SCOTTISH ENVIRONMENT PROTECTION AGENCY

RADIOACTIVE SUBSTANCES ACT 1993

Proposed Changes to Letters of Agreement covering the disposal of Radioactive Wastes from HMNB Clyde Faslane and Coulport

CONSULTATION DOCUMENT FOR DISCRETIONARY CONSULTEES AND THE PUBLIC

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1 PURPOSE OF THIS DOCUMENT

The administrative arrangements between The Scottish Environment Protection Agency (SEPA) and the Ministry of Defence (MoD) for the disposal of radioactive wastes from HMNB Clyde Faslane and Coulport have recently been reviewed. As a result SEPA intends to make a number of changes to these arrangements. The purpose of this document is to explain the changes, the context within which they are to be made and to seek the views of consultees on the proposed changes as part of a "discretionary consultation".

1.1 Application of Radioactive Substances Act 1993 to MoD

In Scotland the disposal of radioactive wastes is subject to the provisions of the Radioactive Substances Act 1993 (RSA93) and SEPA is the enforcing authority. Section 42 of RSA93 binds the Crown but makes MoD largely exempt from the provisions of RSA93. However MoD policy states that:

"where there are exemptions or derogations from either domestic or international law applicable to Defence, we introduce standards and management arrangements that produce outcomes that are, so far as reasonable practicable, at least as good as those required by legislation"[1]

In the case of RSA93 administrative arrangements are in place between MoD and SEPA such that the provisions of RSA93 are applied appropriately. The framework of these arrangements is detailed in a MoD SEPA agreement on Matters Relating to Radioactive Substances, see paper 1. The particulars of the waste disposal arrangements at a site level have historically been covered by Letters of Agreement. These Letters of Agreement are similar to RSA93 section 13 authorisations. The extant Letters of Agreement for HMNB Clyde Faslane and Coulport are included as paper 2. It is these Letters of Agreement which have been reviewed and are proposed to be changed.

RSA93 has certain requirements which are specific to sites licensed under the Nuclear Installations Act 1965 (NIA65). MoD has exemptions from NIA65 and consequently HMNB Clyde Faslane and Coulport are not licensed under NIA65. In line with the MoD policy position stated above MoD has developed its own licensing arrangements to mirror NIA65. These arrangements are enforced by MoD's internal regulator the Defence Nuclear Safety Regular (DNSR). The HMNB Clyde sites are DNSR Authorised Sites which are the MoD equivalent to NIA65 Nuclear Licensed Sites. Consequently SEPA treats these sites as if they were NIA65 Nuclear Licensed Sites.

1.2 Consultation Process

In 2012 SEPA and MoD reviewed the extant Letters of Agreement relating to radioactive waste disposals from HMNB Clyde Faslane and Coulport (hereinafter referred to as Faslane and Coulport). The review concluded that the current arrangements were broadly in line with the requirements placed on similar civil sites but identified a number of changes that were required to fully reflect current standards and practices. The structure of the extant Letters of Agreement and the nature of the proposed changes are such that it is considered necessary to reissue new letters of agreement. As discussed in section 3.4 the new agreements will be called letters of approval.. RSA93 would require consultation with statutory and discretionary consultees should such changes be proposed to an RSA93 Authorisation held by a civil nuclear sites. Therefore in line with the arrangements discussed in section 1.1 SEPA will determine the proposed changes to the HMNB Clyde

[1] Safety, Health and Environment Protection in Defence: A Policy Statement by the Secretary of State for Defence.

Letters of Agreement following a procedure similar to that applied to civil nuclear sites for significant changes to RSA93 Authorisations.
This procedure will include a staged consultation and this document supports the second stage of the consultation.

The consultation process is a three stage process.

Consultation Stage 1

In line with Section 16 (4A) of RSA93 SEPA consulted with the Health and Safety Executive (Office of Nuclear Regulation (ONR)) and the Food Standards Agency (FSA) on the need to change the existing letters of agreement before doing so. Scottish Government was consulted to mirror the arrangements in place at civil nuclear sites which allow Scottish Ministers the opportunity to exercise their powers under Section 24 of RSA93. Additionally DNSR was consulted in their regulatory capacity which is similar to that of ONR at civil nuclear sites. The responses from the first stage of the consultation are included as paper 3. No objections were raised in the initial consultation phase.

Consultation Stage 2

The second stage of the process is in line with the requirements of section 16 (5) of RSA 93 which requires that SEPA consults with such public bodies and organisations as it sees proper to consult before granting an authorisation. This stage is often referred to as the 'Discretionary Consultation'. This document presents information in support of the 'Discretionary Consultation' and seeks your comments as part of the 'Discretionary Consultation' on the proposed changes to the arrangements for radioactive waste disposals form Faslane and Coulport. The public bodies and organisations that SEPA has decided to consult with during this stage are listed below:

SEPA is specifically consulting with the following bodies:

- Scottish Natural Heritage;
- Environment Agency;
- Argyll and Bute Council
- West Dunbartonshire Council
- North Ayrshire Council
- Greater Glasgow and Clyde Health Board
- Highlands and Islands Health Board
- Scottish Water
- Public Health England
- Committee on Medical Aspects of Radiation in the Environment

In addition to those bodies listed SEPA has notified the members of the Clyde Local Liaison Committee. It is also SEPA practice to invite comment from the wider public. To this end the consultation is being advertised in:

- The Edinburgh Gazette;
- The Herald; and
- The Helensburgh Advertiser.

