look at the size of that, spec that, what's the comparison to give you reassurance. Things like the foundations, there are all sorts of sensors and things that can be put into the ground during construction phase. All these sorts of things can be…it's understanding them and having these conversations. And they are…these conversations are difficult conversations to have but we're here and we are listening. And we have a regular presence in the village as well, in the Hive to listen and to gather this information.

Simon - So, there is an opportunity to follow up on the specifics. Yes, Jan – I've then got several hands.

Jan - Just quickly, on the aesthetics for the residents of Overwater, the option five was a preference due to the fact that the existing evergreen planting does provide some visual screening so the view from Overwater wouldn't change as much, and the design that is only a draft, is that the building and the wall are of a similar aesthetic to what's there existing. We wouldn't propose to put a red brick building with a flat roof, it's the existing vernacular. So, again we are taking into account, this is a necessary scheme to treat the pollution, but we are trying to make it a minimal impact for the residents who, yeah – it will be what you look at from your back gardens on a daily basis.

- It was mentioned at the parish council meeting on Monday night about the mine people giving you permission. Can I ask you what they've said about that please, because obviously I know what was said at the meeting.

Jan - At the moment, our legal team are talking to their representatives about the consents and permits that might be required to go forward.

- Right, okay. Well, they're going to be reminded that it's a community asset and they can not give you permission without consulting the community. So, the parish council is going to be reminded about that.

Simon- Thank you for that. Yes please.

- Just more questions about your headlong rush. Your weather information you're monitoring, which you've said will take all four seasons at least once, how's that going?

Jan – The temporary weather station was installed in August and is reporting via telemetry. We've had, as of May we've had the best part of eight, nine months data. The anemometer, the measurement of wind strength and direction was the main point of gathering that information, because there were concerns that the data that we had based the dispersal modelling on, was based on the metrological station at Warcop. What we've learnt so far is that the wind that we're gathering from here is on a par with what we're getting at Warcop.

- And the temperature? We haven't had a deep freeze this winter, but we frequently do. Because that is what makes things in the past [inaudible] but it was pointed out. What we're seeing now is hopefully the opportunity which you will grasp is probably the worst that we can offer in terms of weather that may impact the function of your facility. What is the proposal? You may say, let's go for all seasons or…is that it? Or do you have proposals to go beyond that into subsequent years?

Jan - I think we said that while we're still pre application, we're going to keep the weather station running so we'll gather the data there.

- And you clearly are aware of recent severe weather phenomena?

Jan – Yes.

- In relation to that, do you have weather monitoring done in the Haggs system? Or not.

Jan - We will do.

- You will? Okay, that's interesting. I thought that might be something to look at to see how it's working under those various seasons. So that to me seems to be crucial to the potential function of your natural, i.e. biochemical system, which works of the basis of Q10 temperature rise. So that's pretty important. Also, just in passing, it was mentioned as I came in about cycle events. I think I might have said to you personally, for each group of riders doing the coast to coast is an event, but it's more than that. We would like I'm sure to get more actual proper organised badged

events based, hopefully here, not just passing through as they tend to do. You know, stop and start here, which we do, we've had two or three this year already and one early next month and we'd like to have more please not less. Because that's part of the livelihood of the village. So, I would like information on your weather and also some kind of undertaking that you're going to be monitoring how things are going down there, because that seems to be a bit of a gap. Because it will be a little bit lower but it makes a hell of a difference.

Hugh - The weather station at Nent Haggs is just being specified, just to install it so it will be installed.

- Good. And how long will you have that up?

Jan - It will be part of the building.

- I mean prior to the building being even conceived here, or dug? It is a matter of monitoring how things are going in how things may affect the potential working of this scheme.

- My first point was going to be exactly what David said there. It's about the weather and there was concerns at the last event about the workings of the treatment works should the temperature be lower than a certain level. And as Dave rightly says the winter this year has been extremely mild, even at Nenthead so that's got to be taken into account. We had snow last month and that's a mild winter for us. My second point very quickly is, I already see that the treatment works down the road there has got another planning application to expand the building already. So, you know – we see these nice plans here but how quickly are we going to need to expand like down there and that's only been up, what – eighteen months, two year and you're already looking to expand that building.

