

Scottish Water Gairloch Stakeholder Group

Meeting Minutes

Date of Meeting: Thursday 30 August 2018

Location: Annexe, Gairloch Community Centre

Present:

Chair	Jon Rathjen, Scottish Government (JR)
Gairloch Community Representatives	Dr Karen Buchanan (KB) Alex Gray (AGr) John Port (JP)
Highland Council	Robbie Bain, Ward Manager (RB)
SEPA	Paul Griffiths (PG)
Scottish Water	Alan Thomson (AT) Iain Jones (IJ) Gavin Steel (GS)
m ² technical consultant	Judy Anderson (JA)

Apologies:

Iain McWhinney, Gail Ross MSP

Minutes

1. Welcome

Jon Rathjen welcomed those attending to the meeting.

2. Introductions and apologies

Members present introduced themselves. GS noted the apologies that had been received.

3. Minutes of meeting held on 17th July 2018

JR noted that the minutes of the previous meeting had been circulated by email and asked if there were any further comments or amendments. The members present indicated they were content with the minutes.

4. Review of actions / matters arising

The actions from the previous meeting were reviewed, as follows:

Action 1: *Scottish Water to review Terms of Reference to reflect that the Group's remit includes meeting regulatory requirements, but does not exclude options which exceed them.*

GS noted that the wording of the Group's Terms of Reference had been revised to make clear that the scope of the Group's work is not limited to meeting regulatory compliance and includes consideration of options to exceed this minimum standard.

Action 2: *Scottish Water to circulate draft minutes for members' review and approval via email discussion.*

It was confirmed that this had been done.

Action 3: *Scottish Water to provide overview of previous and continuing efforts to tackle saline intrusion on the Gairloch network.*

GS outlined that work had originally been done as part of the original scheme in 2002/03. However, he noted that work had been targeted and the new sections of network installed connected several pre-existing localised networks, which were already draining many of the main areas served.

A number of targeted small jobs had been carried out over the lifetime of the existing WWTW to remove identified significant sources of saline intrusion. A number of low-lying manholes had been sealed,

particularly in the vicinity of the Pier and Charleston at an approximate cost of £2,000 for each job.

Over the summer and autumn of 2016, a £400,000 programme of targeted improvements to the most susceptible sections of the network had been completed. While this included work all over the network, the most significant work had been in the Glebe area and in the part of the network serving West Strath.

While Scottish Water felt this work had achieved improvement, it recognised that there was still saline intrusion, especially at the highest tides, and was continuing efforts to locate any large sources that could be addressed. The characteristics of the Gairloch network and the private drains connected to it meant that it was unlikely in Scottish Water's view that saline could be excluded completely; and work to address new sources would need to be carried out regularly to prevent levels of saline ingress rising.

Action 4: *m² report to be circulated to Stakeholder Group members by mid-August.*

Members had received the report and this was on the agenda of the meeting for discussion.

Action 5: *m² to explore whether a table can be provided to quantify the treatment performance of the technologies available and any risks associated with them.*

JA noted that this had been addressed via graphs which we included in the m² report and which she would discuss in her presentation.

Action 6: *m² to comment on the suitability of Nereda technology for Gairloch.*

JA explained that m² had recently considered Nereda technology in relation to a different project and had been advised by the supplier that it was not suitable for populations below 3,000 PE (population equivalent). m² considered that there was therefore no merit in pursuing this technology further in relation to Gairloch.

Action 7: *Scottish Water to organise next meeting for Thursday 30 August at 7pm..*

Action 8: *GS to circulate answers to specific questions raised by members.*

Both actions had been completed.

JR thanked members for addressing the actions from the previous meeting.

5. SEPA update on bathing water monitoring during 2018

PG presented an update on SEPA's monitoring of Gairloch and Sand beaches during the 2018 bathing season to date. (see slides)

Both beaches were on course for excellent status.

PG also presented results of samples taken from the River Sand while carrying out sampling for the designated bathing water. This had identified occasional peaks, but these appeared to be relatively exceptional and did not appear to be picked up in the bathing water sampling.

SEPA now had 20 samples for each beach which was sufficient to give confidence about their designation.

AG noted that at Gairloch bathing and other recreational use of the water continues at least until the end of the October break.

JP asked if peaks observed in the River Sand sampling generally correspond to times of highest visitor numbers. PG explained that this couldn't be said with confidence as rainfall and a range of other factors could also contribute.