The consultation package also can be viewed at on SEPA's website and copies are available in at the following SEPA offices.

SEPA
Glasgow Office
Law House
Todd Campus,
West of Scotland Business Park
Maryhill Road
Glasgow
G20 0XA

SEPA
Balloch Office
Carrochan
Carrochan Road
Balloch
G83 8EG

In undertaking this consultation SEPA is looking for information relevant to this application. Specifically SEPA would like to be informed of any matters that your organisation or you as an individual are aware of that could influence SEPA's decision to make the proposed changes.

Your response to this consultation should be returned to the following addresses:

The Registrar
Scottish Environment Protection Agency
East Kilbride Office
5 Redwood Crescent
Peel Park
East Kilbride
G74 5PP

or

registryeastkilbride@sepa.org.uk

Normal practice is to allow an 8 week period for this stage of the consultation. However as this consultation period is being run over the summer it has been decided to extend the time to 12 weeks.

Responses should be made to SEPA by **20 September 2013** at the above address. Following the closing date, all responses will be considered prior to the determination of the changes.

Consultation Stage 3

The final consultation stage is consistent with the requirements of RSA93 section 17 2A. This section requires further consultation with the FSA on the terms of a variation or authorisation SEPA proposes to grant. In addition SEPA's consultation process for civil nuclear sites at this stage includes consultation with ONR under formal working arrangements and Scottish Ministers who then have powers to direct SEPA to add, remove or alter any condition or limit specified in the variation. It is SEPA's intention to replicate this consultation with regards the HMNB Clyde changes. DNSR will also be consulted at this stage.

If SEPA is minded to make the proposed changes, SEPA will document the appropriate changes along with a document (known as a "decision document") setting out SEPA's considerations and the rationale for making the changes. That document supports the final consultation with Scottish Ministers. The document will be made available on SEPA's web site

SEPA may wish to include responses to this consultation document in its decision document. If so, all responses will be made public unless a respondent specifically asks for their response to be treated confidentially. Confidential responses may be included in any statistical summary of numbers of responses received or views expressed.

Respondents should be aware that SEPA is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under that Act for information relating to responses made.

2 SEPA'S REMIT AND DUTIES

The Scottish Environment Protection Agency (SEPA) is the body responsible for environmental protection in Scotland. Its main aim is to:

> *"provide an efficient and integrated environmental protection system for Scotland that will improve the environment and contribute to the Scottish Ministers' goal of sustainable development"*

SEPA was established by the Environment Act 1995 and became operational on 1 April 1996. The Environment Act 1995 also sets out SEPA's powers and responsibilities.

In broad terms SEPA regulates:

- activities that may pollute water
- activities that may pollute air
- storage, transport and disposal of waste
- keeping, use and disposal of radioactive substances

Section 13 of the Radioactive Substances Act 1993 (RSA93) makes it an offence to dispose of any radioactive waste, or permit it to be disposed of, unless it is in accordance with an authorisation granted under that Section, or it falls into one of the categories of radioactive waste specifically exempted from the requirements of this Section. SEPA is the body in Scotland charged with granting authorisations under Section 13.

3 PROPOSED CHANGES

3.1 Background to Current Radioactive Waste Operations at HMNB Clyde

This section is intended to provide some background information to assist consultees and members of the public to understand the information provided by the Ministry of Defence following the review of the extant letters of agreement.

HMNB Clyde comprises of 2 sites: the Faslane Naval Base and the Royal Naval Armaments Depot at Coulport.

Faslane is located on the North Eastern shore of Gare Loch. Faslane is one of MoD's principal operational submarine bases. The number of submarines which operate from Faslane is scheduled to increase. The vision for Faslane is that it will become the UK's single operational submarine base and the UK Submarine Centre of Specialisation within the next 10 years. This will involve the relocation of existing submarines and the location of new submarines to Faslane. Faslane's function is to support the operation of submarines including routine maintenance and the provision of associated services. Coulport is on the eastern shore of Loch Long and is used to store conventional armaments for the Royal Navy and is the UK's Strategic Weapon Facility.

MoD has contracted out a number of the operations at both Faslane and Coulport however MoD remains in control of both sites through the Naval Base Commander and therefore the RSA section 42 exemption continues to apply.

Currently gaseous and solid radioactive discharges are made from Coulport and solid, liquid and gaseous radioactive discharges are made from Faslane. Liquid discharges are made to Gare Loch. The extant Letters of Agreement detail the arrangements for these disposals and include both limitations and conditions. The extant Letters of Agreement are given as paper 2 and the details are summarised in table 1.

Table 1 : Details of Extant Letters of Agreement for HMNB Clyde

Site	Scope of Letter	Date of Letter
Faslane	Solid Radioactive Waste	17 August 1995
Faslane	Liquid and Gaseous Radioactive Waste	18 June 1993
Coulport	Solid Radioactive Waste	9 June 1995
Coulport	Gaseous Radioactive Waste	8 December 2000

As can be seen form the Table 1 and paper 2 the letters are all older than 10 years. Since the agreements came into being there has been a number of changes most notably to radioactive waste management practices in the UK and SEPA's approach to authorising radioactive waste disposals. These factors plus the agreement of the framework document in September 2012, paper 1, prompted the review of the Letters.

As part of the review MoD were asked to review current and future operational needs in conjunction with radioactive waste disposal requirements. MoD provided information in this regard and proposed a number of changes. The relevant correspondence is available at paper 4.

It should be noted that although there are plans to increase the numbers of submarines at Faslane this does not represent any change to the nature of the radioactive waste arising although it may have an impact on the quantity of waste produced.

3.2 Proposed Changes to Faslane Agreements

3.2.1 Liquid and Gaseous Waste Arrangements

Liquid radioactive waste primarily originates from the operation of submarine reactor circuits and associated plant. Much smaller amounts arise from maintenance work and laboratories. The effluent is transported to an effluent treatment facility within Faslane where it is treated by filtration and ion exchange to remove particulate material and reduce the radioactivity. It is then discharged into the Gare Loch. In recent years the effluent treatment facility has been substantially upgraded.

Table 2 shows the limits within the existing letters of agreement, the actual disposals made over the last 5 years and the new limits proposed by MoD.

Radionuclide	**Current Rolling 12 Monthly total Limit (MBq)**	**Previous Annual Discharges (MBq)**					**MoD proposed annual limits (MBq)**
		2008	**2009**	**2010**	**2011**	**2012**	
cobalt 60	500	5	2	2.34	0.29	0.22	125
tritium	1,000,000	72,830	60,602	77,440	61,795	8003	500,000
gross beta	500	19	5	6.64	0.83	0.44	125
gross alpha	200	4	0.14	0.2	0	0.04	50

In recent years liquid discharges from Faslane have been considerably lower than the agreed limits. This in part reflects the reduced number of submarines currently home ported at Faslane. However the number of submarines is expected to increase from 5 to 14 by 2019 as the new Astute submarines come into service and the existing T-class submarines relocate from Devonport. There are some maintenance routines which are foreseeable but not done routinely that result in large amounts of effluent for treatment. These routines have not been carried out in the last 5 years which is reflected in the discharge figures. The limits set include allowance for this maintenance work. As part of the review of the Letters of Agreement MoD was asked to review the activity limits in the current Letter and projected future requirements for operations. This is discussed in further detail at paper 4. Consequently MoD has proposed substantial reductions to the agreed limits as can be seen from Table 2.

In carrying out its review MoD identified that the extant Letter extends only to the disposal of effluents which are produced by MoD at Faslane. However in reviewing operational needs MoD identified a potential need to transfer effluents from submarines operating away from Faslane. This could be whilst the submarines were at Coulport or at foreign ports. The effluents would be exactly the same as those generated by the submarine had it been at Faslane. The effluents would be transported to the radioactive effluent treatment facility at Faslane for treatment and discharge in the normal way. This process was considered by MoD in the proposed new discharge limits and therefore the substantial reduction from current limits still appropriate.

SEPA has carried out a prospective dose assessment of at the proposed limits. The resultant doses are very small and significantly below the relevant dose limits or dose constraints. This is discussed further in section 5.3 and a summary report on the assessment is given in paper 6.

The extant Letter of Agreement refers to the discharge of gaseous waste but does not provide any specific limits. There are no operations at Faslane which actively generate radioactive gaseous waste. The only possible release sources are incidental releases as a result of evaporation from the effluent storage vessels. As these systems are essentially closed systems this is low. The vessel ventilation systems are monitored and no positive results have been recorded. Therefore no radioactive gaseous releases are expected from the Faslane base.

Any gaseous releases direct from the submarine are regulated by DNSR in accordance with the SEPA MoD agreement relating to matters involving radioactive substances. See paper 1.

It is not proposed to include gaseous radioactive waste disposal in any updated Letter of Agreement and the agreements will refer only to the discharge of liquid and solid wastes. Should a discharge of radioactive gaseous waste be made then this would be outside the agreed terms.

In summary the proposed changes are:

1. Continue disposal of liquid waste to the Gare Loch but at significantly reduced limits
2. Allow for the receipt, treatment and disposal of radioactive effluents associated with supporting submarines at foreign ports or Coulport
3. The removal of agreement for the disposal of gaseous wastes from Faslane

Question : Do you have any comments on the proposed changes to the Letter of Agreement for liquid and gaseous wastes from Faslane and in particular the annual limits proposed by MoD ?

3.2.2 Solid Waste Arrangements

Solid waste arises from a number of submarine support activities including routine maintenance and the decommissioning of obsolete equipment and facilities. In recent years significant efforts have been put in place at Faslane to improve the segregation and sorting of waste which has resulted in a significant reduction in radioactive waste volumes. The extent of this reduction has been lessened by amendments to RSA93 and its associated exemption orders in 2011. The 2011 amendments introduced radionuclide specific limits for anthropogenic radionuclides such that substances containing radioactivity at levels below these limits fall out of RSA93 regulation and are said to be "out of scope". Where an out of scope substance is waste it is subject to non radioactive waste legislation. The 2011 amendments also provided an exemption for the disposal of solid waste containing very low levels of radioactivity to non radioactive waste streams following the appropriate non radioactive legislation. The radionuclide specific limit for cobalt-60, a major component of the waste, is more restrictive than the previous level which was used for releasing solid waste into non radioactive waste disposal routes.

The extant Letter of Agreement agrees to solid waste being disposed of to British Nuclear Fuels plc (BNFL) Cumbrian facilities at either Sellafield, Drigg, for subsequent disposal in accordance with their RSA93 authorisations. Following the establishment of the Nuclear Decommissioning Authority (NDA) in 2005 to oversee the clean up and decommissioning of the civil nuclear sites the ownership of the BNFL facilities at Sellafield and Drigg transferred into NDA ownership. The day to day operation of all NDA sites is carried out by a stand-alone legal entity, known as a site license company. In the case of the Sellafield and Drigg facilities these companies are currently known as Sellafield Limited and Low Level Waste

Repository Limited. Consequently this change needs to be reflected in an updated Letter of Agreement.

The background to current UK policy on the disposal of solid wastes is discussed in section 4. SEPA has produced a new policy on the regulation of low level waste disposal from nuclear sites to third parties. This policy is attached as paper 5. This policy allows for the disposal of low level waste from nuclear sites to any person that is lawfully entitled to accept the waste providing that the selected disposal option is the "best practicable means" for disposing of that waste. The Environment Agency has made similar changes in England. The "best practicable means" concept is explained further in section 5. The new policy therefore moves away from specifying a particular disposal route. SEPA believes that this policy gives operators greater flexibility for waste disposal and is therefore consistent with UK Government Policy. As discussed previously in section 1.1 SEPA treats Faslane and Coulport as if they were nuclear sites and therefore proposes that this policy is adopted in the update Letter of Agreement.

The extant Letters of Agreement apply to the disposal of Low Level Wastes (LLW) but there are further activity and volume restrictions. LLW is defined in UK Government guidance. Following their review of solid waste requirements MoD proposed overall reductions in activity levels and removal of the volume limit. As discussed in Paper 5, for LLW SEPA no longer considers it appropriate to add further activity or volume constraints.

There is no intention to allow the direct disposal of wastes directly to third parties outwith the UK.

In summary the proposed changes are:

1. Disposal of LLW wastes will no longer be restricted to named facilities within the UK.
2. Disposal of LLW by removal or transfer to a third party within the UK will no longer be restricted in terms of volume or additional activity constraints.

Question : Do you have any comments on the proposed changes to the Letter of Agreement for solid wastes from Faslane ?

3.3 Proposed Changes to Coulport Agreements

3.3.1 Gaseous Agreement

Gaseous releases from Coulport are solely tritium and are weapon related. Table 3 provides details of the current discharge limits, recent disposals and future requirements.

Radionuclide	Current Rolling 12 Monthly total Limit (GBq)	Previous Annual Discharges (GBq)					MoD proposed annual limits (GBq)
		2008	2009	2010	2011	2012	
Tritium	50	3.34	3.29	4.40	6.05	6.95	20

MoD was asked to reviewed the current discharge limit in relation to past and future operations as a consequence a substantial reduction in the gaseous discharge limit has been proposed as can be seen from table 3.

SEPA has carried out a prospective dose assessment based on the proposed figures. The resultant doses are very small and significantly below and dose limit or constraint. This is discussed further in section 5.3 and a summary report on the assessment is given in paper 6.

In summary the proposed changes are:

1. To reduce the annual rolling limit from 50GBq to 20GBq

Question : Do you have any comments on the proposed change to the Letter of Agreement for gaseous wastes from Coulport?

3.3.2 Solid Waste Agreement

The extant Letter of Agreement covers the disposal of LLW in the form of desiccant and associated items which have become contaminated with tritium. The disposal was to BNFL at Drigg via Faslane. MoD has reviewed the operational experience with the desiccant programme over the last 10 or so years in conjunction with the amendments to RSA93 and the associated exemption orders in 2011. The new radionuclide specific limit for tritium is 100Bq/g in RSA93. As explained in section 3.2.2 substances which have an activity lower than the appropriate limit fall out of RSA93 regulation and in the case of substances that are waste they become subject to non radioactive waste legislation. The review of desiccant waste showed that the majority of the waste was below the radionuclide specific limit and would be considered as "out of scope" had it been generated by a civilian operator. Therefore it is thought that much of this waste may now be suitable for disposal as out of scope radioactive waste.

MoD has also reviewed operational needs for HMNB Clyde as a whole and has identified the potential to carry out some routine maintenance work on submarines whilst they are within the Coulport facility. Whilst this would represent new work done at Coulport it is the same work as might be undertaken at Faslane. It does not represent new wastes just the same waste generated at Coulport rather than Faslane. The intention is that this waste would be transferred to Faslane where it would be fully assessed and conditioned prior to the appropriate off site disposal in accordance with the Letter of Agreement for Faslane.

As discussed in section 3.2.2 there have been significant changes to UK radioactive waste management operations since the Letter of Agreement was put in place in 2000 and also to the way in which SEPA regulates the disposal of LLW from nuclear sites.

The proposed change would allow the disposal of a wider range of LLW from Coulport to Faslane to support operational flexibility. The subsequent disposal from Faslane would be under the terms of the Faslane Letter of Agreement. There is no requirement for wastes to be disposed of from Coulport to anywhere other than Faslane. As the waste assessment facility is at Faslane it is proposed only to allow the disposal of wastes from Coulport to Faslane.

In summary the proposed changes are:

1. Broaden the definition of LLW to which the agreement applies
2. Limit disposal to Faslane for disposal in accordance with the Letter of Agreement for Faslane.

Question : Do you have any comments on the proposed change to the Letter of Agreement for solid wastes from Coulport?

3.3.3 Liquid Wastes from Coulport

As a result of the additional routine maintenance works described in 3.3.2 MoD has suggested that this may result in the generation of small quantities of liquid waste. Again this is not new waste to that which is generated at Faslane and it is intended that the waste should be transported to Faslane for onward disposal under the Faslane Letter of Agreement. This represents a new disposal route. Although there is no change to the disposal of the waste to the environment and the overall limits on liquid wastes to the environment from Faslane are still at the reduced limits.

As discussed previously SEPA's new position on the disposal of LLW from nuclear sites applies to all forms of waste and therefore applying the standard LLW conditions for transfer of waste would permit this activity.

In summary the proposed change is:

1. The disposal of LLW wastes in liquid form to be allowed from Coulport to Faslane for disposal in accordance with the Letter of Agreement for Faslane.

Question : Do you have any comments on the proposed change of adding the disposal of liquid waste from Coulport to Faslane to an updated Letter of Agreement ?

3.4 SEPA Standard Conditions

Since the extant Letters of Agreement were issued SEPA has developed a standard template for use in civil nuclear site RSA93 authorisations. A copy of this template is attached as paper 7. The new template represents a significant change in approach such that a single certificate is used to cover waste of all media thus ensuring the consistent application of conditions which are generic to all media types. In general the new template conditions are more prescriptive than those in the extant Letters of Agreement and as such are more stringent.

It is SEPA's proposal to closer align the Letters of Agreement covering the disposal of radioactive wastes from HMNB Clyde Faslane and Coulport with the RSA93 authorisations now granted to the civil nuclear sector. SEPA propose to apply similar conditions to those in its standard nuclear template to the updated Letters of Agreement.

One further change will be the move to having Letters of Approval rather than Letter of Agreement. This is in line with the arrangements in the SEPA MoD Agreement on Matters Relating to Radioactive Substances, paper 1.

In summary the proposed changes are:

1. The application of conditions similar to those granted to civil nuclear operators in RSA93 authorisations to the updated Letter of Agreement.
2. The change to calling the agreement a Letter of Approval.

Question : Do you have any comments on the proposed changes to an updated Letter of Agreement ?

3.5 Determination Process

SEPA will consider the proposed changes and arrive at its decision on whether or not to update the Letters of Agreement basing its decision upon a consideration of the following:

1. Details contained in the review of the extant letters of agreement
2. Responses from consultees and members of the public
3. Relevant Government Policy (as discussed in section 4)

SEPA will take cognisance of any changes to government policy, legislation, European Directives etc. that occur during the determination period.

If SEPA is minded to update to the Letters of Agreement, then the conditions and limitations of the Letters of Agreement will be set having due regard to any comments received during the consultation and any further information that SEPA may seek as part of its determination process.

4. POLICY AND LEGISLATIVE CONSIDERATIONS

SEPA is required to carry out its regulatory duties in accordance with international and domestic legislation and related Government policies. The following section summarises the main relevant polices and legislation that SEPA considers when determining applications for authorisation under RSA93.

4.1. Sustainable Development

In 2005 the Government published "The UK Government's Sustainable Development Strategy (March 2005), Cm 6467". This states that "*Our [UK] Strategy for sustainable development aims to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations*" and introduces five guiding principles. These are:

• Living Within Environmental Limits
Respecting the limits of the planet's environment, resources and biodiversity – to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations.

• Ensuring a Strong, Healthy and Just Society
Meeting the diverse needs of all people in existing and future communities, promoting personal wellbeing, social cohesion and inclusion, and creating equal opportunity for all.

• Achieving a Sustainable Economy
Building a strong, stable and sustainable economy which provides prosperity and opportunities for all, and in which environmental and social costs fall on those who impose them (polluter pays), and efficient resource use is incentivised.

• Using Sound Science Responsibly
Ensuring policy is developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty (through the precautionary principle) as well as public attitudes and values.

• Promoting Good Governance
Actively promoting effective, participative systems of governance in all levels of society – engaging people's creativity, energy and diversity.

In 2004 Scottish Executive issued SEPA statutory guidance made under section 31 of the Environment Act 1995 regarding Sustainable Development.

SEPA is required to consider the principles of sustainable development when discharging its duties.

4.2. Radioactive Waste Management Policy

As discussed in section 3 the current and any updated agreements include the disposal of low level radioactive waste and therefore it is important to understand current low level waste policies. Government Policy on the management of radioactive waste in Scotland is set out in a number of policy documents including Review of Radioactive Waste Policy: Final Conclusions (Cm2919), the Policy for the Long Term Management of Solid Low Level Radioactive Waste in the United Kingdom 26 March 2007 and Scotland's Higher Activity Radioactive Waste Policy 2011.

4.2.1. Low Level Radioactive Waste

Government policy on the management of radioactive waste is currently set out in the white paper "Review of Radioactive Waste Management Policy Cm 2919". This forms guidance to SEPA from UK Government on radioactive waste management issues and as such will be taken into account by SEPA as part of the determination of the application.

In March 2007 the Government issued a policy statement updating and amending parts of Cm 2919. The key aim of the statement was to provide a high level framework within which individual LLW management decisions could be taken flexibly to ensure safe, environmentally-acceptable and cost-effective management solutions that appropriately reflect the nature of the LLW concerned. The Government also requires the minimisation of waste arisings and the consideration of all practicable options for the management of LLW and has stated that there should be a presumption towards early solutions for waste management. In 2010 a further Government policy[2] was published regarding the management of solid low level radioactive waste from the nuclear industry. This reinforced the need for flexible solutions that ensure safe, environmentally acceptable and cost-effective management solutions LLW generated by the nuclear industry.

The SEPA Policy on the Regulation of Disposal of Radioactive Low Level Waste from Nuclear Sites, paper 5, discusses these government policies in detail and how they are applied by SEPA. As discussed in sections 3.2.2 and 3.3.2 of this document SEPA believes that the proposed changes are in line with the SEPA policy and are therefore also in line with Government Policy

4.2.2. Higher Active Radioactive Waste

The Scottish Government published its policy for Higher Active Radioactive Waste (HAW) in 2011. The policy is for the long term management of HAW in near surface facilities. Its aim is to ensure that all activities for the long term management of HAW are made in a way that protect the health and interests of people and the integrity of the environment now and in the future. The policy provides a framework for managing HAW in Scotland which allows for the treatment, storage and near surface disposal of radioactive waste.

The policy specifically does not apply to wastes arising from Faslane or Coulport. Additionally it should be noted that the wastes being dealt with in these agreements are low level wastes.

4.3. Article 37

As a Member State of the European Union, UK activities involving radioactive substances are governed by legislation set down under the Euratom Treaty.

Article 37 of the Euratom treaty states:

> *"Each Member State shall provide the European Commission with such general data relating to any plan for the disposal of radioactive waste in whatever form as will make it possible to determine whether the implementation of such a plan is liable to result in the radioactive contamination of the water, soil or airspace of another Member State."*

[2] UK strategy for the management of solid low level radioactive waste from the nuclear industry. NDA 2010.

For the Scottish civil nuclear sector Scottish Government decide when submissions are required to comply with Article 37 requirements. SEPA provides technical advice to Government and co-ordinates submissions on behalf of the Scottish Government.

The UK Government's position is that the Euratom Treaty does not apply to defence activities. The position was upheld in the European Court of Justice in 2004 regarding the decommissioning of a UK military test reactor and has recently been adopted with regard to the decommissioning of the Magnox reactor at Chapelcross.

4.4. OSPAR

At the 1998 Ministerial meeting of the Oslo and Paris (OSPAR) Commission, contracting parties to the 1992 Convention for the Protection of the Marine Environment of the North East Atlantic agreed an OSPAR strategy for radioactive substances. The objective of the OSPAR strategy is to prevent pollution of the maritime area from ionising radiation through progressive and substantial reductions of discharges, emissions and losses of radioactive substances.

Following public consultation in June 2000[3], the Government produced the UK strategy for radioactive discharges 2001-2020 in July 2002 which was updated in 2009. The strategy describes how the Government and the devolved administrations will implement the OSPAR strategy with regard to Radioactive Substances. Statutory guidance on OSPAR was issued to SEPA by the Scottish Government[4] in 2008. The guidance is "high level" in nature requiring SEPA to take account of OSPAR and the UK discharge Strategy for radioactive substances when issuing authorisations

Possible discharges to the marine environment are reduced as a result of the proposed changes. Therefore SEPA considers that there is no conflict with the proposed changes and the UK and OSPAR strategies.

4.5. Conservation

The Conservation (Natural Habitats & Conservation) Regulations 1994 (Habitats Regulations) implement Council Directive 92/34/EC on the conservation of natural habitats and wild flora and fauna (the Habitats Directive), and pick up and strengthen the requirements of Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). The Directive aims to establish a network of the most important sites for wildlife and maintain them at favourable conservation status. The network consists of Special Protection areas (SPAs) for birds and Special Areas of Conservation (SACs) for other species and habitats. The Habitats Regulations require SEPA to be satisfied that the integrity of designated European sites (SACs and SPAs) will not be adversely affected by relevant permissions issued by SEPA.

In addition, the Nature Conservation (Scotland) Act 2004 sets out a series of measures which are designed to conserve biodiversity and to protect and enhance the biological and geological natural heritage of Scotland. In doing so, the 2004 Act provides the principal legislative components of a new, integrated, system for nature conservation within Scotland. The 2004 Act also locates the conservation of biodiversity and of Scotland's natural environment within a wider British, European and global context.

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[3] UK Strategy for radioactive discharges 2001-2020, Department for Environment, Food and Rural Affairs, DEFRA Publications.

[4] Environment Act 1995. The UK Strategy for radioactive discharges, Statutory Guidance, February 2008. The Scottish Government.

In relation to biodiversity in particular, it requires public bodies and office-holders to consider the effect of their actions at a local, regional, national and international level. Measures relating to the protection of species and habitats also recognise the importance of the wider international context.

As a public body under Section 1 of the 2004 Act, SEPA is required to further the conservation of biodiversity when exercising its regulatory functions. As part of the consultation process, SEPA will identify any significant biodiversity interests that might be affected, and will take these into account in its decision-making. The 2004 Act also introduced tighter controls for the protection of Sites of Special Scientific Interest (SSSIs). These include stronger requirements for SEPA and other regulatory bodies to protect SSSIs through the implementation of regulatory regimes.

To fulfil the requirements of the Directive, SEPA has adopted the ERICA[5] assessment tool. The key outputs of ERICA are dose rates and risk quotients. The risk quotient is the ratio of the predicted environmental dose rate and the benchmark dose rate assumed to be environmentally 'safe'. The default benchmark in ERICA is a screening dose rate for incremental exposure of 10 $\mu Gy\ h^{-1}$. This value is considered to be sufficiently cautious that if it is not exceeded there would not be a deleterious affect on designated sites from the discharge.

SEPA carried out a dose assessment to non human species for disposals to air and water from Faslane and Coulport at the proposed new limits. The dose rates to non-human species as a result of exposure to the gaseous and liquid discharges were all predicted to be less than the screening dose rate of $10\mu Gyh^{-1}$. Therefore the exposure of non-human species to the discharges is considered to be of negligible radiological concern. The summary report is given in are presented in Paper 8.

4.6. Human Rights

The Scotland Act 1998 and the Human Rights Act 98 (HRA98) incorporate the provisions of the European Convention of Human Rights ("the ECHR") into Scots law. Under the HRA98, SEPA must consider whether its decisions in respect of authorising the disposal of radioactive wastes under RSA93 will result in any potential or actual breach of a Convention right. If SEPA does identify such a breach it must then consider whether it has the discretion to act otherwise, as its primary obligation must be to fulfil its statutory duty. Where SEPA does have discretion and the Convention right at issue is not absolute, it must then consider whether its decision is justified.

4.7. Transport

SEPA's remit in determining applications made under RSA93 does not extend to regulating the transport of radioactive material or waste. Therefore this matter is not considered further.

[5] Environmental Risk from Ionising Contaminants: Assessment and Management (ERICA). CEC

4.8. SEPA's Principles for Regulation

In order to encompass the changes currently driven by the EU, UK and Scottish policy and legislation, to reflect community expectations and to progress the requirements of SEPA's Management Statement, SEPA has developed a set of principles which are expected to be reflected in both the application determination process and an RSA93 authorisation.

The over-arching principle is that of Sustainable Development which is enshrined in SEPA's Main Aim (see Section 4.1) and has been described as:

> *"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs".*

Within this umbrella principle of Sustainable Development are contained five higher-level principles and five lower-level, or process, principles. The higher-level principles are:

1. Integrated Environmental Protection;
2. Efficiency and Effectiveness;
3. Polluter Pays;
4. Sound Science and Information; and
5. Precautionary Principle.

Together with the higher-level principles, the process principles are designed to produce outcomes in licensing, enforcement and routine matters that are both reasonable and achievable. These lower-level principles are:

1. Environmental Protection and Improvement;
2. Proportionality;
3. Fairness, Consistency and Legal Correctness;
4. Transparency and Accountability; and
5. Awareness Raising and Good Practice.

SEPA incorporates all of the above principles into its procedures for determination of applications under RSA93. By following the same procedures as it would for a RSA93 application determination SEPA considers that these principles will be applied to the proposed changes to the Letter of Agreement.

5. RADIOLOGICAL PROTECTION PRINCIPLES

The regulation of radioactive substances is based on the principles of radiation protection proposed by the International Commission of Radiological Protection in their publication ICRP 60:

- Justification
- Optimisation
- Dose Limitation

These principles have been adopted in international and national legislation regarding the control of radioactive substances. SEPA has responsibilities for ensuring that these principles are implemented appropriately and does this through the conditions and limitations it attaches to RSA93 authorisations. Paper 9, "Satisfying the ALARA Requirement and the role of Best Practical Means" provides more detail.

5.1 Justification

The requirement for justification is satisfied by the Justification of Practices Involving Ionising Radiation Regulations 2004 and is regulated by Government and is consequently not a matter for consideration in this consultation. It may be of interest to note that in 2001 in the case of the Queen and the Environment Agency v Emanuela Marchiori and NAG Ltd, The Honourable Mr Justice Turner found that the "justification test has no application in law to activities of a military nature".

5.2 Optimisation

ICRP 60 states the principle of optimisation as:

> *"In relation to any particular source within a practice, the magnitude of individual doses, the number of people exposed, and the likelihood of incurring exposures where these are not certain to be received should be kept as low as reasonably achievable, economic and social factors being taken into account."*

SEPA does have responsibilities for optimisation and was directed by Scottish Government in The Radioactive Substances (Basic Safety Standards) (Scotland) Direction 2000 to ensure that exposures to ionising radiation of any members of the public and the population as a whole resulting from the disposal of radioactive waste are kept as low as reasonable achievable, economic and social factors being taken into account.

Paper 9 provides details how SEPA discharges these responsibilities, and associated considerations, through the application of Best Practical Means (BPM). It provides clarity on what is meant by BPM and how SEPA uses it to keeping ionising radiation exposures to the public as low as reasonably achievable (ALARA). It is now standard practice to define BPM and include conditions requiring the application of BPM in RSA 93 authorisations. These conditions are:

1. minimise of the volume and activity of radioactive waste generated
2. minimise of the total activity of radioactive waste that is discharged to the environment
3. minimise the radiological effects of radioactive discharges on the environment and members of the public.