Hugh - I think as we said earlier, we have some learnings from the Haggs project and I would far rather that we put in a planning application for something bigger than we need eventually and bring it down rather than, what has happened at Haggs is that further investigations have been done that mean we have actually needed to apply for planning permission to extend the building there to put in a toilet and welfare facilities. And where we need that here, we would include that in the application here…

- **So what you're saying is, that building, includes the lessons learnt from the building down there, and it's got the relevant welfare facilities as part of it, what we're seeing in the artist's impressions now?**

Hugh - Yes, I'm not sure if this particular building will have welfare facilities in it but we want to make sure that what we present to you and what we then put into the planning application is what we will need to build because it's unsatisfactory for us and for everybody else if we put something in and then say 'oh actually we need it bigger'. It's not the best way to build a project but on that particular one we had to put in…

- Again, I'll go back to the statement you made earlier about how well that site was coming on with the biodiversity and the stuff you've planted and now you're going to go back on and create a building site again. Which we obviously have issues with what you've just been explaining about.

Hugh - Sorry, there seems to have been some confusion then. The application to expand the building is not to the pumping station on the Horse and Wagon field in Nentsberry. It's for the odour dosing building on the site for treatment ponds, which is still under construction. Because absolutely, we know that if the grass is coming up and if we're driving all over it, it's really not a good idea.

Right, that's fine

Simon - Thank you. Yes please.

- My question is simply, because it has been brought up at several meetings before and talking about the Haggs treatment experiment – because we don't know if it's going to work? Do we – if we're honest? Why can't we wait until the data comes out from Haggs before any of this is even considered? Why can't you do that? We don't know, you don't know if it's going to work. We've had these discussions before, Hugh. We don't know. You don't know. Why can't we wait for the data from down the road before we even start any of this disruption?

Hugh - In terms of 'is it going to work' – I don't have any concerns about whether it's going to work in the way we want it to work so it's going to remove metals and it's not going to smell. I know that you have concerns, and you don't accept my confidence on that but…there we are.

- But your film says that Wheal Jane has not being successful.

Hugh – Wheal Jane not being successful?

- Yes, it talks about water coming in from elsewhere.

Hugh - Ah. In that respect, the Wheal Jane mine-water treatment scheme in itself is incredibly successful, and it does what it was designed to do, and it does it very, very well. The non-success of it is that, that river has another mine water discharge that comes in, and that means that river is still incredibly polluted. If we weren't treating the Wheal Jane water, the Fal Estuary would be bright orange the whole time and full of metals. So, it's a bit like – we can't clean up the river Nent by just putting in the Haggs scheme. We have to also deal with the other discharges, the Caplecleugh and Rampgill discharges which is what this Nenthead scheme is being proposed to deal with. I would love it if we could have a single treatment scheme that would deal with all the problems in the catchment, but we can't.

Simon - We've got slightly distracted for a second there from, I think your actual question was 'why not wait?' so can we just come back to that?

Hugh - What we are doing is, as you know it takes a long time to develop these projects, both in terms of the design and in doing all of the investigations. And what we will be doing is, because we have delayed the time when we intend to submit the planning application for the Nenthead scheme, we will have been operating the Haggs scheme for a decent, in my view a decent amount of time, it's likely to be about a year – I'll rephrase that - we will…before we can start constructing the Nenthead scheme, we will have been operating the Haggs scheme for about a year at least.

- Is that long enough for you?

Hugh - If we find, in terms of getting the scheme up and running and saying 'is it working as we expect it to do?' that is absolutely enough time. If we find that it's not working, that the Nent Haggs scheme is not working as we expect it to do and we have problems in that it's not treating water effectively or it's causing an odour nuisance, even if we've submittedt a planning application and frankly even if we've had planning permission granted for the Nenthead scheme, we would not start building the Nenthead scheme if the Nent Haggs scheme is not working as expected, because that would not be the right thing to do.

Simon - Okay, thank you. Andy, then I'm going to bring you in, and then you.

