

# Permitting decisions

## Radioactive Substances Regulation (nuclear sites)

We have decided to grant the approval for HMNB (Devonport) operated by the Secretary of State for Defence. The decision is effective from 08/03/22.

The approval number is LB3730DK

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

### Purpose of this document

This decision document provides a record of our decision making process. It summarises the decision making process to show how we have taken all relevant factors in to account, in reaching our decision.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

The permitting decisions need to be read in conjunction with the environmental approval and supporting Compilation of Environment Agency Requirements (CEAR) document. The introductory note summarises what the permit covers.

### Key issues of the decision

The application requests a new disposal route for HMNB Devonport, direct to the River Tamar/Hamoaze, for rainwater that may contain low concentrations of tritium (and lower concentrations of other radionuclides). That radioactivity (if any) is currently discharged indirectly to the Hamoaze after passing through the Effluent Treatment Plant operated by Devonport Royal Dockyard Limited.

The key issues for the decision document are:

- Has the operator demonstrated that they have used Best Available Techniques (BAT) to minimise the risk of radioactivity contaminating the rainwater? The application specified works to minimise this risk. That work is not complete, so we have made use of the new disposal route conditional on completing those works and demonstrating that they are effective.
- For any rainwater that becomes contaminated, does the proposal represent Best Available Techniques (BAT)? We consider that the operator has made a sufficient demonstration of BAT for disposal of rainwater subject to the concentration and total activity limits specified in the application.

- Is the radiological impact of the proposed discharge acceptable? We have previously determined that current discharges have an acceptable radiological impact. We are satisfied that the increase in radiological impacts arising from this new discharge, for both human and wildlife impacts, are well below the thresholds that would require further assessment. It is important to note that while this variation allows a small new discharge from HMNB Devonport, in practice there will be a matching small reduction in actual discharges from the DRDL site.

We have therefore determined that the application complies with the Environment Agency's requirements and have varied the approval as requested by the operator.

## Confidential Information

A claim for commercial or industrial confidentiality has not been made.

## Consultation

The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our statement on public participation, "[Environmental Permits: When and how we consult](#)" and our internal guidance on categorisation of nuclear permit applications for consultation purposes.

The application was publicised on the GOV.UK website.

The application was advertised on the Citizen Space website from 29 June to 27 July 2021.

We also supported a remote meeting (on Microsoft Teams) organised by HMNB (Devonport) to discuss the application with local stakeholders on 9 September 2021, specifically to explain the Environment Agency's decision making process.

We consulted the following organisations:

UK Health Security Agency (previously Public Health England)

Food Standards Agency

Natural England

Department of Business, Energy and Industrial Strategy (BEIS)

Committee on Medical Effects of Radioactivity in the Environment (COMARE)

Office for Nuclear Regulation

Defence Nuclear Safety Regulator

The comments and our responses are summarised in Annex 1.

## Part 1: Variation for the disposal of radioactive waste

### Introduction

Submarines moored at the Tidal X Berths (TXB) at HMNB (Devonport) are able to transfer aqueous radioactive waste into the TXB effluent receipt system. This effluent receipt system is operated under the approval held by HMNB (Devonport). The waste is stored in three pairs of tanks until it is transferred to the adjacent site operated by Devonport Royal Dockyard Limited (DRDL). DRDL processes the waste in its own Effluent Treatment Plant (ETP) to remove radioactive contaminants before discharging the treated effluent to the River Tamar/Hamoaze under DRDL's own permit.

Each pair of effluent receipt tanks sits within a sealed underground pit which provides secondary containment to protect against possible leaks from the tanks. Current practice is to transfer any liquid that collects within those pits into the effluent tanks. Irrespective of radioactive contamination, any liquids in the pits is treated in, a precautionary manner, in the same way as effluent from submarines.

These underground pits are enclosed within buildings to prevent the entry of rainwater, but rainwater does nevertheless permeate into the pits. Tritium, in the form of tritiated water, is occasionally detected in the liquid in the pits, as are trace amounts of other radionuclides. There is no provision within the approval held by HMNB (Devonport) to discharge rainwater from these pits other than by transfer to DRDL.

DRDL's ETP uses filtration and ion exchange to treat radioactive effluent. Neither technique removes tritiated water. The transfer of rainwater contaminated with tritium (or of radiologically clean water) to DRDL's ETP serves no environmental purpose.

The application is to vary the approval held by HMNB (Devonport) so as to allow the direct discharge of water from these pits into the River Tamar/Hamoaze. On every occasion the rainwater will be checked for the presence of radiological and conventional contaminants. Direct discharge will only take place if radiological contaminants are below specified low concentration limits and controls on conventional contaminants are also met. If levels of radioactivity or conventional contaminants exceed specified values, the rainwater will be transferred to DRDL for effluent treatment.

It is important to note that while the application represents an additional discharge route for HMNB Devonport, there is a matching reduction in discharges from the adjacent premises of DRDL. There will be no significant difference in the aggregate discharges from Devonport Dockyard as a whole.

### Application Questions

The applicant is required to answer a number of questions in the forms that were submitted as part of the application. We have addressed them as described below. For each named topic, the term in brackets identifies the part of the application form and the numbered question within that form

### Justification (RSR-A, Q11)

Justification is not required, as the work relates to the use of radioactive substances on the premises by the armed forces or the Ministry of Defence.

## **The Transboundary Radioactive Contamination (England) Direction 2020 (RSR-C3, Q2c)**

This direction does not apply to military sites or activities.

### **Operator and Operator Competence (RSR-A, Q12)**

We have assessed the applicant's competence against our guidance on the definition of legal operator for environmental permits and against our guidance on management arrangements for nuclear site operators.

We are satisfied that the applicant is the person who will have control over the operation of the facility after the grant of the permit.

We have not identified any reasons indicating that the operator is unable to operate in accordance with the permit.

### **Disposal of Radioactive Waste (RSR-C3, Q2d)**

HMNB (Devonport) provided a Best Available Techniques (BAT) assessment as part of the application, reference BAT/EPR/LB3730DK/2021-01.

We have assessed whether the applicant's proposals demonstrate BAT under the following topics:

- Creation of radioactive waste

There are existing arrangements to ensure that the effluent receipt tanks themselves are maintained in good condition so as to prevent any leaks from the tanks. They include level monitoring and alarm arrangements for levels in the sump pits, and sampling and testing of the contents of the sump pits before every transfer into the effluent tanks and onwards transfer to DRDL.

Our assessment therefore considers whether the applicant has demonstrated Best Available Techniques for the minimisation of both volume and activity in the specific waste stream arising from the accumulation of potentially contaminated rainwater collecting in the TXB effluent tank sumps. Unless and until the rainwater in the sump pits is contaminated with radioactivity, it is not radioactive waste.

The applicant has detailed measures already taken to prevent rainwater entering (a) the "made ground" of the wharf side and into the sump pits and (b) directly entering the sump pits. The application further committed the operator to thoroughly cleaning the inside surface of the sump pits to remove any possible historic dirt and debris. The work to clean and reseal the pits is not complete, so we have included pre-operational measures in Table S1.3B. This will require written confirmation that re-sealing of sump pits is complete before the first disposal to river can take place. These measures apply to the three sumps individually, that is, each will require its own written confirmation that the re-sealing is complete.

The applicant has explained that the TXB effluent tanks are ventilated through High Efficiency Particulate Air (HEPA) filters, outside of the buildings enclosing the effluent

tanks and sumps. This is an approved discharge route to air. The filters minimise releases of radioactivity to air from the tanks. The external location of the discharge points will minimise the possibility of tritium, which has been lawfully discharged to air, contaminating rainwater that subsequently enters the sump pits.

We acknowledge that tritiated water – the form in which tritium has been found in the sump pit water in the past – is extremely mobile so that it is not possible to completely prevent it migrating into any rainwater that is able to enter the sump pits.

We are therefore satisfied that the operator has demonstrated BAT for the minimisation of both volume and activity in this waste stream.

- Waste management options

The applicant identified in its annual BAT Review that its current arrangements for this waste required review. That led to an assessment of options for disposal of this aqueous waste. We acknowledge that all the options available were constrained by the absence of available techniques for the separation of low concentrations of tritiated water (HTO) from “normal” water (H<sub>2</sub>O) – the two substances are chemically identical and physically very similar.

We are satisfied that the applicant considered a suitable range of available techniques for the disposal of this waste. All the options considered were for batch (rather than continuous) disposal because the water ingress depends on rainfall levels and is pumped out on a batch basis. Each batch of sump pit water will be tested before disposal for all of the options.

The three available options for disposal of the sump pit water were

1. Do nothing – continue with disposal via DRDL’s ETP, which itself discharges to the River Tamar/Hamoaze
2. Dispose of the water direct to surface water drainage, which discharges to the River Tamar/Hamoaze
3. Dispose of the water to foul sewer, which connects to Camel’s Head Sewage Treatment Works which itself discharges to the River Tamar/Hamoaze

If the batch testing showed levels of radioactivity, or conventional contaminants, above defined limits, the effluent would use the existing transfer route to DRDL. These constraints would be the same for options 2 and 3.

It is important to note that disposal of the water to foul sewer would face a similar problem to disposal to DRDL. The Camel’s Head sewage treatment works, like every similar facility, does not remove tritiated water from ordinary water. So the tritium present would still enter the River Tamar/Hamoaze.

The applicant used a qualitative assessment process where the three options were simply ranked for each aspect of the assessment. The scores for each aspect were not weighted i.e. they were considered equally important. Given that each of the options had a very low radiological impact, we are satisfied that this simple qualitative assessment was sufficient.

### **Disposal Routes and Limits (RSR-C3, Q2d)**

The proposed new disposal route will require changes to both physical infrastructure and written arrangements. These are under the control of the applicant. The necessary sampling and testing arrangements will continue to be carried out by DRDL acting as a contractor working for HMNB (Devonport). The decision on how to dispose of any effluent batch – either direct to the River Tamar/Hamoaze or by pumping into the effluent tank for onward transfer to DRDL, will be made by HMNB (Devonport).

We are satisfied that the discharge limits proposed by the applicant are proportionate to the likely levels of activity to be found in this waste stream. Operation at those limits will have a very low radiological impact and will not represent a material change to the discharges that are permitted for Devonport Dockyard as a whole.

### **Monitoring (RSR-C3, 2d)**

We are satisfied that the applicant has existing arrangements for sampling and assessment of liquids in these sumps. These will be revised to reflect their role in the new decision-making process i.e. whether the water can be discharged to river or has to be pumped into the effluent tanks before onward transfer to DRDL for treatment.

We will introduce check monitoring of rainwater in the sumps by our independent contractor. This will provide reassurance that the analysis carried out on behalf of HMNB (Devonport) is suitable and sufficient to ensure compliance with the concentration limits specified in the application.

### **Radiological Assessment (RSR-C3, 2d)**

The applicant's assessment uses the Initial Radiological Assessment Tool, version 2 (IRAT2), provided by the Environment Agency, which we are satisfied is a cautious screening tool. We have used the same model to check the applicant's results and our results are in agreement.

In the following discussion we have considered both the impacts from the proposed new discharge from HMNB (Devonport) and that discharge in combination with the existing permitted discharge from DRDL.

We assess doses to members of the public from discharges at the limits set out in the permit and compare them with the criteria specified in Schedule 23 Part 4 Section 1 of the Environmental Permitting Regulations 2016. The current criteria are:

- the source constraint of 300 microsieverts per year ( $\mu\text{Sv}/\text{y}$ )
- the site dose constraint of 500  $\mu\text{Sv}/\text{yr}$
- the public dose limit of 1000  $\mu\text{Sv}/\text{yr}$

Public dose considerations:

- Where IRAT2 predicts a dose to the representative group that is below 10  $\mu\text{Sv}/\text{year}$ , we do not require the applicant to carry out further work to reduce the dose, so long as we are satisfied that they are using BAT.

- The predicted dose to the representative group (fishermen) arising from the new discharge point is 0.01  $\mu\text{Sv}/\text{year}$ , and the predicted dose to this group from Devonport Dockyard as a whole (HMNB+DRDL) is 10  $\mu\text{Sv}/\text{year}$ .
- This is well below the public dose limit of 1,000  $\mu\text{Sv}/\text{year}$  and the source dose constraint of 300  $\mu\text{Sv}/\text{year}$ .

#### Wildlife dose consideration

- Where IRAT2 predicts a wildlife dose that is below 1  $\mu\text{Gy}/\text{hour}$ , we do not require the applicant to carry out further work to reduce the dose, so long as we are satisfied they are using BAT.
- The predicted dose to coastal wildlife from the new discharge point is 0.00004  $\mu\text{Gy}/\text{hour}$  and the coastal wildlife dose from discharges arising from Devonport Dockyard as a whole is 0.06  $\mu\text{Gy}/\text{hour}$ .
- This is well below the level of 40  $\mu\text{Gy}/\text{hour}$  which is the threshold above which we formally consult with Natural England regarding potential impacts to protected wildlife.

At this very low level we do not therefore expect an adverse impact on any designated Natura 2000 (i.e. Special Protection Area, Special Area of Conservation).

#### Receipt of waste (RSR-C3, 2d)

The application only considers the management of existing wastes – it does not include any proposals to receive new wastes.

#### Non-radiological issues

The water that will be discharged to river is rainwater. The pre-discharge testing process will include an assessment of whether pH, suspended and dissolved solid levels are within ranges consistent with rainwater, and to confirm that there is no visible oil. We are therefore satisfied that standard condition 2.3.7 is sufficient to control non-radiological impacts from any direct discharges to river.

#### Other

No additional matters were identified that require assessment before determination of this application.

#### Growth Duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty

establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

## Decision

We conclude that that the operator can operate in accordance with the approval conditions to meet statutory requirements and the requirements of Government policy. We therefore grant the application, subject to the conditions of the approval.



## Annex 1: Consultation and advertising responses

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

### Responses from organisations/individuals listed in the consultation section

<b>Response received from</b>
Committee on Medical Aspects of Radiation in the Environment (COMARE)
<b>Brief summary of issues raised</b>
<ol style="list-style-type: none"> <li>1. