

The Scottish Government’s consultation on “Regulation of Alkaline Hydrolysis in Scotland (Water Cremation)”

Consultation Analysis Report

April 2024

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Executive Summary

Between 25 August and 17 November 2023 the Scottish Government undertook an online [consultation](#) on proposals for regulating alkaline hydrolysis under section 99 of the Burial and Cremation (Scotland) Act 2016 ('the 2016 Act'). If implemented, this would create a legislative framework setting out the required administrative procedures for this method of body disposal.

This consultation was published as part of a collection of four consultations relating to the content of various sets of regulations that are intended to be made under sections of the 2016 Act which have not yet been implemented. They related to:

- [Inspection](#) regulations
- [Burial](#) regulations
- [Licensing](#) of funeral directors

The consultation was comprised of 16 questions and collected information in both survey and open-ended comment format. There were 64 responses to the consultation (24 from organisations and 40 from individuals). The analysis of responses was conducted in late 2023/ early 2024.

Main Findings

The majority of respondents (84%) support the introduction of regulation to allow alkaline hydrolysis to be made available in Scotland. Respondents fed back that environmental considerations, increased options for disposal, personal preference and cost were factors in their support. There was also feedback that commented on a need for further research on the environmental impact of alkaline hydrolysis in comparison to other methods of disposing of human remains.

There was strong support for regulation of alkaline hydrolysis to follow a similar approach to that already in place for cremation, including processes for opening new facilities, the inspection of operators, requirements for handling human remains and requirements relating to statutory registers. Similarly there was strong support for application processes to be in line with those used in cremation with similar statutory application forms to be provided.

In addition there was support for alkaline hydrolysis to be considered as an option open to local authorities in cases where they are making arrangements under section 87 of the 2016 Act, while still considering any preferences expressed by the deceased and the bereaved. There were very mixed views and levels of support for the potential of other sustainable disposal methods such as fertiliser use to be introduced, with some strongly supportive and others strongly opposed.

Next Steps

Following this analysis of the consultation responses, the Scottish Government will consider the proposals for the intended introduction of alkaline hydrolysis in its development of draft regulations. The results of this analysis will also be considered in relation to the responses received to the other three public consultations which were published in parallel to the alkaline hydrolysis consultation in Autumn 2023.

1. Background

This report presents the analysis of the Scottish Government’s public consultation on “Regulation of Alkaline Hydrolysis in Scotland (Water Cremation)”. The Scottish Government first consulted on the introduction of regulating new methods of body disposal as part of the wider [consultation](#) on reform of burial and cremation legislation in 2015. The [analysis](#) of the responses to the questions on allowing new methods of body disposal showed that the majority of respondents to the earlier consultation responded favourably¹ to the questions about introducing new methods.

The consultation being analysed here reaffirms the support for introducing a new alternative to burial and cremation and describes how the administrative procedures might be regulated. The consultation document is available at [Alkaline hydrolysis \('water cremation'\) regulation in Scotland - gov.scot \(www.gov.scot\)](#)

2. The Consultation

The “Regulation of Alkaline Hydrolysis in Scotland (Water Cremation)” consultation ran from 25 August to 17 November 2023 and received sixty-four (64) responses. The consultation was split into sections (shown below), with specific questions being asked about some of the sections (those in **bold** type here):

- **Introduction**
- **What is alkaline hydrolysis?**
- Previous consultation on new methods of disposal including alkaline hydrolysis
- What we are consulting on now
- **Regulation and oversight of alkaline hydrolysis**
- **Sustainability considerations**
- Health and safety of alkaline hydrolysis
- Availability of alkaline hydrolysis in other countries

The consultation consisted of sixteen (16) consultation questions. Eleven (11) of the questions had both closed question sections requiring a fixed response selected from options and a free text comment section for further explanation of preceding fixed response choices. Five (5) of the consultation questions were open questions inviting broader comments on the proposals. There were a further eight (8) questions on the impact assessment following the main consultation questions. These responses will help inform the development of the impact assessments and have not been included in the analysis for this report.

¹ Questions 4 and 5 [Consultation Analysis Report on a proposed Bill relating to burial and cremation and other matters in Scotland - gov.scot \(www.gov.scot\)](#)

3. Profile of Respondents

The Scottish Government was keen to gather the views of the public as well as funeral directors, local authorities, private burial and cremation authorities, funeral industry trade body representatives and any other groups or individuals with a working knowledge of funeral directing, burial, cremation or the wider funeral industry. Responses were received from all groups.

Most responses (58) were received through the consultation hub and a further six (6) were received by email. A small number of responses were accepted after the official closing date, on request of the consultees. One non-standard response was received that offered a statement and did not answer the consultation questions directly. Where data from this response was considered relevant to specific consultation questions, the data was included in the analysis of those questions. All other data from this non-standard response was analysed in Question 16.

Of the sixty-four (64) respondents, (n=24, 37%) were submitted on behalf of an organisation and (n=40, 63%) were from individuals. Of those who identified as 'individuals', the majority (n=31, 78%) said they did not work in the funeral sector. Organisation respondents were asked to identify which organisation they were responding on behalf of and the type of work the organisation was involved in.

Table 1 provides further detail about this. Responses were received from those representing funeral directing organisations, burial and cremation authorities, local government, relevant trade bodies, faith organisations, health bodies and third sector organisations. Responses from individuals included both those working within, and outwith, the funeral sector.

TABLE 1 Distribution of responses by category and subcategory of respondent.

Responding as Individual or on behalf of Organisation	Subcategory of employment/organisation	Number of responses	Percentage of all respondents (64)
Individual	Funeral directing	4	6%
	Burial authority	0	0%
	Cremation authority	1	2%
	Other area of funeral sector	2	3%
	I don't work in the funeral sector	31	48%
	Not answered	2	3%
	Total individuals	40	63%
Organisation	Funeral director business/organisation	4	6%
	Trade body for funeral directors	1	2%
	Burial authority only	4	6%
	Cremation authority only	0	0%
	Burial authority and cremation authority	2	3%
	Trade body for burial authorities or cremation authorities	2	3%
	Health body	1	2%
	Local government	4	6%
	Faith/religion based organisation	2	3%
	Third sector	1	2%
	Other organisation (e.g. guidance, sales)	3	5%
	Total organisational responses	24	37%
	Total Responses	64	100%

4. Analysis and Reporting

This report presents both quantitative and qualitative findings. Quantitative data were obtained from closed survey-style questions where respondents could select from predetermined choices (e.g. 'yes/no', 'agree/disagree'). These data are presented in tables and charts to show the number of respondents selecting each possible answer.

Qualitative data were gathered from comments that respondents gave in response to open questions (where respondents were given free text boxes in which to respond). Unlike quantitative data, qualitative data allows for insights and understanding to be

gained by looking at the detail of respondents' answers, and is presented as descriptive text and verbatim quotes from respondents.

Data from responses received by email were entered manually onto the Consultation Hub (Citizen Space) and the accuracy of 20% of these was checked by a second analyst. All responses were downloaded from the Consultation Hub into a Microsoft Excel spreadsheet. Data were analysed on a question by question basis except where questions linked to each other, for example when respondents were asked to give reasons for a selection in a previous question.

An analysis of responses to the consultation's closed questions was conducted. The frequency of responses to closed questions, and distribution of these responses based on respondent employment/organisation type, are reported in tables and stacked bar charts. The number of respondents answering each question is reported. Where percentages are given these are rounded to the nearest whole number and represent a percentage of the total respondents answering the specific question rather than total respondents taking part in the consultation.

A thematic analysis of open questions (i.e. free text comments) was conducted. Qualitative data from these responses were read in detail, patterns identified, text coded and themes constructed from these codes in order to summarise the key points made by respondents and the range of views expressed both within each question and across the consultation. A descriptive analysis of responses to closed questions was conducted. The frequency of responses to closed questions, and distribution of these dependent on respondent employment/organisation type, are reported in tables and stacked bar charts.

5. Findings

The consultation findings are reported in the same order that the questions were presented in the consultation, and grouped according to their original sections:

- 5.1 Introduction – Question 1
- 5.2 What is alkaline hydrolysis – Question 2
- 5.3 Regulation and oversight of alkaline hydrolysis – Questions 3 – 14
- 5.4 Sustainability considerations – Question 15
- 5.5 Any other comments – Question 16

5.1 Introduction

Question 1 – Do you think that the Scottish Government should introduce regulations to allow the use of alkaline hydrolysis as a method of disposal of human remains in Scotland? Please also provide the reason for your answer. (see para 3 – 7)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

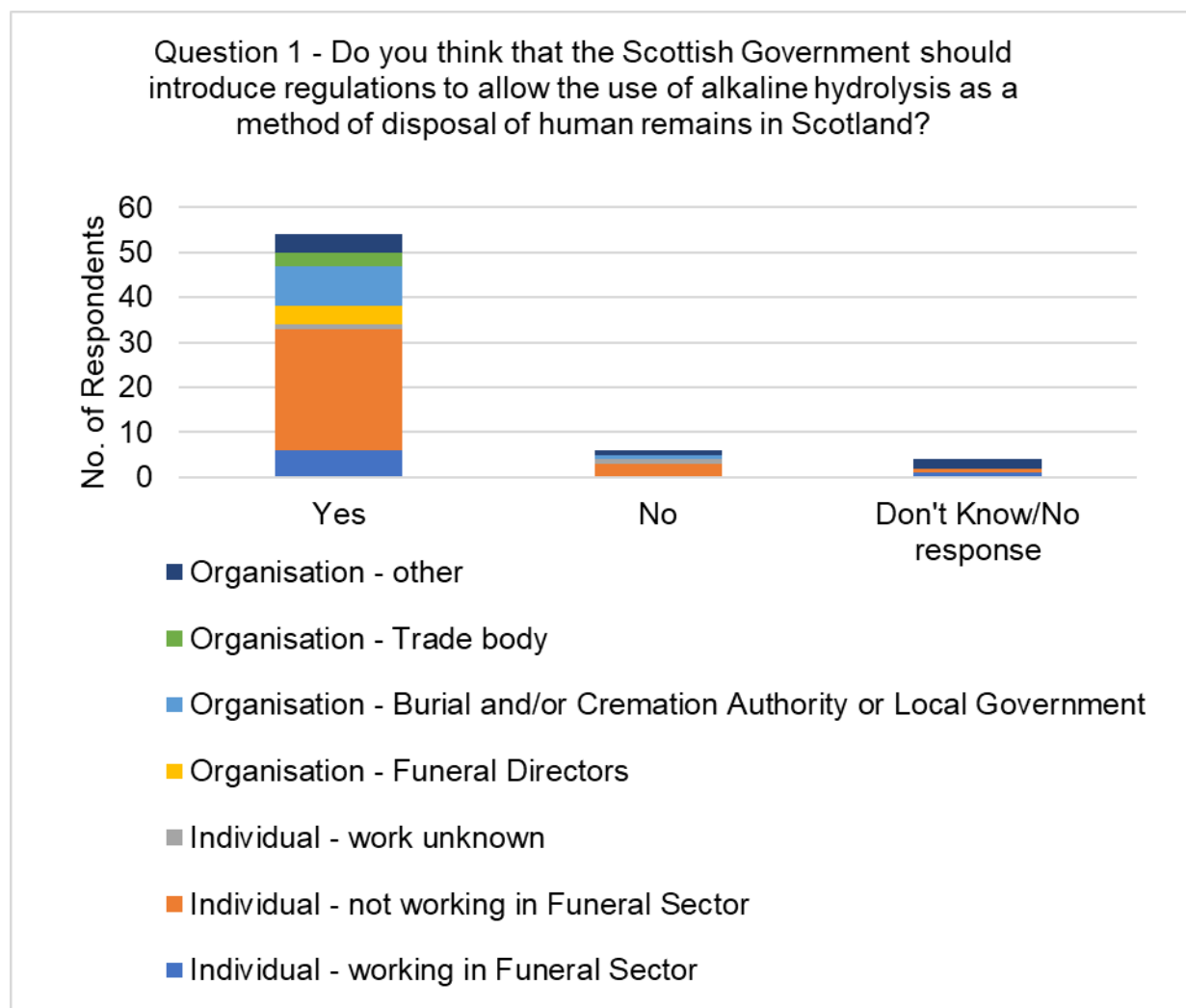
Quantitative data

The majority of respondents (n=54, 84%) answered 'Yes' to this question. Table 2 and Figure 1 show the responses broken down by respondent type (individual or organisational response, and whether or not respondents were part of the funeral sector).