Andy - Whilst we don't have any data from the Haggs scheme, there is data from the Force Haggs treatment scheme which I appreciate is slightly different…

- There's not a community around Force Cragg.

Andy – The treatment element of it does work.

- I know I appreciate that.

Andy – I do acknowledge there are differences there in the localisation of it. But in terms of the water quality and how it works…

- I know I'm just being…I'm just being me.

Simon - Absolutely fine.

Nick - I think at one of the previous sessions about six months ago we were talking about the work that Newcastle University did a few years back when they ran the same system here in Nenthead for twelve months. I understand….

- You know I don't want this.

Simon - Thank you. And I think we got an answer also on the time. Yes please.

- The lady who was worried about her foundations, there's still nothing on this map where the actual construction site is going to be. Looking at that one down there, apart from the state, it'srather large as well.

- That includes what I was going to ask about the construction site and where that's going to be but also the hydrogen peroxide storage facility. Where's that going to be because that's not on here either.

Jan - Okay, I can answer that. The construction site at the moment, our consultants are looking at areas for the temporary construction compound and we will share that when it's ready. I was out last Wednesday with the engineer, who was doing the walk, taking the photographs, looking at what would be the best place for that, so it's not ready, it will be ready and we will share it…

- Come on Jan, where's it going to go?

- Will it actually be…I've noticed there are a lot of lights on at night down at the other site. That's going to disturb the wildlife even more. So, you know, we're going to have a floodlit fell, basically.

Hugh – In terms of the size of it, the size of the Haggs scheme, the Haggs construction compound is about twice the size of what it was expected to be, because of covid. And so it was built…

- Yes, but it's not covid now.

Hugh - …no exactly and that's why we would not need it to be that size now, because we're not in covid. In terms of the light…

Jan - One of the the…when we had lights down on the pumping station building, a PIR which is your light that sees somebody and lights, that was an error, we turned that off and it is no longer there. And as part of our commitment, we would ensure that the temporary compound wasn't causing light pollution at night. We would commit to certain working hours outside which you would expect no noise, no disruption. We would have to have an appropriate level of site security on site and that's the kind of thing we are…once the design is fixed, we are then going to be talking to our

contractors and saying these are the things that are firm commitments to you, the community. We would share those with you in advance of planning. And some of the things that we are wanting to share, under normal circumstances wouldn't necessarily go into a planning document, they would be things that we would decide afterwards. But we recognise the interest/ concern of the community so we're going to bring those activities forward. So, things like noise, working hours, construction routes in…the lady who was concerned about her property vibration. Our engineer was on site only last week looking at which areas that would be suitable for contractor compounds.

Hugh - I think it's clear – you've raised this a number of times and we've…

- Got the same answers.

Hugh – We need to work on that. And normally, this would be dealt with at a much later stage, and we are looking…

- If you do it at a later stage if you start doing it, it's got to be there in situ…

- Basically, you just do whatever you want to do as it goes along. To a point.

Simon – I think there was a further point from you, which was about the storage place for the hydrogen peroxide?

- Yes.

Jan - One of the images…it's this one. This is actually a live picture, not a live picture but it's a real picture from the Nent Haggs chemical building and these are two industrial tanks that will house the peroxide. They are industry standard. This is a bund, and the bund is designed to withhold the capacity of the tanks. These are really engineering best practice. So, that's where the peroxide would be stored. The chemical delivery would come in a tanker, we would say about three of four times per year to top up these tanks.

- So, there would have to be a solid road to it as well?

Jan - That's all part of the design. In front of the chemical building, there's an apron, it's all designed so that anybody that's worked in chemical delivery. This is industry best practice.

- I don't understand how this complies with obligations of the Nenthead Mines Conservation Society not to alter the land above or below ground.

Andy – As we touched on, our legal team are discussions with their representatives….

- Yes, but that's what their obligations are, not to alter the use of the land above or below ground.

Andy - And that's what those discussions are…

-They can't just…

- **They've got to consult us.**

Andy – That's why, as I say…

- You've got to…

Jan – Thank you. We'll take all of that on board.

- They have to ask our community. They're just going to get the best top lawyers and they're going to say 'oh well, we want it, the mines people want it' so…

- None of them live here either actually.