RB asked what bathing water sampling might show at times when there was a spill from the waste water network. PG indicated that it was difficult to say as it was he was not aware of this occurring while sampling had been underway. AG commented that he expected there would be more chance of this occurring outside the bathing season when sampling was not taking place. JA confirmed that this view was supported by the operational data that m² had reviewed.

JR summed up, noting that the SEPA presentation reflected a good current picture.

6. m² technical review of options for Gairloch

JA presented a summary of the m² technical review, highlighting the main findings of the report that had been circulated to members before the meeting. (see slides and report)

(i) Current issues

AG commented on the very high level of surface water and saline found to be present in the network. JA commented that a lot of dilution would be expected in any combined network, which was designed to receive surface water from connected properties and road drains. She acknowledged that the flow to the Waste Water Treatment Works was high and noted that Scottish Water was doing some further checking to confirm the data was accurate.

JA noted that Scottish Water work appeared to have been successful in preventing the highest peaks in salinity from occurring during 2017 which had been seen in the earlier years. AG asked why there was a gap in the data which seemed to occur around the time of a high peak in the earlier years.

Action 1: Scottish Water to confirm if there is any reason for a gap in reported salinity data around September 2017.

AG asked about a reference in the report to premature storm spillage and sought clarification on how this occurred. JA explained that the issue was with hydraulic constraint at the Waste Water Treatment Works, particularly during necessary maintenance periods when the plant could only receive half of the usual flow. The concern was that in high flow conditions, this would result in storm tanks filling rapidly and spilling to sea. RB asked where a spill of this kind would occur. JA and IJ confirmed that, when the issue was hydraulic constraint at the Waste Water Treatment Works, spills from the network would occur from the Lonemore Combined Sewer Overflow.

AG asked if the issue wasn't principally linked to the level of infiltration to the Gairloch network, which significantly increased the flow requiring treatment. JA indicated that, while removing or greatly reducing infiltration would help if it could be achieved, m² did not believe this would solve the problem. The existing plant would still not be able to treat the required flows during maintenance periods. The biological element of the treatment process in a larger plant that would be needed to mitigate this problem would not be sufficiently fed.

AG asked whether cutting infiltration wouldn't help if the current plant was just about managing, since the level of flow could be much reduced. JA noted that she understood efforts to identify and address significant point sources of infiltration were continuing, but that achieving very low levels may not be practical with some sources likely to be beyond Scottish Water's control. JA felt it was difficult to say with absolute confidence in the scenario that a large reduction in saline and surface water could be achieved, but the m² conclusion was that this would not remove the risk.

(ii) Review of proposed process

JA presented the findings of the m² review of Scottish Water's proposed new process for Gairloch Waste Water Treatment Works, consisting of a septic tank, disc filter and UV treatment.

RB asked what happens to the floating material in the septic tank, such as oil and grease. JA and IJ confirmed that, as with the heavy sludge, this is removed by tanker.

JR noted that UV treatment on the end of a septic tank and disc filter was a relatively unusual combination, although using elements that were widely used.

JP asked if the UV was similar or better than the type of treatment that could be installed on private water supplies and whether the effluent after treatment would be drinkable. JR pointed out that the incoming water would be of much poorer quality than surface water or groundwater.

JP noted that the treated final effluent was poorer quality than the existing MBR was capable of producing. He asked what happens in relation to sludge with the existing plant. IJ confirmed that sludge is removed by tanker from the MBR.

AG asked what buffering the system could provide if there was a failure of the disc filter of the UV. IJ explained that the disc filter would have a duty / standby configuration and that the UV system would consist of multiple bulbs which were very unlikely to fail simultaneously. Scottish Water would seek to avoid operating the plant if treatment could not be provided. JA noted that some buffering would be provided by the storm tanks at Lonemore and that, dependent on levels of flow through the network, this would provide hours rather than days for an operational response.

RB asked what the volume of the proposed septic tanks would be. AG thought from memory that the proposal was for 3 tanks with capacity of 11,000 litres each.

Action 2: Scottish Water to confirm volume of proposed septic tanks.

AG commented that, as a new system, he did not feel there was a high level of built-in resilience.

JA responded that the septic tank is very resilient. The proposed process as a whole was more predictable and stable than the existing. The view of m² was that there was a very low chance of losing the whole disc filter. The main risk with UV was bulb failure, but the units consisted of multiple bulbs and were designed with sufficient headroom to continue meeting the required level of treatment. IJ noted that telemetry on the system would generate an alarm to produce a rapid response when required.