Table 2. Responses to Question 1 by respondent type

Respondent Type	Number of Responses (Q1)		
	Yes	No	Don't Know/No response
Individual - working in funeral sector	6	0	1
Individual - not working in funeral sector	27	3	1
Individual - work unknown	1	1	0
Organisation - funeral directors	4	0	0
Organisation - burial and/or cremation authority or local government	9	1	0
Organisation - trade body	3	0	0
Organisation - other	4	1	2
All Respondents	54	6	4

Figure 1. Responses to Question 1 by respondent type



Qualitative data

Respondents were invited to give reasons for their answers and fifty-five (55) of the sixty-four (64) respondents provided further comment here. Respondents offered a variety of reasons to explain their responses toward the introduction of alkaline hydrolysis and their comments have been summarised into three themes that are explored in more detail below.

Theme 1 – Potential environmental benefits of alkaline hydrolysis

Respondents who were supportive of the introduction of alkaline hydrolysis tended to focus their comments around the potential benefits they perceived in introducing this to Scotland. A large majority of these centred on environmental issues and sustainability. Often respondents expressed these perceived environmental benefits in comparison to existing options of burial and cremation, which they perceived to be more harmful to the environment. Some of the respondents focussed their comments on specific areas where they thought alkaline hydrolysis would be advantageous

over other options. These included: reduced use of land, reduced use of fossil fuels, reduced pollution/emissions.

“Offers a much more sustainable and environmentally friendly option to cremation which uses huge amounts of gas and despite abatement equipment still releases large amounts of toxins. Clearly burial uses land at a rate we don’t have and not all people will have access to natural burial facilities (which again are a finite resource)”

[Individual, not employed in funeral sector]

Comments around environmental issues were frequently framed in a broader sense of a need for improvements or changes in societal practices to reduce the impact on the environment.

“In terms of the current environmental crisis an alternative to cremation needs to be made available.”

[Organisation, burial and cremation authority]

Theme 2 – Personal values and individual choice

Respondents frequently mentioned broadened choice as a positive factor in their support for the introduction of alkaline hydrolysis. Several respondents emphasised general positivity toward individuals being able to make informed choices and having increased options in this choice.

“...we feel positively about a greater selection of funeral options especially where lower cost and environmentally sound options present themselves... The principle for our support is the institution of choice in the hands of people approaching the end-of-life or themselves experiencing bereavement and considering options for deceased loved one(s).”

[Organisation, Other organisation, e.g. guidance, sales]

Other respondents tended to focus their comments more on their own personal values and views of the process of alkaline hydrolysis, sometimes linking this to perceived environmental benefits or to a sense of this process being a preferable option for their own body in comparison to other methods.

“As a person who has lost several relatives but also dislikes the idea of cremation or burial this is something I would welcome.”

[Individual, not employed in funeral sector]

There were responses from two faith organisations who gave their theological views on alkaline hydrolysis, with one detailing reasons to be supportive and the other reasons they were opposed to this process.

Theme 3 – Evidence of benefit

Several respondents gave reasons for their support as being based on existing research and precedents in other countries. Others expressed their support for alkaline hydrolysis on more of a conditional basis, especially in relation to evidence of environmental impact or benefit. Respondents answering in this way tended to

suggest ongoing research was necessary and would play an important role in their continued support.

“Our position is based on our strong belief that alkaline hydrolysis is, potentially, a more sustainable method of disposal. We believe as a society we need to consider the environmental impact of all our actions, including what happens after our death.

Alkaline hydrolysis could play a key part in decarbonising the death management process. It is essential that all parts of Government within the UK, including the Scottish Government, permit the process to take place so that robust data can be gathered to inform future strategy. If alkaline hydrolysis does prove to be a more sustainable method of disposal of human remains, then both the Death Management sector and Government throughout the UK will need to work together to encourage and support a transition away from less sustainable methods.”

[Organisation, funeral director business/organisation]

Of the minority of respondents who did not support the introduction of alkaline hydrolysis most reasons were centred on environmental issues and concerns about the robustness of existing research.

“I think officials currently lack vital information about the potential environmental impacts of alkaline hydrolysis / manufacturers and proponents are yet to provide sufficient data about this method of disposal.”

[Individual, employed in other areas of funeral sector]

Additional points

Although the intended focus of this question was on opinions around the introduction of alkaline hydrolysis to Scotland, a number of respondents interpreted it as asking if alkaline hydrolysis should be regulated, and offered comments on this aspect. The [consultation](#) on the draft Burial and Cremation (Scotland) Bill in 2015 had already asked whether new methods of body disposal, such as alkaline hydrolysis, should be regulated for use in Scotland.

Although the future regulation of alkaline hydrolysis is not itself being consulted on in the current consultation, the responses that related to this were universally supportive of regulation and emphatic about the importance of this. Respondents answering in this way later reiterated these points in relation to direct questions about regulation mirroring cremation regulations (e.g. in Questions 3 – 6).

5.2 What is alkaline hydrolysis?

Question 2 – Have the sustainability claims made by manufacturers influenced your response to Question 1? (see para 11)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

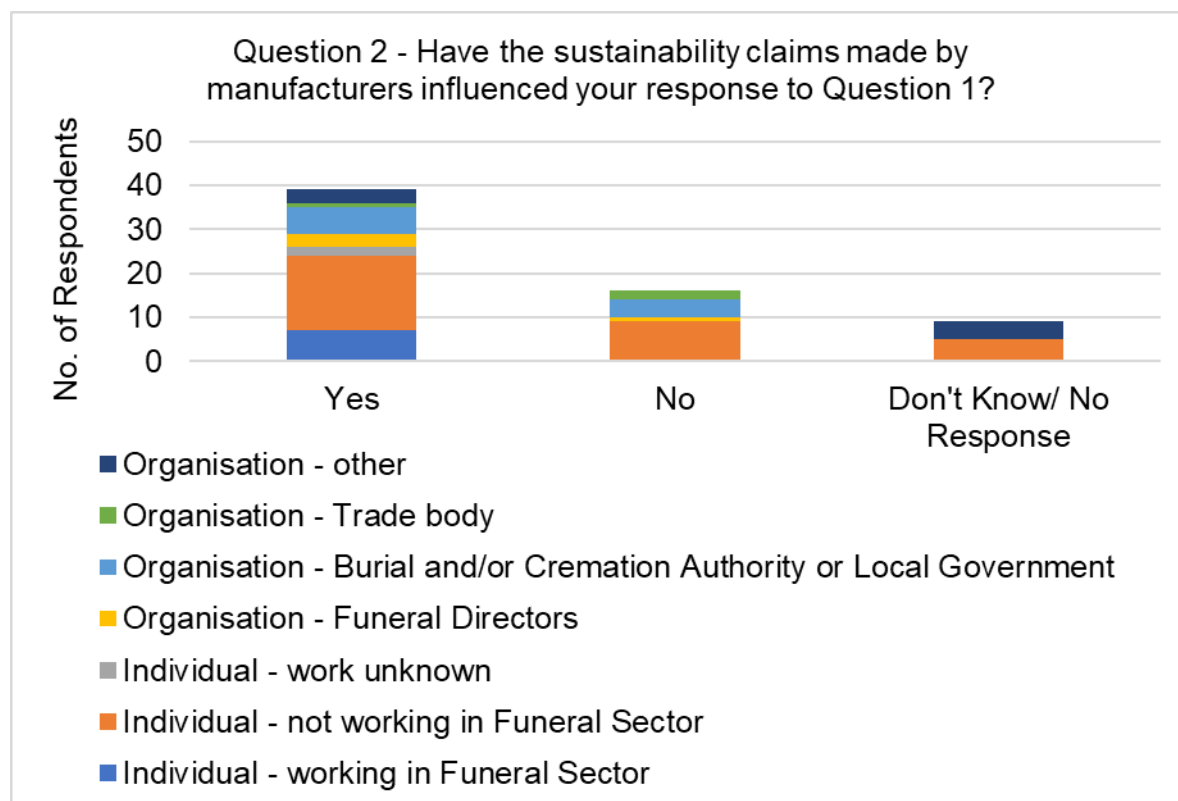
Quantitative data

The majority of respondents (n=39, 61%) answered 'Yes' to this question, that sustainability claims made by manufacturers had influenced their view on whether alkaline hydrolysis should be introduced in Scotland. Table 3 and Figure 2 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector).

Table 3. Responses to Q2 broken down by respondent type

Respondent Type	Number of Responses (Q2)		
	Yes	No	Don't Know/ No Response
Individual - working in funeral sector	7	0	0
Individual - not working in funeral sector	17	9	5
Individual - work unknown	2	0	0
Organisation - funeral directors	3	1	0
Organisation - burial and/or cremation authority or local government	6	4	0
Organisation - trade body	1	2	0
Organisation - other	3	0	4
All Respondents	39	16	9