- The only people actually making the money is the mine people anyway.

Simon – Could I just say, I think you had a question also.

- When will the Haggs site be up and running?

Hugh – In the autumn of this year.

- When was it supposed to be up and running?

Hugh – It's been delayed.

- By how long?

Jan – We hoped it would be running this summer. It's moved.

- Was it not supposed to be up and running this spring?

Hugh - There have been delays over the last…. It was originally intended to be a much shorter build then with covid and various other things, it has unfortunately taken longer than we hoped. Again – I know this was one of your original questions – but it's, we're trying to learn from that, to see where it has been delayed and what can we do to make sure that we don't…that when we say it's going to take, whatever period it's going to take, that it is going to take that long.

- It seems to be there are either more ponds or they're bigger.

Hugh - No, the ponds are exactly as was put into the planning application.

- Is it?

Hugh - And was originally consulted on way back when, all those years ago. There are three treatment ponds and two reedbeds.

- Also, up at Nenthead your pumping station. How much water will it pump?

Jan – It'll be designed for twenty litres per second.

- Twenty litres per second. At what cost? How much per second?

Hugh - We don't have those numbers. The calculation we need to do there all depends on the exact pump that we need to put in and electricity costs and things like that. It's going to be a bit of a movingfeast.

- You're bound to have a rough cost at the moment. Because electricity is at that price now.

Hugh - I think it will be best, if it's okay with you if we took that away as a question we can follow up on.

- You're cleaning the water up but it's costing all this money and using all this energy so it's just defeating the object, isn't it? You spend all this money on concrete and whatever, pumps and ponds and everything and it's costing millions and it's doing all this to the environment.

Nick - We have, all of these projects have to go through a cost-benefit analysis. HM Treasury have what's called the Green Book so for any of these projects, the project has to be cost beneficial. So we look at…again we haven't gone to planning yet so when everything is locked down, and everything is calculated, all of the costs, they'll look at the whole life costs, that includes the cost of

the actual construction, the carbon footprint, the ongoing operational costs including the power as you've suggested and it'll weigh that up against the benefits. And the monetised benefits as opposed to non-monetised benefits. And if it's cost beneficial, then it will proceed. So, yes there is a cost of building and running these schemes and there is equally a process by which, a stage gate if you like or a check point, by which there's a process of audit to say that 'yes, for this project the monetised benefits exceed the cost of this scheme over its whole life.'**- Surely, you'd be able to get a pump of some sort because you're actually pumping water uphill and it's going to cost more money and more power. To just put a pump in the village there and put a pipe up to see what it's actually costing to run it. It's not rocket science.**

Nick - We manage…we've got 78 mine water treatment schemes that the Coal Authority manages, we treat 128 billion litres of water every year, so most of those schemes are pumped schemes. What I'm trying to say is, at this point in time as Jan explained that the treatment ponds have been moved, the design location has been moved so we've got a head of water that's changing, we've got to decide on a specific type of pump and we've got a power cost. So, we'll take an action to come back to you with what exactly those costs are going to be but broadly we understand what the cost of pumping water is with different pipes, different speeds, because we already have that in place. Where possible we also try and reduce those costs. For example, one of the schemes that is on here at Saltburn, there's a solar array at Saltburn that offsets the cost of that pumping. You could be looking at mini water turbine as the water's coming back down and being discharged.

- That was part of my other questions, on the discharge of the water coming back down, who's getting the water? Is it going to go into Nent Mine's turbine?

Jan - It is just returned to the river.

- If it's being returned to the river, why can't you make something to benefit the village?

Nick - Exactly, these are all things that , as as process it,we are looking at.

- You could have some community turbine as the water comes back down so the people of Nenthead get cheaper electricity – something like that.

Andy - The amount of power that we'd be able to generate on a discharge like that is not going to be a huge amount. It could offset some of the pumping costs, but it wouldn't, I'm guessing, cover the whole lot.

- I know what you're saying but I was just trying to find ways to get something back to the village.

Simon – And I think we've got a commitment there to come back on the costs. I need to check – did you have a question? The lady at the back in the dark blue. No? Okay it was a follow on. Any further questions? Yes please.