AG noted that there was no back-up to mains power on the site. IJ noted that the greatest risk was prolonged power failure of a kind that was likely to affect the community as well as the WWTW site. Scottish Water managed this risk by having the ability to connect a mobile generator which would be brought to the site if required.

AG noted that the report reflected that the particular combination of processes proposed is relatively unusual. JA agreed, but noted that Scottish Water had significant experience with all of the individual processes, which were also known, tried and tested in Scotland and internationally.

JA discussed the issue that m² had highlighted in relation to transmissivity, which was a measure of the cloudiness of the effluent even with fine particles removed by the disc filter. AG asked if there should be a monitor built into the

process to address this concern. JA responded that she thought transmissivity was unlikely to change significantly over time and the key need was for some additional data on this characteristic of comparable septic tank effluent. She noted that m² had identified options that could address this issue if it was found to be necessary. IJ commented that most UV plants came with a transmissivity monitor to alert the Scottish Water control room if there was an issue affecting the treatment process.

JP asked what the impact of the proposed new process would be on the SEPA graphs which had been reviewed earlier in the meeting. PG indicated that on the basis of the modelling that had been carried out, they would not be expected to change. SEPA had set a licence standard designed to protect the excellent status of the bathing beaches; and Scottish Water's suppliers had indicated that the proposed process would be capable of significantly exceeding this standard.

RB asked about the self-cleaning process that was incorporated in the disc filter and the query raised in the report about this. JA explained that disc filters were more commonly used in combination with aerobic treatment. If there was any growth happening in the septic tank, it was possible that more frequent cleaning could be required. This would mainly result in a marginal increase in operational cost for Scottish Water. JA noted that Scottish Water had experience operating disc filters on a primary tank and this gave it comfort that this element would work. The required frequency of filter changes and occasional manual cleans would be reviewed in operation.

AG asked about the possibility raised of using fresh water for cleaning. JA explained that this would be an alternative which Scottish Water could consider if it wished to minimise the maintenance activity required. AG asked about the quantity of water involved. JA and IJ confirmed that it was a very small amount compared with typical domestic uses of water.

RB asked what the impact of saline was on septic tanks. JA explained that salinity was much less of an issue for the proposed process. Salinity was mainly a problem for aerobic systems with suspended biomass, which were liable to foaming. JP asked whether salinity would impact on the operation of the UV system and JA confirmed that it would not have any impact on this.

JP summed up that it appeared salinity was not a problem for the proposed process, but was a problem for the existing Membrane Bioreactor (MBR) plant. JA confirmed that MBR had proven very susceptible to salt, even relative to other biological processes which could experience similar issues.

(iii) Review of alternatives

JA reviewed the alternatives which m² had considered in its review.

Oxidation ditch with UV

JR asked what the circumstances were in which this option would typically be pursued. JA explained that this was a common option for larger populations

where tight biological and/or chemical standards were in place. The plant would require a larger area and resemble a more typical urban waste water treatment works.

AG asked if effluent would be significantly better. JA noted it would be less good for removing solids than the proposed process. AG asked if a disc filter could be added and JA indicated that she thought it could.

RB asked if this process would produce less sludge. JA thought the quantity of sludge was likely to be similar. More digestion would take place, but there would also be more bacteria growing and adding to biomass.

Septic tank with extended discharge

Members asked what length of discharge pipe would be required.

JA indicated that this would need to be established via modelling, but a significant extension would be required. Scottish Water did not feel this was a solution that was likely to be acceptable in principle to customers and stakeholders.

Enhanced settlement

JA explained that m² felt this would offer marginal benefit relative to the environmental and health and safety disadvantages of extra chemical use. There was relative confidence about the solids removal of the proposed process.

JR asked if this could be added if it was found to be required in future. JA thought that it could in principle.

Septic tank, disc filter and UV with secondary treatment

JA explained that this involved 'bolting on' an additional aerobic biological process.

AG asked what the downside of this would be. JA explained that the main technical downside was the energy required to aerate the waste water if the additional process was not expected to be necessary.

JR asked if the additional process could be added at a later date if it was found to be required. JA confirmed that m² had assessed this and confirmed that if there was an issue in operation with transmissivity, there was potential for the additional process to be added where the MBR is currently located within the site.

JP noted that the community didn't just want to meet the required standard but exceed it. IJ responded that Scottish Water was proposing to go further than the minimum standard. AT added that it was important to consider the quantity of benefit that different treatment processes could provide relative to their costs and operational risks.

JP noted that the Scottish Water proposed process was untested and this had also been the case with existing plant when it was installed. AT explained that Scottish Water were obtaining data to address the particular technical issue that m² had highlighted in relation to transmissivity. There was relatively high confidence this would resolve the concern, but the fall-back option of fitting a secondary treatment process was feasible if required.

AG asked what the cost of fitting additional secondary treatment was expected to be. IJ advised that the expected additional capital cost for supply and installation was expected to be around £1.2m or £1.3m.

Alternative disinfectant

JA explained that these options avoided the energy use of UV, but had significant environmental downsides, as well as associated health and safety issues. It was understood that SEPA did not favour these options due to their environmental impact and risks.

7. Questions, feedback and next steps

(i) Operational regime for UV treatment

AG noted that the community remained concerned that full treatment of waste water should not be limited to the bathing season, which did not reflect recreational use of the water at Gairloch. PG explained that the dates of the bathing season in Scotland for regulatory purposes are not set by SEPA but by Scottish Government in conjunction with the European policy framework.

AG noted that the community was disappointed with the lack of data available on water quality in winter. AT noted that there might be potential to explore this point further. JR commented that there could be benefit in gaining more understanding of operational performance and benefits throughout the year.

JP said that the community wanted to look towards a future where effluent is better treated. JP and AG felt that the change proposed to seasonal UV treatment was retrograde. JR explained that the economic implications of policy change nationwide were considerable.

AG asked if it was possible to confirm what the comparative performance of the Scottish Water proposed process would be with the UV switched off. JA indicated that it would be possible to calculate this.

JP indicated that the community's key concern was that the current system, when it was working, was better than all the other options presented. He was keen to understand what all 4 scenarios: MBR working; MBR with risk of spill; proposed new process with UV on; and proposed new process with UV off.

Action 3: m² to confirm expected performance of proposed new process with UV switched off, compared with other scenarios.

AT agreed that it was important to look at the calculations and be guided by these. He indicated that, partly in light of the history of the MBR at Gairloch, Scottish Water was open-minded to running the UV system on a year-round basis, initially as a pilot. Scottish Water felt this could present an opportunity to collect data over an initial 2 year period. Towards the end of this, the proposal would be to operate without the UV for a period in midwinter in order to obtain data on the difference this makes in winter conditions. This would also present an opportunity for focused maintenance activity, but would mainly allow a better evidence base to be built up.

AT indicated that Scottish Water would wish to review year-round operation of UV with the Stakeholder Group if the data showed that it was delivering little or no benefit.

JR noted that there would be a similar opportunity to review whether there was any requirement for the potential fall-back stage in the treatment process.

(ii) Energy consumption

AG asked if it was possible to have quantitative information about the power consumption of the main options.

JA indicated that the main energy requirement was for UV treatment and there was very limited alternative for bacteriological treatment. The lower energy alternatives had significant environmental downsides.

IJ indicated that Scottish Water could provide the expected power requirement of the new process for comparison with the MBR.

Action 4: Scottish Water to confirm energy demand of proposed disc filter and UV process.

(iii) Maintenance and resilience

AG asked what resilience there would be in the proposed new system for maintenance to be carried out.

IJ responded that Scottish Water had a very low tolerance of risk to its licence compliance. This was a key reason why it was seeking to make a change. Bulb replacement would require the UV to be switched off briefly, but the UV banks would continue operating until an operator attended. The duration of routine maintenance tasks would be very short – and well within the storage capacity of the tanks at Lonemore.

(iv) Sampling and monitoring

KB asked about the proposal to test the impact of the UV treatment outside the bathing season. She asked what would be meant by 'making a difference'.

AT explained that the principle would be to build up a more complete set of data on which to take a long term, evidence-based decision.

AG indicated that a good sampling regime would need to be in place. IJ indicated that the proposal would be for further sampling to follow the same methodology as SEPA's bathing water monitoring, taking comparable samples from the sampling points on the designated bathing beaches.

RB noted that there would be a need for winter sampling to happen during the first two winters with the UV operating for comparison. AG and JP both indicated that it would be desirable to start sampling this winter in order to provide a baseline with the MBR operating. RB noted this might pick up a premature spill which would also allow this impact to be understood. GS agreed this was possible, but noted that Scottish Water's operational team was currently working very hard to minimise the risk of premature spills as far as possible with the current process.