Figure 2. Responses to Q2 broken down by respondent type

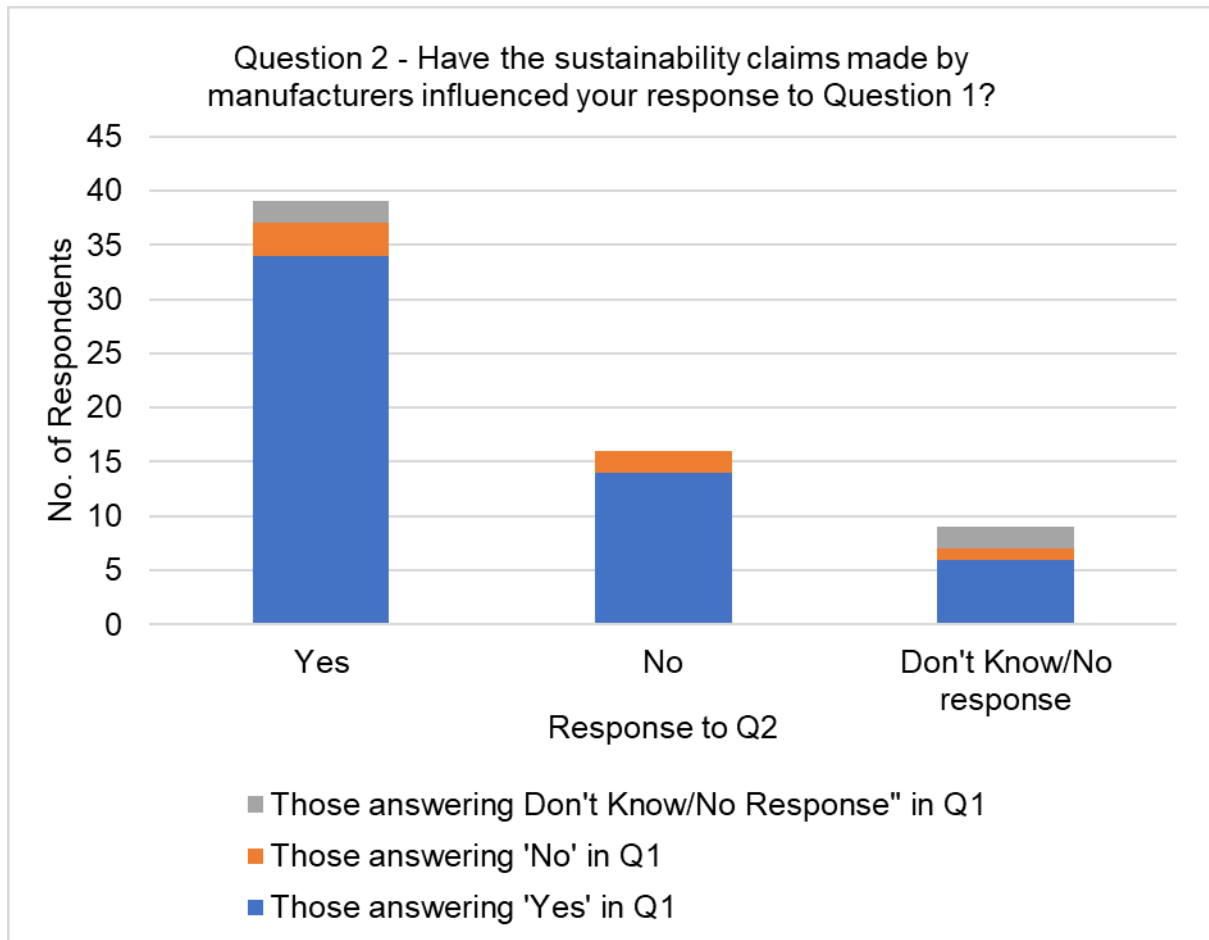


Question 2 references Question 1, which asked respondents if they thought alkaline hydrolysis should be introduced in Scotland. Table 4 and Figure 3 (below) show how responses to Question 2 related to how respondents answered in this previous question. As can be seen from these, some respondents reported being influenced by sustainability claims regardless of whether they supported the introduction of alkaline hydrolysis or not.

Table 4. Responses to Q2 broken down by response to Q1 (Do you think that the Scottish Government should introduce regulations to allow the use of alkaline hydrolysis as a method of disposal of human remains in Scotland?)

Respondent Type	Number of Responses (Q2)			
	Yes	No	Don't Know/No response	Total
Those answering 'Yes' in Q1	34	14	6	54
Those answering 'No' in Q1	3	2	1	6
Those answering Don't Know/No Response" in Q1	2	0	2	4

Figure 3. Responses to Q2 broken down by response to Q1 (Do you think that the Scottish Government should introduce regulations to allow the use of alkaline hydrolysis as a method of disposal of human remains in Scotland?)



Qualitative data

Respondents were invited to provide further details for their answers and thirty-eight (38) of the sixty-four (64) respondents provided further comments.

Several respondents reiterated, or expanded upon, points that they had made in the previous question. While many of these responses centred on sustainability, respondents also expressed additional factors that had influenced their view on this. Comments are summarised into four themes described below.

Theme 1 – Environmental matters and increased options

As with Question 1, many of the responses in this question centred around environmental matters, with respondents often reiterating their previous answers in support for practices that reduced impact on the environment or were seen to be more sustainable than current options.

Theme 2 – Research evidence

As in the previous question, respondents spoke about research and available evidence in their comments. Of those who were supportive of the introduction of alkaline hydrolysis, some noted that while manufacturers' claims had some influence on their opinion, there had been other influences, including research evidence. As with responses in the previous questions some respondents expressed that their support was conditional and that they would like to see further research continuing as alkaline hydrolysis is introduced.

“To an extent, but we have also taken views from other experts in the death care sector, and read up on other reports where the method is being used, so the manufacturer's claims are not our only source of information. However, the sustainability claims (covering the whole life, supply chain and operations) do not appear to have been independently tested or verified anywhere, so to an extent we have to rely on what in [sic] currently in the public domain. To that end, we would welcome further independent investigation and research.”
[Organisation, trade body]

Those who were not supportive of the introduction of alkaline hydrolysis also reiterated their concerns here around evidence and the relationship this evidence has with manufacturers' claims. Some specified specific issues with this data or highlighted gaps they thought were important to consider.

“I am not convinced their data is considering the all [sic] environmental issues.”
[Individual, employment area not given]

Theme 3 – Personal preference/values

Respondents described personal reasons that had influenced their choices around whether or not to support the introduction of alkaline hydrolysis. These were sometimes linked to environmental issues but were framed as personal values or related to more philosophical reasoning or personal preference for the process involved in different methods.

“I would much rather value or utility was taken from my body once I die – if a small part of me can nourish crops, rather than be expelled as toxic fumes into the environment, or stuck in a varnished box buried in the ground, I know which I'd prefer.”
[Individual, not employed in the funeral sector]

Theme 4 – Cost

Some respondents commented that a potential benefit they foresaw of alkaline hydrolysis might be reduced funeral costs and that this had additionally influenced their view that alkaline hydrolysis should be introduced.

“If the cost of fuel continues to skyrocket, fire cremation fees may also eventually become impossible for consumers.”

[Individual, not employed in the funeral sector]

5.3 Regulation and oversight of alkaline hydrolysis

Questions 3, 4, and 5 asked respondents about proposals to employ regulations, procedures and inspections for alkaline hydrolysis similar to those already in place for cremation and cremation authorities. These questions asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

Since the questions themselves were very similar, comments provided in the free text boxes for each of these questions sometimes overlapped, reiterated the same points in response to each question or referenced previous answers which the respondent has given. As a result the qualitative data from these questions will be summarised and presented together following the quantitative data (and associated tables and figures) for each below.

Question 3 – Assuming that alkaline hydrolysis is to be allowed, should it be regulated in a similar manner as cremation? (see para 22 – 23)

Quantitative data

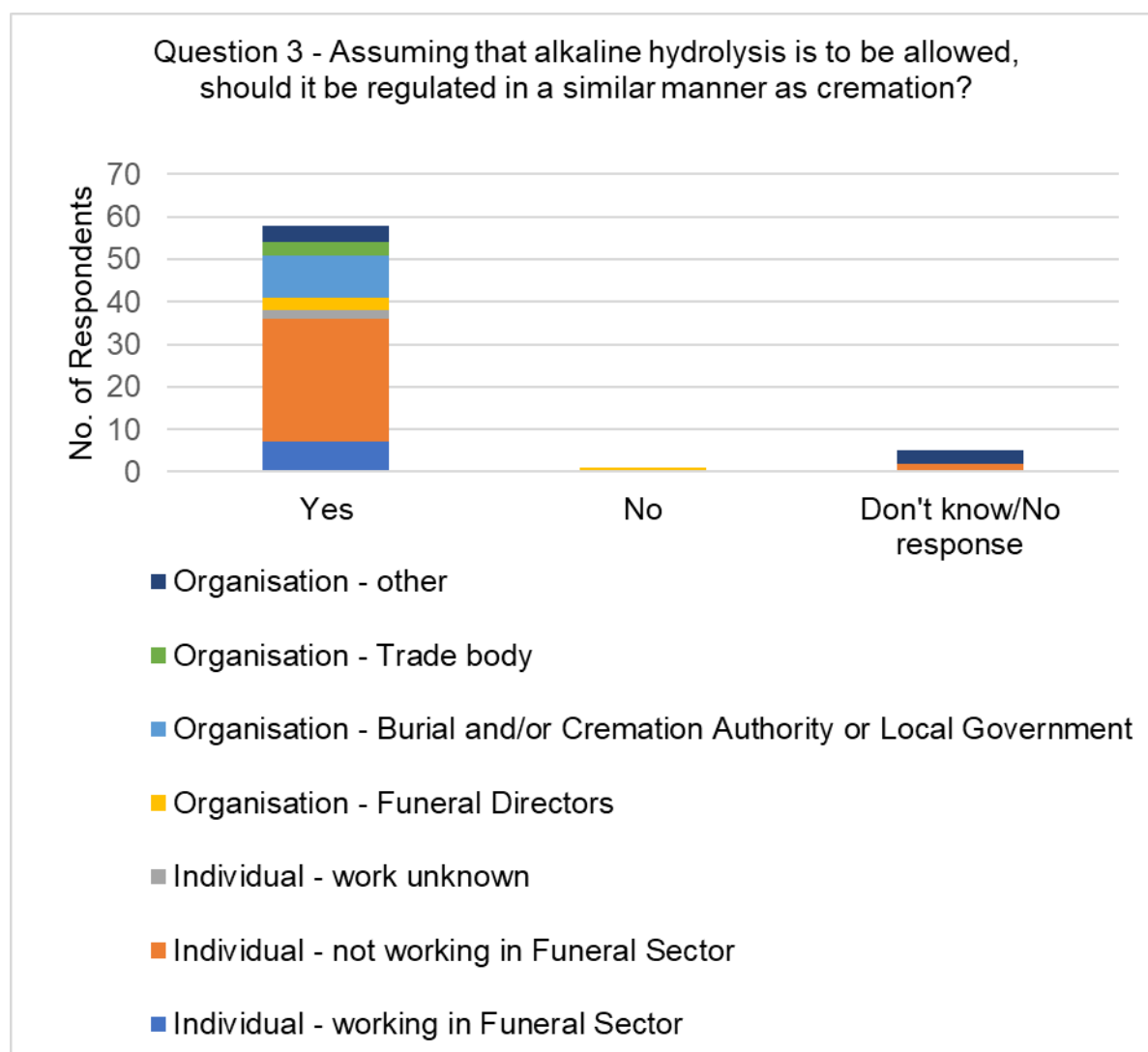
A large majority (n=58, 91%) of respondents answered 'Yes' to question 3.

Table 5 and Figure 4 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector). Qualitative data for Questions 3-5 is presented after Question 5.

Table 5. Responses to Q3 broken down by respondent type

Respondent Type	Number of responses (Q3)		
	Yes	No	Don't know/No response
Individual - working in funeral sector	7	0	0
Individual - not working in funeral sector	29	0	2
Individual - work unknown	2	0	0
Organisation - funeral directors	3	1	0
Organisation - burial and/or cremation authority or local government	10	0	0
Organisation - trade body	3	0	0
Organisation - other	4	0	3
All Respondents	58	1	5

Figure 4. Responses to Q3 broken down by respondent type



Qualitative data

Thirty-two (32) respondents provided comments in response to Question 3. Comments were summarised into three themes:

Theme 1 – ‘Tried and tested’ for a similar process

Some respondents thought that alkaline hydrolysis and cremation were similar enough that utilising the existing regulatory framework would be beneficial. Respondents commented positively about how the existing regulation of cremation currently works and thought this was good reason to use it as a basis for alkaline hydrolysis regulation.

“The regulation of cremations over a long period of time has proven effective and manageable while ensuring everything is done legally, correctly and with dignity, but without overly onerous bureaucracy. The fundamental similarities between the two processes mean that an adapted version of cremation regulations and controls would seem appropriate.”

[Organisation, funeral director business/organisation]

Theme 2 – High standards and public confidence

Respondents highlighted a need for high standards in order to ensure public confidence and linked this to regulation – with cremation regulation being noted as a positive precedence.