- Talking about the costs and things, what are the projected annual costs to run that if it goes ahead?

Simon - Annual cost to run?

Jan - To run the proposed here? The majority of the cost would be the electricity pumping up there, and we will get back to you on that.

- Because Millie got a freedom of information request and it said that, one of the questions she asked was 'what is the projected annual cost of running it?' and the answer was that it depends on the final design so they obviously can't define that figure. The current estimate of annual running

costs is in the range of between £50k and £100k per year, which includes operating staff, sample analysis, permitting fees, land access, rates, power and chemicals. Do you think it's about that?

- I think it's a lot more than that. A lot more.

- A lot more – try double it.

Andy - That's the figure we were able to provide. When we've had a chance we will provide the figures. We don't necessarily have those figures

Nick- As an example, we've just done some of the provisions - I don't want to go on the record here and mislead you unintentionally so I'm going to give a range of numbers. For Force Crag for example, I think the annual running costs for Force Crag is in the £40k - £50k a year mark. The reason for that is that, it is gravity fed so there's no pumping and there's obviously no chemicals. Saltburn as an example, which is on here, which is pumping water from 90 meters. In that instance, I think our annual running costs there are around £70k - £80k a year. Obviously, that includes the power and that pumping. So, do I think it's going to be between £50k and £100k in the current climate? Yes, I think it would be.

Simon - Thank you. I would like to thank you very much for all of your questions so far. Just a quick reminder that one of the points that was made around impact on the community, there is a request to you, if there are upcoming events, to make a note of them over there or inform the team in any, just so they can plan around that. Before we draw things together, are there any further questions?

- Obviously you guys have got your objective, the main one being cleaning up the river, mainly going to affect downstream. If you guys don't get the permission or it falls through for any reason and just doesn't happen, what is your contingency, what would you be looking at next.

Nick – It's obviously part of a national programme, so you're talking about this specific…

- Specifically this one – so if this one falls through, are you going to try something further down the river or are you going to just reapply for something like this but slightly different?

Andy - It would be a case of looking at the reasons for it to have fallen through which would be totally unknown at this point in time. If and when, if it does, for whatever reason, we would have to look at those reasons and react to them. Whether that means making smaller tweaks and resubmitting the planning application, or starting again, or having to walk away. There's a whole range of options depending on what the reason is.

- Is there a kind-of prevailing…I guess what I'm asking – is there a prevailing contingency. Something you guys are thinking of as a second option?

Jan - We're not working up any plan B. This is it. This is the proposal. We want and still welcome your input, your comments, your concerns, we want to submit the most robust and acceptable proposal we can.

Simon - Thank you. Yes please.

- It's a bit of a trivial questions really. The mountain pansies that are on the board there. Have you done any research into whether or not they're calaminarian mountain pansies and if they are affected by the zinc in the water? Was that anything that came up in the survey?

Hugh – I can't answer…I don't think anyone can answer that. We're not ecologists but we can look into that.

- How can I go about finding out that information?

Jan - I think we can.. I can take it as an action.

- Thank you.

- I took that photograph and that was near the big wheel pit.

Simon – Thank you – one to look at. Yes please – one more.

- Two things. What have you been doing this week, down at Haggs, down where the construction site is. Because the amount of wagons that's going through Alston has been unbelievable. It's constant. My work's on the main road and it's just one, after the other, after the other, after the other. All wagons, so what have you been doing?

- With their back doors open.

Hugh – We'll have to check on that.

- You don't know? And secondly, are you any closer to understanding that they don't want it.

Andy - We've heard you say it two or three times tonight, you don't want it. And I've explained the Environment Agency has that obligation to improve the water quality, not just for Nenthead but for the whole of the South Tyne and whole of the NorthEast.

- Can't it just go somewhere else?

Andy – We've touched on those aspects as well.

- We don't matter.

- We don't want it!

Andy – Of course you matter and that's exactly, as I've said before, why we're sat here…

- I want the river to be cleaned up but I personally do not want this in this village. Because I think it will impact a lot of things.

Nick - We have had this conversation before but there are some people in the people in the village who come here and…

- How many? How many?