PG added that it was important to remember that the WWTW is not operating in a bubble and there are other external variables that will be picked up via sampling. However, he felt in principle that the proposed approach offered a good way forward.

RB asked if there might be an opportunity to collaborate with a university in carrying out this work. AG asked if Scottish Water could commission SEPA to carry out the additional sampling envisaged.

AT indicated that Scottish Water would investigate options further and develop a proposed approach, seeking to ensure all data collected was consistent and comparable.

AG indicated that his main concern was not about who did the sampling, but that he was keen it should begin as soon as possible.

JP noted that it would also be positive for the community to gain understanding of other factors. JR indicated that his experience with bathing water monitoring all around Scotland reflected that there was typically a wide range of contributing factors.

Action 5: Scottish Water to investigate options and develop a proposed basis for additional sampling to be carried out in line with SEPA methodology; and confirm whether winter sampling can begin this year.

(v) Growth and new connections

JP noted that there was no current notion of linking additional communities to the system. AG stated that there had been a proposed phase of the original scheme to connect the Mihol Road area and it hadn't been made clear why this was not done.

JR noted that policy around 'first time provision' of water and waste water was an area under active consideration by Government, particularly following issues that had been experienced over the summer with some private water supplies. Given the significant distances that were often involved, one area of work was the development of small-scale / remote treatment options that could be part of a solution. He thought it was likely that in relation to waste water that any policy change would initially target areas where there were particularly sensitive receiving waters.

AG noted that Mihol Road and the community near Sand beach were not particularly distant from the existing network and that Mihol Road would gravitate into the system.

Action 6: Scottish Water to confirm the capacity of the proposed new WWTW to support growth within the existing catchment; and why the Mihol Road area was not connected as part of the earlier scheme.

(vi) Next steps

IJ explained that SW wished to move forward quickly in order to address the current risk to compliance, and to the environment, during future bathing seasons. He indicated that there may be potential to deliver the new plant next year if a contract could be placed by October, although it was recognised this would be challenging.

AT invited comments from members on how the proposal discussed could be taken forward. AG asked if a month would be long enough for Scottish Water to come back with a full proposal.

AT indicated that Scottish Water had thought it would be worthwhile to hold an open event for the wider community and wondered if a suitable date could be identified in September.

AG noted that Gairloch Community Council had its September meeting on Monday 10th September and Scottish Water had previously held similar events to coincide with Community Council meetings. He noted that the deadline for the next edition of the Gairloch and District Times was tomorrow (Friday 31 September) and suggested placing a full page advert if this was feasible.

GS noted that it would be necessary to ensure the hall could be booked before advertising. He also noted that Gail Ross's office had indicated that her diary might allow her to attend on Monday 24th September.

After some discussion, members agreed that the community representatives of the Group would feed back the proposed way forward to the Community Council meeting on 10th September. Scottish Water would organise and advertise an open information event for 24th September. It was felt that this would best run from around 3:30pm, at the end of the school day, until 7:30pm.

JR noted that the key elements that should be included in information were:

1. The key components of the proposed process
2. Scottish Water's commitment to operating the UV
3. The proposed monitoring regime during the pilot period
4. The further fall-back measures that have been identified should the treatment process not perform as expected

He also suggested that it would be valuable to include information about the capacity of the plant and its capacity to support growth.

Action 6: Scottish Water to provide a summary of the outline agreement in advance of the meeting of Gairloch Community Council on Monday 10th September.

Action 7: Scottish Water to organise and advertise an open information event for Monday 24th September.

8. Any other business

PG noted that there had been reference in the meeting to SEPA's approach to socio-economic issues in dealing with the licence application. He highlighted the Sustainable Growth Agreement which had been drawn up between SEPA and Scottish Water and was intended to take account of these areas. This particularly reflected the desire to take a holistic approach to protecting the environment, including the desire to consider more energy and material efficient options.

AG noted that the community's concern was more focused on the potential impact of the licence on tourism, recreational activity and the broader reputation of the area. JR noted that SEPA did have broad responsibilities to consider these areas too.

9. Date of next meeting

The proposed open event on 24th September would provide an opportunity for members to meet and discuss progress informally. A date for a further formal meeting could be identified then.