The standard conditions and can be seen in our standard template document at paper 7.

BPM is not a new concept but there have been subtle differences to what it has meant and how it has been applied over the years. The extant letters of agreement all include BPM requirements but these requirements generally only extend to the minimisation of the volume and activity of the radioactive waste generated. As discussed previously SEPA now uses BPM in a wider context and it is proposed that the updated Letters of Agreement reflect this.

5.3 Dose and Risk Limits

Exposure to ionising radiation can cause cancer and hereditary defects. The higher the radiation dose, the greater the likelihood or risk that a cancer or hereditary defect will develop. But, apart from very high levels of radiation dose, there is no certainty that an individual exposed to radiation will suffer a health effect. The dose/risk relationships have been determined by studies on various groups that have been exposed to radiation, predominantly survivors of the atomic bombs in Japan and certain medical patients.

There is little evidence that very low doses of radiation can cause harm. However, the approach taken in radiation protection errs on the side of caution by assuming that there is no dose so low that it cannot potentially cause harm and there is no absolutely safe threshold of radiation dose below which the risk may approach zero. In the present state of knowledge it is appropriate to assume an increasing risk with increasing dose. This approach is accepted by the ICRP and by national bodies such as Health Protection England.

The Radioactive Substances (Basic Safety Standards) (Scotland) Direction 2000 requires SEPA when discharging its functions in relation to the disposal of radioactive waste under RSA 93 to ensure that the dose limits for members of the public set out in Article 13 of Council Directive 96/29/EURATOM are not exceeded. The dose limit is set at 1 millisievert in a year (excluding medical irradiation) which is estimated to equate to a risk of death from fatal cancer of 1 in 20,000. The Direction to SEPA also requires that the contribution to public dose arising from the authorised radioactive discharges of any one new nuclear installation should be constrained to a maximum of 0.3 millisievert in a year which equates to a risk of approximately 1 in 66,000. In addition where a number of nuclear facilities are adjacent, possibly owned by different organisations, an overall site constraint of 0.5 millisievert (a risk of 1 in 40,000) will be applied. Additionally SEPA is required to ensure that reasonable steps are taken such that the contribution to the exposure of the population as a whole from practices is kept as low as reasonably achievable, economic and social factors being taken into account.

SEPA has conducted a prospective dose assessment at the proposed discharge levels using the PC Cream model. The prospective dose from gaseous discharges at both Coulport and Faslane was $<1 \times 10^{-6}$ millisievert. Further details of the assessment are given in paper 6. The calculated prospective dose is very low and well below the dose constraint of 0.3 millisievert.

Additionally SEPA has a routine environmental monitoring programme around nuclear sites which estimates the dose to the public from all sources, including historical discharges and the effects of Sellafield. The doses are calculated from monitoring locally produced food, the local environment, modelling data and information on the habits of people living near to the sites. The most recent results are from 2011. The total dose at HMNB Clyde from all pathways and sources of radiation was assessed to be <0.5 microsievert. These results are published annually in Radioactivity in Food and the Environment (RIFE) and can be found on SEPA's website at http://www.sepa.org.uk/radioactive_substances/publications/rife_reports.aspx.

6 RADIOACTIVITY AND RADIATION UNITS AND QUANTITIES

Radioactivity may be defined as the process of disintegration or transformation of unstable atoms which leads to the emission of ionising radiations. The unit used to express the quantity of radioactivity present is the becquerel. One becquerel (Bq) is equal to the disintegration or transformation of one atom every second. One becquerel is a small quantity of radioactivity and it is normal to deal in large multiples such as those listed below.

kilobecquerel (kBq) ..... one thousand (10^3) becquerels

megabecquerel (MBq) ..... one million (10^6) becquerels

gigabecquerel (GBq)..... one billion (10^9) becquerels

terabecquerel (TBq)..... one thousand billion (10^{12}) becquerels

The basic unit of radiation dose is the gray (Gy). This is a unit of absorbed dose and is a measure of the amount of energy deposited in a material, such as tissue, by radiation passing through it. When passing through tissue some radiations deposit their energy in a more biologically harmful way than others. In order to take account of this effect a unit of dose equivalent known as the sievert (Sv) is used. The sievert is related to the gray by a simple weighting factor for each type of radiation. One sievert is a large unit of radiation dose. Radiation doses to members of the public are usually measured in small fractions of a sievert such as those listed below.

millisievert (mSv)..... one thousandth (10-3) of a sievert

microsieverts (μSv) ..... one millionth (10-6) of a sievert

7 SUPPORTING PAPERS

Paper 1: SEPA MOD Agreement on Matters Relating to Radioactive Substances, September 2012
Paper 2: Extant Letters of Agreement for HMNB Clyde Faslane and Coulport
Paper 3: Response from Stage 1 Consultation
Paper 4: Correspondence Relevant to the Review of Letters of Agreement
Paper 5: SEPA Policy on the Regulation of Disposal of Radioactive Low Level Waste from Nuclear Sites, May 2012
Paper 6: Dose Assessment
Paper 7: Standard Nuclear S13 Template
Paper 8: Erica Assessment
Paper 9: Satisfying the ALARA requirement and the role of Best Practical Means