- I'm just querying the benefit of having a water treatment there. I understand you want to take the water there but as it's going to go back into and be treated again, it's being treated again it's being double treated, isn't it? Because it's going to go down the river towards Haggs Bank and then taken…is that…am I reading this right?

Jan - It isn't. It's actually zinc and cadmium that get removed through the treatment ponds and the purpose of the Nenthead proposal is to specifically treat the polluted water coming from the two adits up here. Sothe water would go through the treatment ponds and return very close to where it currently exists. And the water would then enter the river Nent and then continue away. It is not abstracted again. And the water treatment facility that is being built at Nent Haggs specifically treats the water that is emerging from the Nent Haggs adit. It is being treated before it hits the river. So that's the point and that is the reason we have to treat the water in Nenthead because that is where the dirty water is.

- Also, do you know the percentage, how much the river is going to be improved. The water, when it comes out from Nent, once it's been treated, what's the percentage of the improvement of that particular water?

Hugh - (I'll do the mine water bits, you do the river bits). The treatment scheme is designed to remove between, at least 70% but we expect it to remove more than 90% of the zinc and cadmium that is in the mine water that we treat.

- So, if it doesn't, what happens then? Because I'm just concern that at Haggs it's been a four-year hell for everybody and it's still nowhere near looking finished, I have to be honest because as Jackie said trucks and… and also there's plans to put in extra buildings and change your theory of what's happening down the Haggs Bank – which is true because you're extending the pump thing. Is that correct?

Hugh - Not quite. We did slightly touch on this earlier. How the treatment process works and how the water moves through the whole system isn't changing at all. What we're doing with the planning application to extend the odour dosing building on the treatment site, not the pumping station but on the treatment pond site, is to create space for welfare facilities and a toilet.

- Why is that going to be needed?

Hugh - For, when the site operatives go there…

- How often are the site officers going to go there?

Hugh - For the first couple of years there will be temporary welfare facilities in there, alongside the building that's the permanent building, because we will need more people there during the commissioning and start-up phase to make sure everything's working as it should do. Once it's into long term performance, the operations team of the Coal Authority decided that it actually really needed a facility in there. It's likely that people will be monitoring weekly, then fortnightly and then we'll hopefully drop it down to monthly visits. But it will depend a bit on how everything's going. We can monitor almost everything happening at the site remotely in terms of how the water moves through and are there any odours coming out of the site. That will all be monitored via the internet. But the actual water chemistry, how much metal is being removed and how much metal is left, that has to be monitored by taking actual samples.

- So along with the welfare unit, is there going to be an addition to the dosing as you call it?

Hugh- Yes.

- Have you realised that there's going to be need for more chemicals to be added?

Hugh - No.

- So you start to build up here, how do we know that's not going to happen up here, that there's going to be more buildings? Because I know for a fact that Nent Haggs, it has evolved and got bigger and different, so how are we going to be guaranteed that it's not going to happen here? I know you're saying it's a smaller site, but we have this fear that we're going to end up with a massive site and a four-year thing like we've got down at Haggs. I know about covid, I completely get that, but this is a long time to be going on with nothing happening really.

Hugh - All I can say is that we are learning from what has gone well and what has not gone well at that site, and we need to make sure that we do it better for future schemes. And I mean, that's true across all of the rest of the programme we are doing.

- I appreciate that, we have a slight concern because the last time we had this meeting, you said you need to get the community on side. It would be really good to have Haggs Bank up and running and you weren't planning this for a while until it was up and running so the community thought 'okay, that's fair' but this has all changed again, so I really sorry but because the goalposts change every time, that's what's causing the unease in this community because we think 'okay, yes if we see Haggs Bank and can see that the problems are sorted, we possibly still won't be very happy about it but we will sort-of see it from a bigger picture. But because now they're changed again the community's like 'for goodness' sake' you know? So, I mean I don't know what to say.

Hugh – As I said earlier, we…the Haggs scheme will be operating from this autumn…

- It's gone from spring, it was spring…

Simon – Yes, we've had that bit. Go on Hugh.

- I do apologise, that was a reaction – sorry.

Hugh - And we…even if we thought, we were hoping to put the application in for the Nenthead scheme later this year or early next year and that will take a period of time for it to be operating for it to be processed before it would be granted or not granted, but if it is granted and if we find that the Haggs scheme is not operating and performing as we expect then we wouldn't build the same thing if we know it's not working. It's public money – we can't do that.

- Can we help you with the planning? By any chance?

Simon – I think we're going to need to draw things together quite soon so can I just make sure…

- Can I just ask something.

Simon – Please do.

- Out of interest, the Nent Force – I keep referring to the Nent Force, which is the underground river that runs all the way through. Have you done anything to monitor how much of that contains a lot of metals?

Andy - We've looked at that, we've been taking samples from that monthly for the last four…three or four years or so. There's flow monitors in place so that we understand what's coming from that level and we've looked at comparisons of how the water quality of that compares with the river. It's very different to what we've got up here. The amount of metals coming from Nent Force for example is about half a kilogram per day. What we're getting out of Caplecleugh is between eight and ten kilograms per day, Rampgill is five to six kilograms per day and Haggs is another ten kilograms a day. That gives the perspective. This is the reason we're focussing on those three because others like Nent Force don't contribute as much metal. I think there's a link with the river system somewhere, it's similar quality of water but it obviously brings water from way up in the valley.

- Right, and that's because it's not disturbed is it – it's just running through the ground like it's done for centuries basically. It hasn't got the mineworks that…

Andy – All of the mine work that obviously links up the brewery shaft so there is that link in the Nent Force level.

- Oh, it does yes. But it hasn't got the slag heaps seeping into it and things.

Hugh - The spoil heaps don't contribute to the…hardly anything to the actual metal coming out of the mine water. That's coming out ofthe bits of ore that were left by the miners all the way through the geology of the underground workings, they're full of metal still and those are being washed out as it rains, and groundwater goes up and down and they flush it out. That's a far bigger reservoir of metal than the spoil heaps on the top.

- Right, so the Nent Force doesn't contain as much metal in it. But why is that? Why is the river so full of metal…

Andy - It comes from a different source than Caplecleugh. The Caplecleugh workings…the Nent Force level was driven…it was intended as a drainage level, so it was put in below the level of all of the mines, whereas Caplecleugh, Rampghill, they were driven as, partly as drainage levels but also access to mineral veins. Because they have direct access to the mineral veins you get the oxidation of the minerals which is why that water drains out. And so that's the slight difference in where the level, it's driven by the geology.

Simon - I'm going to suggest that we leave it there. Thank you very much indeed for, both your questions and your statements and also, I think for the way that they've been expressed, very robustly but also, I think courteously which has been absolutely great. Thanks also to Jan and Hugh and Nick and Andy for providing the answers. I know that you haven't at every stage got the answers that you wanted but they have provided answers at every stage and there is some further areas of information that we are going to follow up on. Just a quick reminder that if you are aware of any events coming up, please just log them there or else just get in touch with the team at any time, I'm sure that that's right.

- Can I just say about the events, that any people that come to visit this area is an event.

Simon – Yes absolutely.

- It's not that we have specific events. We welcome visitors at all times of year because actually every visitor counts to this community and counts to the businesses that are trying to survive in it.

Simon - Thank you.

Jan - I think one of the reasons for asking about specific events is, I remember when the Tour of Britain went past Nent Haggs, that was absolutely critical that we knew that was coming through, just as regard to construction traffic. I accept what you mean that every visitor counts but every visitor isn't going to be a peloton of cyclists so from a health and safety point of view if nothing else, we needed to know that was happening.

- The coast to coasters dribble through every single day. They are an event.

- Yes.

- When's the next one of these?

Jan – We'll hopefully have some feedback on whether you thought a Saturday was better. We have seen some different faces, we tend to commit to coming every six months or so when we've got some more updates. We have drop ins at the Hive that have been sometimes well attended, sometimes not well attended but we would encourage any questions or just comments or discussions to come and chat to us when we're at the Hive.

- I suppose in six months time, Haggs will be up and running won't it?

Simon - Thank you very much indeed. Nice to see you.