“The existing cremation regulatory regime gives confidence to the bereaved public, Scottish Government and the funeral related professions. Carrying this over to a method such as alkaline hydrolysis is appropriate particularly with such a new and relatively little known method.”

[Individual, employed in funeral directing]

Theme 3 – Suggested differences

Some respondents commented that since alkaline hydrolysis would be the introduction of a new process, which would potentially attract new businesses with no previous experience in the funeral sector, that the regulation should generally be more stringent. Other respondents suggested that there might be a need for some specific differences. These differences included regulation of any factors affecting the environment (in particular some respondents were concerned about waste liquid disposal) and regulation around the care of the deceased, since they thought these processes might vary from those used in cremation. Some participants also took this opportunity to highlight a need to be careful around the language used to describe alkaline hydrolysis to avoid confusion with cremation.

“Also there is a need to ensure that alkaline hydrolysis is not using language that is normally associated with “cremation” so phrases such as “water cremation” and “ash” for the residue are likely to be misleading for families.”

[Organisation, trade body]

One respondent suggested there may need to be some flexibility as alkaline hydrolysis becomes established:

“There should be an element of flexibility to ensure that any mirroring regulation is proportionate and fair to operators of alkaline hydrolysis; it will only become clear whether similar regulations are a good fit once AH is commonplace and the costs of installation, maintenance and operation are better known”

[Organisation, trade body]

Question 4 – Do you agree that the same procedure as applies to opening new crematoriums should apply to opening alkaline hydrolysis premises? (see para 29)

Quantitative data

A majority (n=54, 84%) of respondents answered ‘Yes’ to question 4.

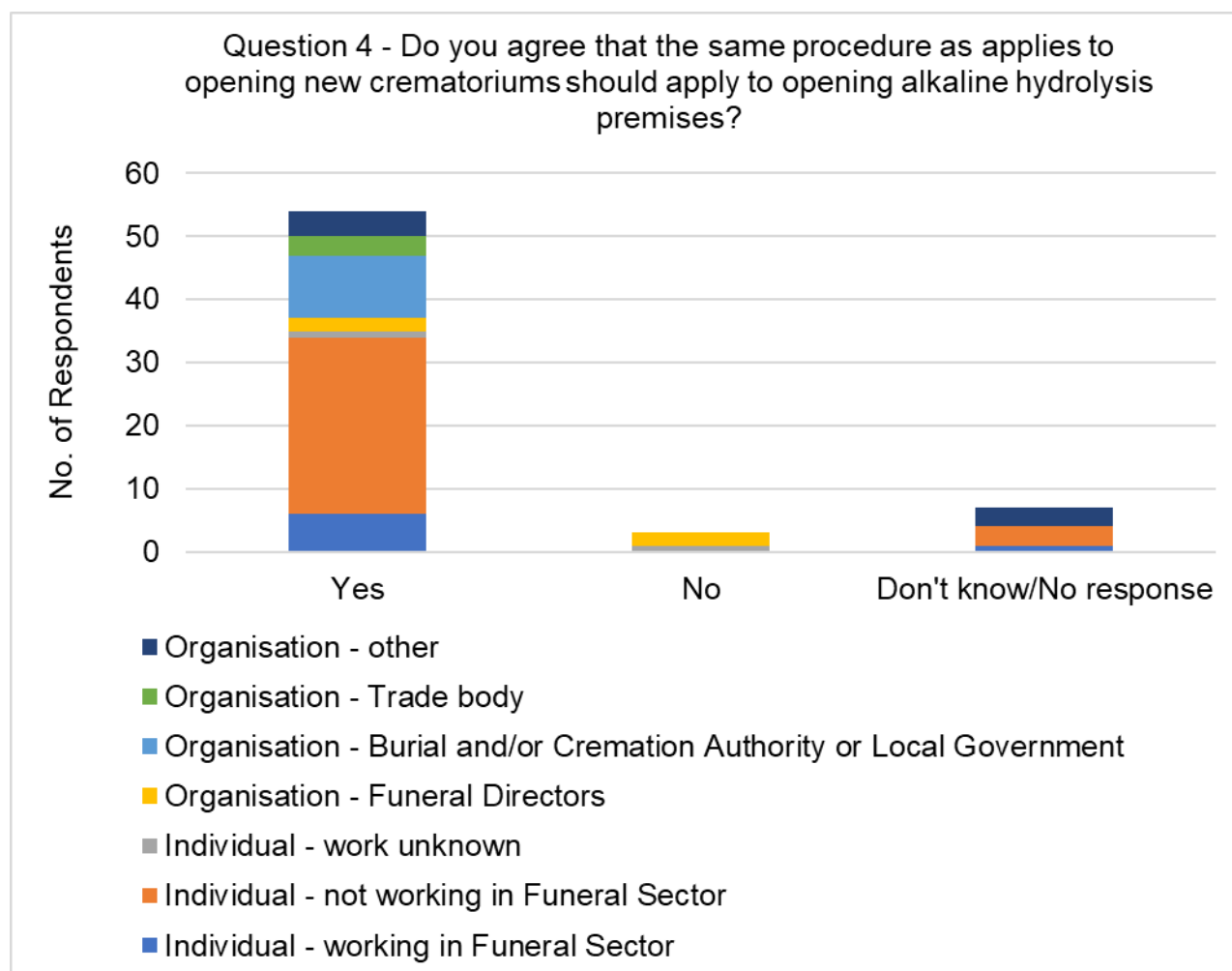
Table 6 and Figure 5 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector). Qualitative data for Questions 3-5 is presented after Question 5.

Table 6. Responses to Q4 broken down by respondent type

Respondent Type	Number of responses (Q4)		
	Yes	No	Don't know/No response
Individual - working in funeral sector	6	0	1
Individual - not working in funeral sector	28	0	3
Individual - work unknown	1	1	0
Organisation - funeral directors	2	2	0
Organisation - burial and/or cremation authority or local government	10	0	0
Organisation - trade body	3	0	0
Organisation - other	4	0	3
All Respondents	54	3	7

Figure 5. Responses to Q4 broken down by respondent type

The graph visually presents the data from table 6, focussing on the responses to the question, "Do you agree that the same procedure as applies to opening new crematoriums should apply to opening alkaline hydrolysis premises?"



Qualitative data

Twenty-four (24) respondents provided comments in response to Question 4. Several of these were statements reiterating agreement with the proposals. Additional comments were summarised in two themes:

Theme 1 – Standards, public confidence and consistency across the sector

Some of the comments echoed those in the previous question, focussing on the existing process being 'tried and tested' and familiar, therefore useful as a basis for developing procedures for alkaline hydrolysis and ensuring high standards and public confidence. However, additional points were made in response to this question that focussed more on the importance of treating alkaline hydrolysis and its providers in a similar way to those involved in cremation, in order to ensure fairness and consistency across the sector, and in the public perception.

Theme 2 – Suggested differences

As with Question 3, some respondents suggested the difference in waste disposal would need to be addressed in procedures related to alkaline hydrolysis.

Question 5 – Should alkaline hydrolysis operators be subject to inspection in the same way as cremation authorities? (see para 32)

Quantitative data

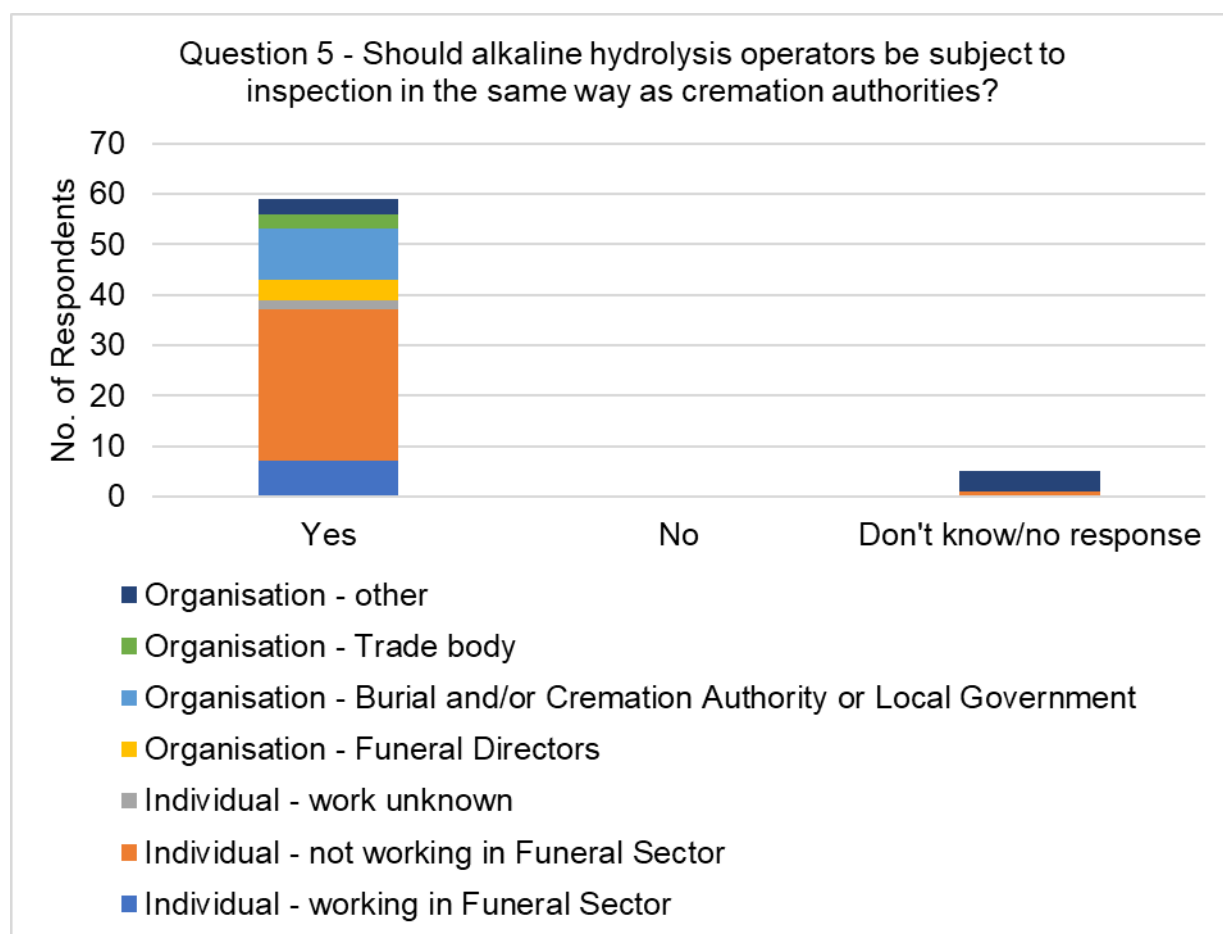
A large majority (n=59, 92%) of respondents answered 'Yes' to question 4, with none of the respondents answering 'No'.

Table 7 and Figure 6 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector). Qualitative data for Questions 3-5 is presented after Question 5.

Table 7. Responses to Q5 broken down by respondent type

Respondent type	Number of responses (Q5)		
	Yes	No	Don't know/no response
Individual - working in funeral sector	7	0	0
Individual - not working in funeral sector	30	0	1
Individual - work unknown	2	0	0
Organisation - funeral directors	4	0	0
Organisation - burial and/or cremation authority or local government	10	0	0
Organisation - trade body	3	0	0
Organisation - other	3	0	4
All respondents	59	0	5

Figure 6. Responses to Q5 broken down by respondent type



Qualitative data

Twenty-one (21) respondents provided comments in response to Question 5. Several of these were statements reiterating agreement with the proposals and almost all echoed general points made in Questions 3 and 4. Additional comments are summarised below:

Theme 1 – Standards, public confidence and consistency across the sector

These comments were very similar to those in the previous question, focussing on the importance of consistency and fairness as part of ensuring high standards and public confidence in the sector.

“We believe that that any organisation or individual operating an alkaline hydrolysis facility should be subject to inspection in the same way as cremation authorities. A robust inspection regime, with high and equivalent standards whatever the disposal method, will be key to promoting consumer confidence in alkaline hydrolysis. If alkaline hydrolysis is proved to be a more sustainable method of disposal than cremation (gas or electric) then ‘normalising’ the process by bringing it within the same inspection regime is likely to promote consumer confidence.”

[Organisation, funeral director business/organisation]

Question 6 – What information do you think should be included in a management plan by a provider of alkaline hydrolysis? (see para 33 – 37)

This question offered space for comments (qualitative data), without options to select from a predetermined list.

Qualitative data

Thirty-seven (37) respondents provided comments in response to Question 6. A majority of these comments offered straightforward support and agreement with the proposals without making any additional suggestions or related comments. These either agreed generally that the plan requirements should be the same as, or similar to, those for cremation or explicitly referenced agreement with the list proposed in paragraph 36 of the consultation document.

Some respondents offered suggestions for additional information to be included in the requirements for management plans. Some of these comments came from individuals not employed within the funeral sector and referred generally to the inclusion of anything that would cover any elements of the alkaline hydrolysis process that differed from that of cremation or suggested that a level of specific detail of the process should be required. Other respondents offered more specific suggestions. These included:

- **Detail of processes around care of bereaved**

Several respondents specified inclusion of complaints processes in the management plan. One respondent pointed to a potential role change for those who might be employed in alkaline hydrolysis facilities that might require additional detail to be included rather than the broader term “working practices” that is currently proposed.

“Currently there is relatively little contact between bereaved families and cremation and burial authorities with most liaison being with funeral directors. With the new method there is the potential for facilities to be within funeral directors premises and therefore greater contact with bereaved families.”

[Individual, employed in funeral directing]

- **Detail of processes around care of deceased.**

Similar to the previous point, respondents mentioning processes around the care of the bereaved specifically pointed to a change of role for funeral directors becoming involved in alkaline hydrolysis and therefore a need to be more specific in a management plan about these processes.

“This process will have potential for funeral directors to have the alkaline hydrolysis on their premises, this giving more responsibility to the overall care of both. With the deceased having to be removed from their coffin before the process this also emphasis's [sic] the need for care being part of the management plan.”

[Individual, employed in funeral directing]

- **Register of chemicals**

“There needs to be a register of chemicals used and where they are produced, making sure there would be no issues in regard to faulty products.”

[Individual, not employed in funeral sector]

- **Detail on staff training**

“Incorporation of initial and ongoing training records of personnel involved in the operation of the alkaline hydrolysis equipment within the Management Plan is essential. It is suggested that records of all operator training are maintained within the Management Plan and consideration is given to the wider development of a training and certification programme.”

[Organisation, other organisation e.g. guidance, sales]

- **Collection of data** on energy and resource use to aid further research on alkaline hydrolysis (comments around further research are discussed in more detail in the section on question 2)

- **Flexibility in period of introduction**

Some responses mentioned that a period of initial flexibility and adjustment may be required as the new process becomes established in Scotland.

“It may be appropriate, during an early adoption phase and while the technology and processes become familiar, to further develop a standard plan or similar guidance to support new operators and ensure that operations are conducted in a consistent way.”

[Organisation, other organisation e.g. guidance, sales]

Question 7 – Do you agree that there should be statutory application forms similar to the cremation application forms? (see para 39)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

Quantitative data

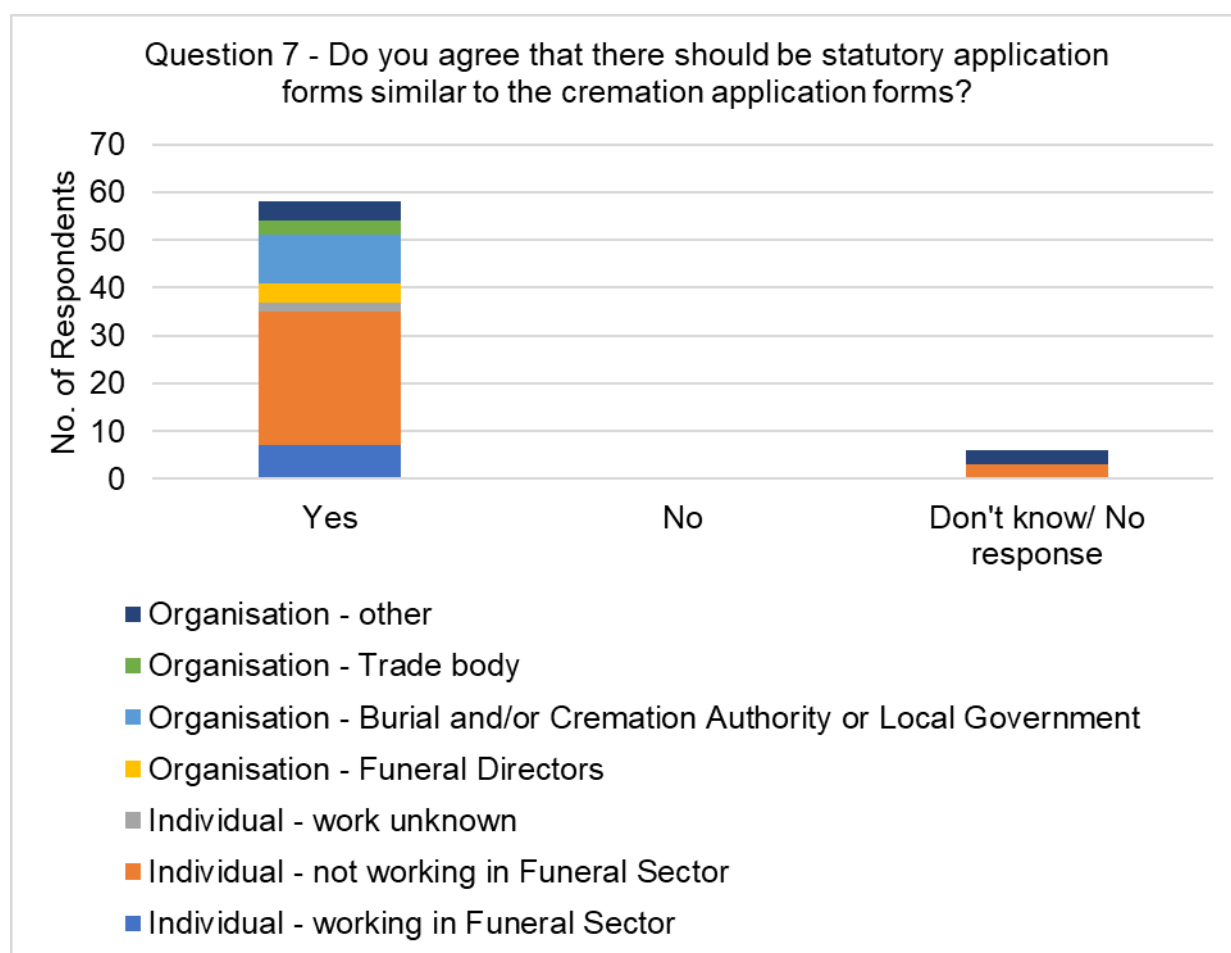
The majority of respondents (n=58, 91%) answered ‘Yes’ to this question.

Table 8 and Figure 7 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector).

Table 8. Responses to Q7 broken down by respondent type

Respondent Type	Number of Responses (Q7)		
	Yes	No	Don't know/ No response
Individual - working in funeral sector	7	0	0
Individual - not working in funeral sector	28	0	3
Individual - work unknown	2	0	0
Organisation - funeral directors	4	0	0
Organisation - burial and/or cremation authority or local government	10	0	0
Organisation - trade body	3	0	0
Organisation - other	4	0	3
All respondents	58	0	6

Figure 7. Responses to Q7 broken down by respondent type



Qualitative data

Eighteen (18) of the respondents who answered 'Yes' from the predetermined options offered further comments, although several of these simply restated their agreement. There were no comments from respondents who answered 'Don't Know' or did not select a predetermined option.

Of those who made more substantial comments most respondents tended to focus their answer on one of two related themes or both. These are summarised below:

Theme 1 – Impact of consistency: On bereaved people

Respondents qualified their support with comments around how consistency across the sector would be beneficial. Some respondents linked this directly to being particularly beneficial in terms of ensuring bereaved people were met with a process that was as easy as possible for them to navigate.

“These forms are currently simple to understand and contain all the information families need without being overbearing and confusing.”

[Organisation, individual, employed in funeral directing]

Theme 2 – Impact of consistency: On the sector

Some respondents linked consistency to ensuring high standards, and in turn, public confidence.

“The public and death care professionals would expect as much given that is what they experience with cremations, while statutory paperwork provides reassurance to the public that the death of their loved one has been officially and properly assessed, while also providing an enforced level of protection and transparency for funeral directors and others in the death care management chain.”

[Organisation, trade body]

Question 8 – Do you have any views on the provision of alkaline hydrolysis for children under age 4 and for stillborn babies (even though no ashes are likely to result)? (see para 42 – 44)

This question offered space for comments (qualitative data), without options to select from a predetermined list.

Forty-nine (49) respondents offered their views in response to Question 8. Thirty-nine (39) were expressly supportive of proposals in the consultation document, stating that families should be allowed to make an informed choice and given alkaline hydrolysis as an option, with application processes in line with those for cremation. Eight (8) respondents made more neutral comments without stating a preference or expressing clear support or opposition. Some of these respondents thought that decisions on this issue should be made following further research and consultation as alkaline hydrolysis becomes established.

Across both the above types of responses several respondents emphasised points made in the consultation document around communication and the importance of ensuring families are appropriately supported to understand the potential outcomes of using alkaline hydrolysis before making their choice. Two (2) respondents opposed offering alkaline hydrolysis as an option and gave either faith-based reasons or offered no reason for their answer.

Question 9 – Do you have any comments on extending the requirement for a Form E1 (as applies when the body is released for cremation by COPFS) to alkaline hydrolysis? (see para 45)

This question offered space for comments (qualitative data), without options to select from a predetermined list.

Thirty-six (36) respondents answered Question 9. Almost all of these responses stated agreement with the proposal to extend the requirement for a Form E1. There were limited additional points made with some respondents reiterating that the same reasons for using this form in cremation also apply to alkaline hydrolysis i.e. destruction of the body.

Question 10 – Do you agree that operators of alkaline hydrolysis (and funeral directors) should be required to comply with the same requirements and timescales for handling of the remains as they are for ashes following cremation? (see para 47 – 48)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

Quantitative data

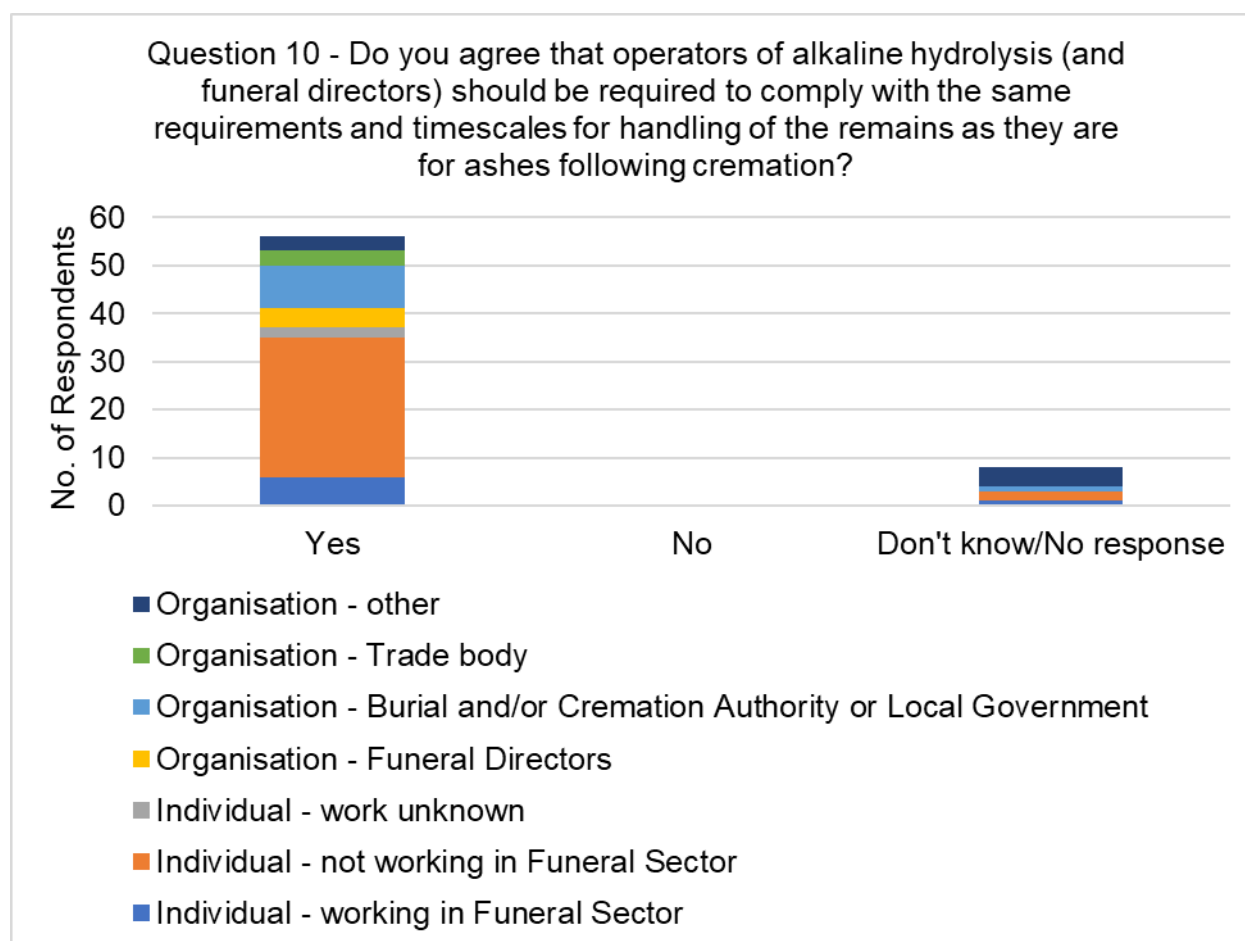
The majority of respondents (n=56, 88%) answered 'Yes' to this question.

Table 9 and Figure 8 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector).

Table 9. Responses to Q10 broken down by respondent type

Respondent Type	Number of responses (Q10)		
	Yes	No	Don't know/No response
Individual - working in funeral sector	6	0	1
Individual - not working in funeral sector	29	0	2
Individual - work unknown	2	0	0
Organisation - funeral directors	4	0	0
Organisation - burial and/or cremation authority or local government	9	0	1
Organisation - trade body	3	0	0
Organisation - other	3	0	4
All respondents	56	0	8

Figure 8. Responses to Q10 broken down by respondent type



Qualitative data

Twenty-one (21) respondents provided additional comment to qualify their answer to Question 10, all of whom had answered “Yes” to this. Comments mainly centred on keeping this process as similar as possible to that required for cremation, with some commenting that a familiar process that is already thought to work well was beneficial for both those working in the sector, and for bereaved people.

“The present procedures and timescales around cremation ashes works well and is familiar to all involved, duplicating this for alkaline hydrolysis ashes makes sense. It also allows for a procedure to manage the potential difficulty of retained ashes.”

[Individual, employed in funeral directing]

Question 11 – Do you agree that the content of the statutory cremation register for bodies should be replicated for alkaline hydrolysis? Please add any comments on what you think should be different and why. (see para 49)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

Quantitative data

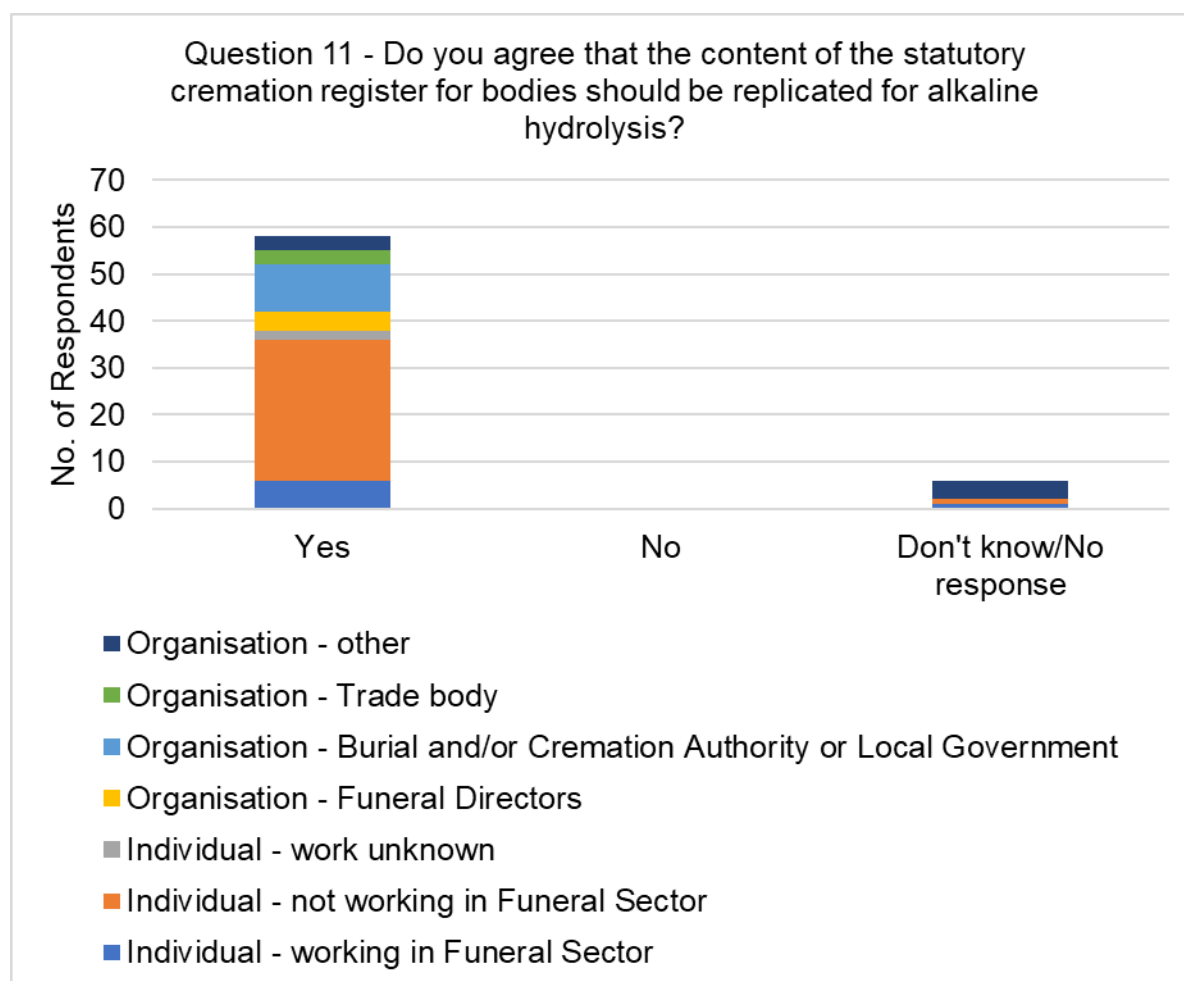
The majority of respondents (n=58, 91%) answered 'Yes' to this question.

Table 10 and Figure 9 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector).

Table 10. Responses to Q11 broken down by respondent type

Respondent type	Number of Responses (Q11)		
	Yes	No	Don't know/No response
Individual - working in funeral sector	6	0	1
Individual - not working in funeral sector	30	0	1
Individual - work unknown	2	0	0
Organisation - funeral directors	4	0	0
Organisation - burial and/or cremation authority or local government	10	0	0
Organisation - trade body	3	0	0
Organisation - other	3	0	4
All respondents	58	0	6

Figure 9. Responses to Q11 broken down by respondent type



Qualitative data

Respondents were asked to add any comments on what they thought should be different in this respect and why. Nine (9) respondents offered further comments, the majority of which simply reiterated their support for the proposal to replicate the statutory cremation register for bodies.

Question 12 – Do you agree that the content of the statutory cremation register for body parts should be replicated for alkaline hydrolysis? Please add any comments on what you think should be different and why. (see para 49)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

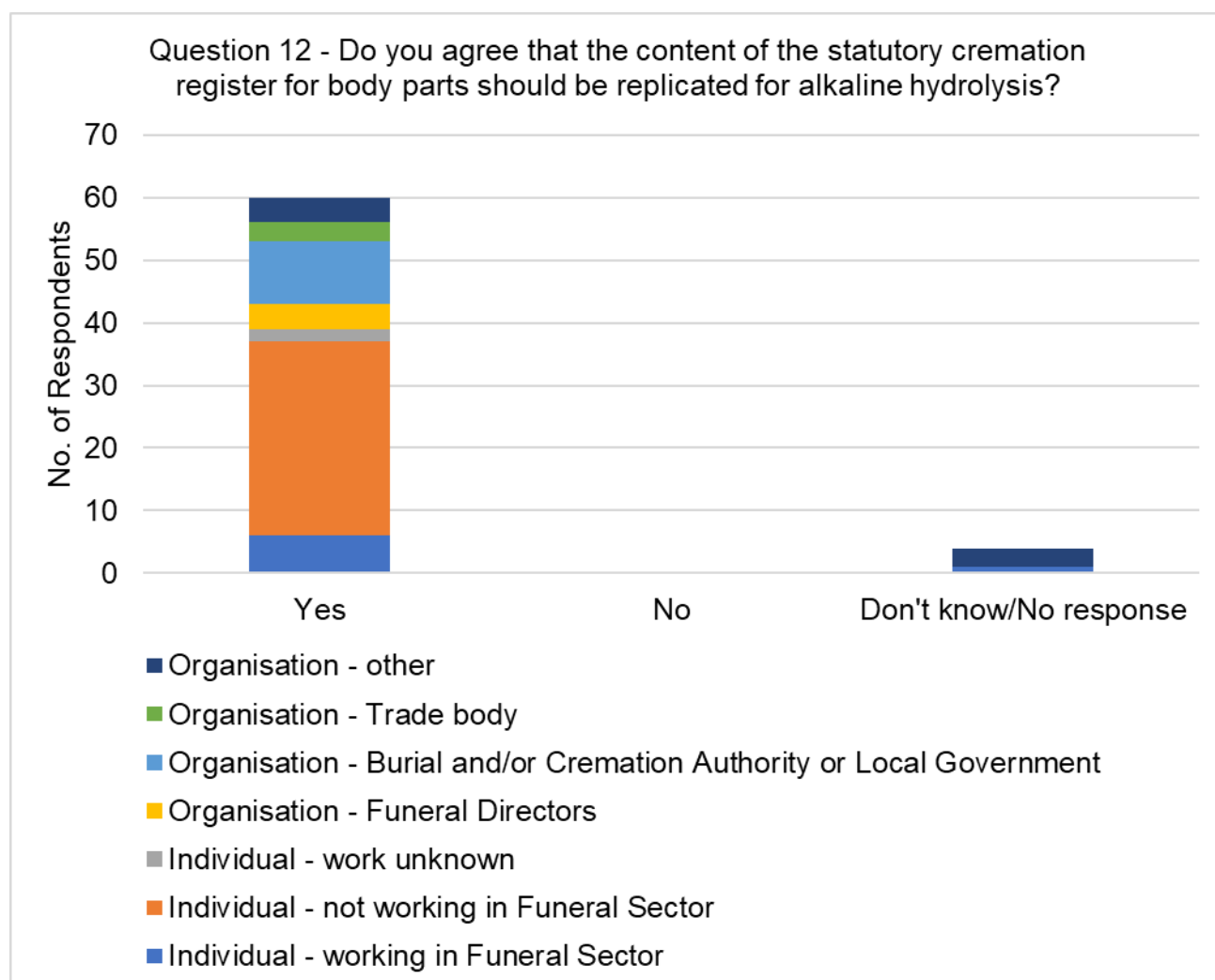
Quantitative data

The majority of respondents (n=60, 94%) answered 'Yes' to this question. Table 11 and Figure 10 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector).

Table 11. Responses to Q12 broken down by respondent type

Respondent Type	Number of responses (Q12)		
	Yes	No	Don't know/No response
Individual - working in funeral sector	6	0	1
Individual - not working in funeral sector	31	0	0
Individual - work unknown	2	0	0
Organisation - funeral directors	4	0	0
Organisation - burial and/or cremation authority or local government	10	0	0
Organisation - trade body	3	0	0
Organisation - other	4	0	3
All respondents	60	0	4

Figure 10. Responses to Q12 broken down by respondent type



Qualitative data

Respondents were asked to add any comments on what they thought should be different in this respect and why. Nine (9) respondents offered further comments, the majority of which simply reiterated their support for the proposal to replicate the statutory cremation register for body parts.

One respondent suggested that the recycling of metal which happens with cremation should also happen with alkaline hydrolysis.

“Many crematoria make financial contributions to charitable organisations via metal recycling schemes for metal body parts, such as a steel hip.... and would appreciate if this were similarly recognised and facilitated in the context of any wider provision of alkaline hydrolysis.” [Other organisation, e.g. guidance, sales]

Question 13 – Do you agree that the content of the statutory cremation register for stillborn babies should be replicated for alkaline hydrolysis? Please add any comments on what you think should be different and why. (see para 50 – 51)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

Quantitative data

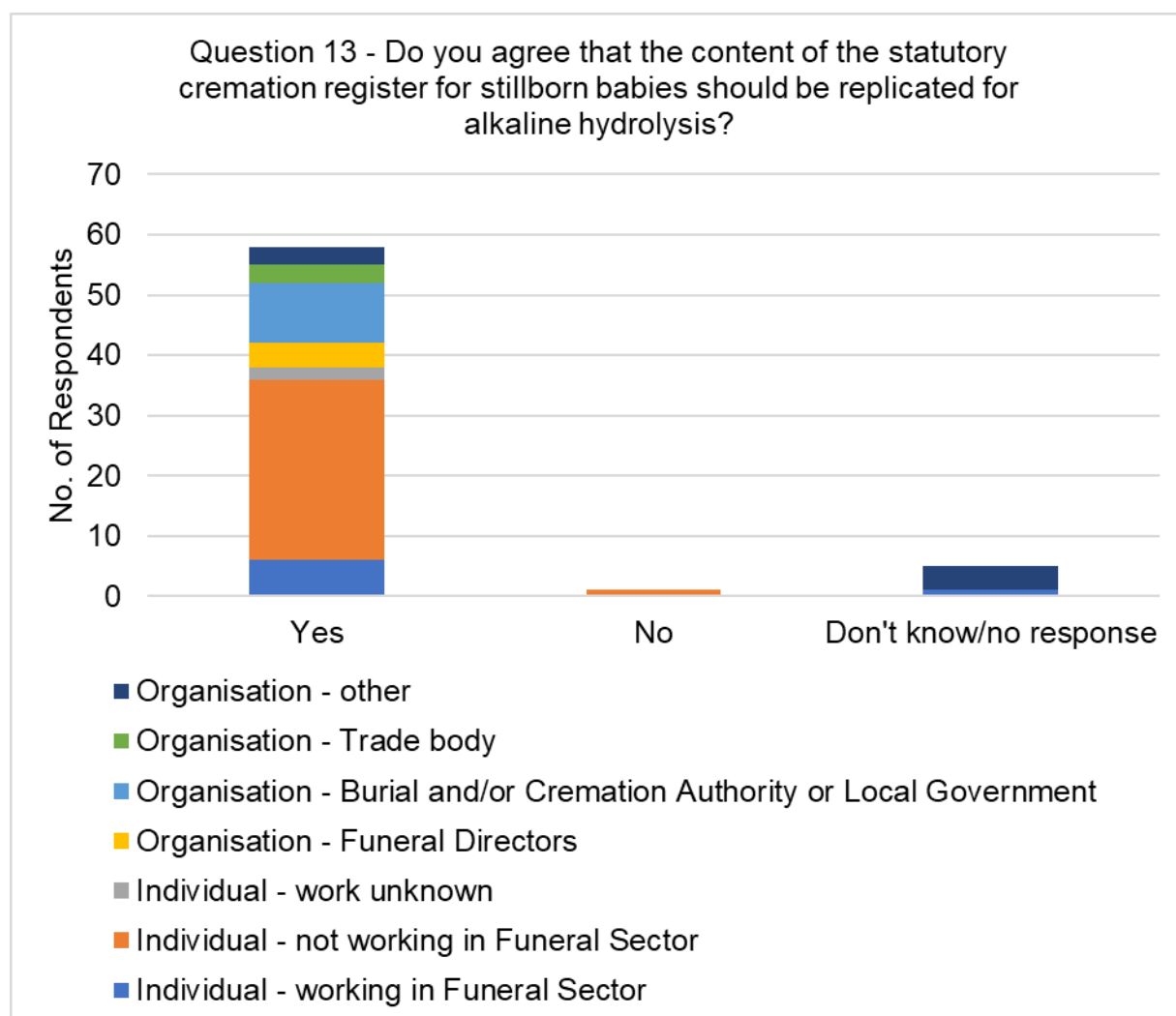
The majority of respondents (n=58, 91%) answered ‘Yes’ to this question.

Table 12 and Figure 11 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector).

Table 12. Responses to Q13 broken down by respondent type

Respondent type	Number of Responses (Q13)		
	Yes	No	Don't know/no response
Individual - working in funeral sector	6	0	1
Individual - not working in funeral sector	30	1	0
Individual - work unknown	2	0	0
Organisation - funeral directors	4	0	0
Organisation - burial and/or cremation authority or local government	10	0	0
Organisation - trade body	3	0	0
Organisation - other	3	0	4
All respondents	58	1	5

Figure 11. Responses to Q13 broken down by respondent type



Qualitative data

Respondents were asked to add any comments on what they thought should be different in this respect and why. Eleven (11) respondents offered further comments. All had previously selected “Yes” as their response and the majority used their comments to simply reiterate their support for the proposal to replicate the statutory cremation register for stillborn babies.

Question 14 – Section 87 of the 2016 Act provides that where a person dies or is found dead within a local authority area, and no arrangements are being made for them to be buried or cremated, the local authority must make the arrangements. In these cases, should the local authority be able to use alkaline hydrolysis where it is available? Please provide reasons for your answer. (see para 52)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data).

Quantitative data

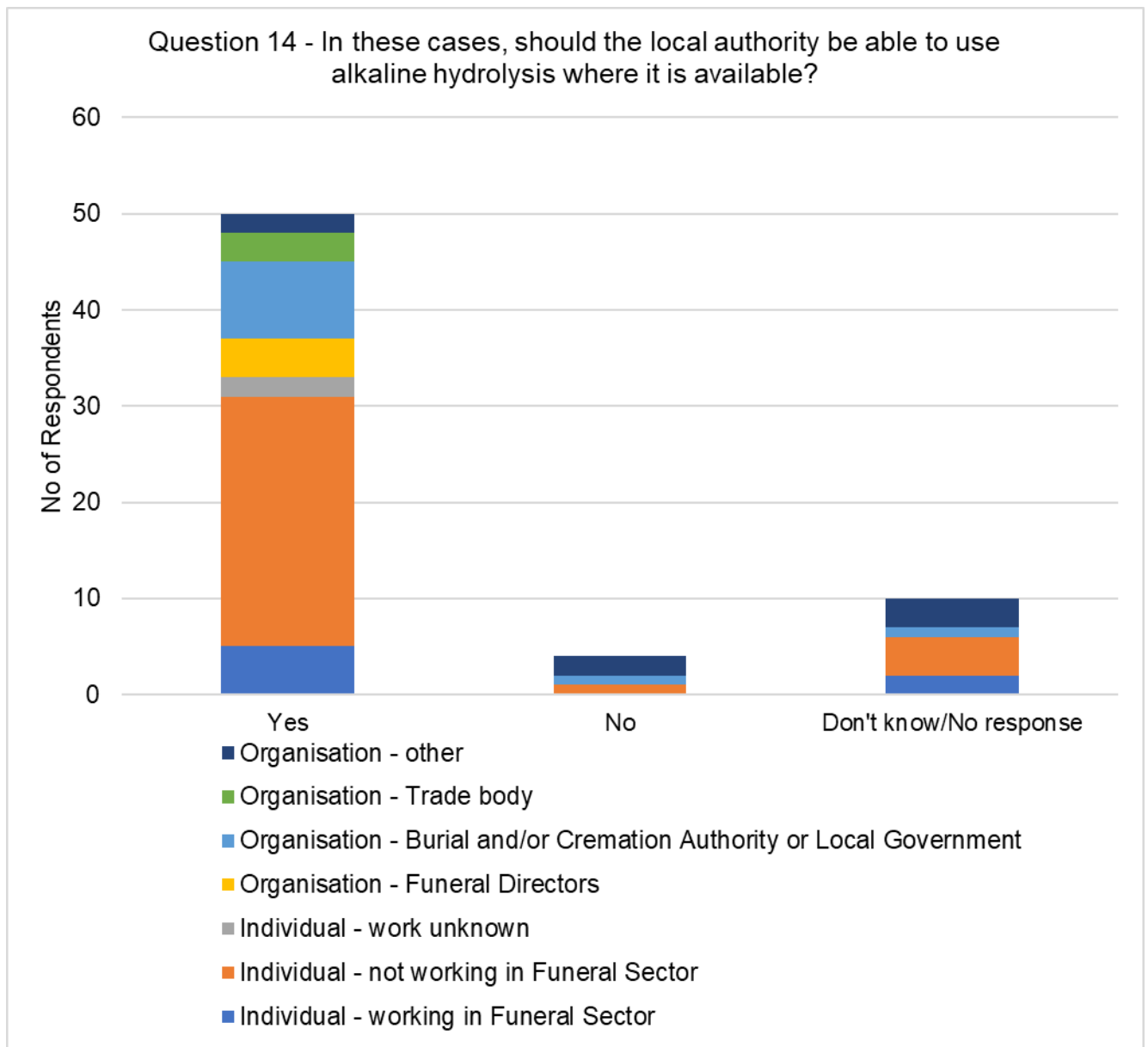
The majority of respondents (n=50, 78%) answered 'Yes' to this question.

Table 13 and Figure 12 (below) show the responses broken down by respondent type (individual or organisational response, and whether, or not, respondents were part of the funeral sector).

Table 13. Responses to Q14 broken down by respondent type

Respondent type	Number of responses (Q14)		
	Yes	No	Don't know/No response
Individual - working in funeral sector	5	0	2
Individual - not working in funeral sector	26	1	4
Individual - work unknown	2	0	0
Organisation - funeral directors	4	0	0
Organisation - burial and/or cremation authority or local government	8	1	1
Organisation - trade body	3	0	0
Organisation - other	2	2	3
All respondents	50	4	10

Figure 12. Responses to Q14 broken down by respondent type



Qualitative data

Respondents were invited to give reasons for their answers and thirty-nine (39) respondents provided further comment here. Their comments have been summarised into two themes:

Theme 1 – Increasing options, and potential benefits

The majority of comments focussed, at least in part, on potential benefits to local authorities, and broader society. These included environmental benefits and potential lower costs for local authorities.

“This should be available to all and more so as this may prove to be a more sustainable way to dispose of the deceased.” [Individual]

“All options for disposal of the body should be available to a local authority making arrangements under S87. There may be occasions where somebody has left instructions relating to their preferred choice, including alkaline hydrolysis, so this option should be available to the authority. In the absence of any information about the deceased's choice, the authority should be able to choose the most beneficial option to them.” [Organisation, trade body]

“Yes this should be an alternative method, It is likely that the financial cost of alkaline hydrolysis (water cremation) will be less than burial or traditional cremation. The environmental impact of alkaline hydrolysis has been highlighted elsewhere in the consultation and if managed effectively will be reduced using less energy than traditional cremation and less impact of land use for burials. On this basis it should be available for S87 situations as it could be the most cost effective and environmentally friendly option assuming it is in line with the deceased beliefs.” [Organisation, burial authority]

Theme 2 – Respecting personal choice of deceased and bereaved

Several respondents, while supportive of this proposal, caveated their responses acknowledging that the wishes of the deceased or bereaved should be taken into account wherever possible, including where their preference is for alkaline hydrolysis. Some respondents suggested that public opinion might change as alkaline hydrolysis becomes established in Scotland and that perhaps it would be beneficial to wait until public understanding and acceptance of the method increased before using this method when a local authority is making the arrangements.

“Burial and cremation may need to remain the method for Section 87 deaths until the public become more informed on alkaline hydrolysis, in the event should family come forward and not have wished this method of disposal for their family member.” [Organisation, burial authority]

Two respondents commented they were against introducing alkaline hydrolysis. One commented on the environment and the other viewed the procedure as disrespectful to the deceased

“Alkaline hydrolysis is harmful to the environment.”
[Organisation, burial authority]

“...the use of alkaline hydrolysis, as currently proposed, is unnecessarily disrespectful of the human body.”
[Organisation, faith/religion based]

5.4 Sustainability considerations

Question 15 – As noted in the consultation, supporters of alkaline hydrolysis have suggested that the liquid could be considered for sustainable disposal, such as fertiliser. If relevant consents are obtained, do you have any views on whether this should be an option? (see para 53 – 60)

This question asked respondents to select from a list of predetermined options (quantitative data), and in addition allowed a free text box for further comments (qualitative data). However, during analysis it was noted that the wording of the question had led to respondents interpreting this question in different ways. The quantitative responses were therefore unreliable as they could not be clearly interpreted as supportive, or otherwise. As a result, only the qualitative data is reported here.

Qualitative data

Forty-five (45) respondents provided comments in response to this question.

Responses showed varied levels of support for sustainable disposal such as fertiliser. Around half of respondents were broadly supportive and around a quarter were more opposed to this method of disposal as an option, with the remainder neither clearly supportive nor unsupportive. Comments have been summarised into the following two themes:

Theme 1 – Personal Values

Respondents, who were supportive of this suggested use, often commented from their own point of view, presenting this as being aligned with their personal values or preferences for their own body.

“I think being used as a fertiliser is actually quite a good end for a human.”
[Individual, employment area not provided]

“I think it would also be good if loved ones could receive some of the waste liquid to fertilise their own gardens/ plants etc.
[Individual, not employed in the funeral sector]

Some respondents linked this to beliefs around environmental issues or a sense of contributing to the future.

“When an animal in the wild dies their bodies break down into the earth, this then supports a huge range of life and ecosystems to grow and thrive. Humans should have the option to do the same. Other cultures and other countries have been putting the bodies of their loved ones back to the earth for centuries, why shouldn't in a small way this help to do the same if it makes for better ground for growing crops for those in the future.” [Individual, employed in funeral directing]

“This should be an option as it would feel like giving something back”
[Individual, not employed in the funeral sector]

As before, there was support for individuals making informed choices, and having the options to choose from that would align with their preferences.

“The wishes of the deceased should come first if they have shown a preference.”
[Individual, not employed in the funeral sector]

Some respondents commented that this did not align with their own personal preferences or values, and others commented that they did not think a use like this would be something that would be popular with other people.

“I am not sure how the public would view this, particular when purchasing any crops that had used this liquid as fertilizer. For such a new method which can already have a 'marmite' effect on people it seems a step too far.”

[Individual, employed in funeral directing]

Theme 2 – Further research and environmental concerns

Some respondents were opposed to this possible use and most gave reasons focussed on environmental concerns.

“...this may have a detrimental impact on our rivers and the wildlife around who use this as a food source”

[Individual, employed in funeral directing]

Several respondents were neither clearly supportive nor unsupportive, tending to suggest further evidence of risks and benefits would be necessary before they could form a view on this.

“Would like to ensure there is an adequate evidence base for this assertion.”

[Organisation, health body]

“Not sure that there is enough research at the moment to understand the impact that this may have on the local ecology.”

[Organisation, trade body]

As was the case in some previous questions, some respondents made their support conditional, in particular on this process being shown not to be detrimental to the environment and being controlled by relevant bodies.

“If it is permitted through SEPA then there is an argument to suggest that there is no reason why not.”

[Organisation, trade body]

Some respondents commented on levels of public understanding of the processes, and how that would impact on how acceptable a use like fertiliser might be as a result.

“The public’s understanding of the process including what will be done with the liquid will be low to start, I think for the process to have the greatest chance of success and be accepted by the public the current plan to discharge in conjunction with Scottish Water /SEPA is acceptable. I think using the liquid as fertiliser is a step too far.”

[Individual, employed in funeral directing]

5.5 Any other comments

Question 16 – Do you have any other comments on the regulation and use of alkaline hydrolysis which you wish to share? (see para 53 – 60)

Some responses commented on introducing other new methods and being innovative, with a view to “future proofing” the legislation. Examples given were green burial and human composting. Most respondents reiterated their support for introducing alkaline hydrolysis in Scotland.

“As the new regulations are implemented, the council would welcome any opportunity that Scottish Government can take to incentivise public selection of lower cost and more sustainable methods of disposal for human remains.”
[Organisation, local government]

“I think that alkaline hydrolysis makes sense on a number of fronts. At the end of the day it is about giving people the choice.” [Individual]

“I hope that this happens, and I also hope you consider further green burial practices such as human composting. I would also support requirements on crematories to switch to renewable power rather than gas, and on funeral homes to reduce the use of embalming fluid.” [Individual]

There were a few comments around the terminology used and the impact on the funeral sector and the bereaved in terms of balancing the need to use language that might be considered insensitive.

“The funeral profession has traditionally sought to provide without prejudice, what is appropriate and best suited to the needs and wishes of their clientele. That inevitably includes a significant emotional element.

I feel therefore it is incumbent on the funeral profession, alongside authorities to investigate and where deemed possible, practical and appropriate, provide new alternatives but only where that is what bereaved families want and need. The first hurdles seem to have been cleared, the latter I guess only time will tell. To proceed and thus be able to offer this new alternative would seem a very socially and environmentally responsible process.”
[Organisation, funeral director business]

A few responses commented on the possible impact of disposal of the liquid remaining after alkaline hydrolysis and the need to ensure that it was not harmful to the environment. They commented on the need for proper oversight from SEPA or Scottish Water. A few responses suggested that more research should be carried out .

“Scottish Government needs to demand scientific rigour of SEPA and Scottish Water in their examination of the entire set of processes to ensure that the processes and products do no harm to the environment.”
[Organisation, burial authority]

Scottish Water responded to this question in the consultation by saying:

“Scottish Water would like to comment on two areas that are relevant to us.

In terms of trade effluent, Scottish Water may grant consent allowing the waste liquid from alkaline hydrolysis to be discharged into the public foul sewer network as a trade effluent under Part II of the Sewerage (Scotland) Act 1968, where capacity exists and subject to standard technical assessments and controls applied to all proposed new discharges of trade effluent.

Scottish Water has the right to impose conditions on the discharge of the waste liquid and to refuse to grant consent of a proposed discharge of the waste liquid into the public sewer, for example where capacity did not exist.

Considering consent from Scottish Water will be subject to conditions or may be refused, Scottish Water encourages those promoting the introduction of the alkaline hydrolysis process to consider other sustainable ways of recovering or disposing of the waste liquid, as alternatives to discharging to the public foul sewer network.

In terms of Water Byelaws under the requirements of Water Byelaw 5 of The Water Supply (Water Fittings) (Scotland) Byelaws 2014, anyone who is installing or altering a water supply for non-domestic purposes, has a legal obligation to notify Scottish Water before carrying out the work. Advanced notification is critical, as certain plumbing arrangements if not installed correctly are at risk of causing contamination, with the potential to impact public health. It is an offence under the Water Byelaws to install this type of machine or process to a water supply without prior consent.

Where an alkaline hydrolysis (water cremation) machine or process is connected to a water supply, there must be backflow protection to a Fluid Category 5 level, within the process or upstream. This is to safeguard and protect the water supply to the building and the wider water mains network. Fluid Category 5 is the highest fluid risk on the scale contained within the Water Byelaws.

There is no mention of the requirements to comply with the Water Byelaws within the Hydrolysis regulation [sic]. If the requirements of the Water Byelaws was included, this would help to ensure these machines are installed legally and mitigate risk to public health.”

[Organisation, other e.g. guidance, sales]

6. Next Steps and Considerations

Following the analysis of the consultation responses, the Scottish Government will now consider the proposals for regulating alkaline hydrolysis in light of the consultation findings. The results of this analysis will also be considered in conjunction with the responses received to the other three public consultations which were published in parallel in August 2023, in particular the consultation on inspection of the funeral sector which would directly impact and apply to alkaline hydrolysis providers. In addition, the Scottish Government will also continue to engage with the funeral sector and other interested parties to inform further development of the policy proposals for alkaline hydrolysis regulations.



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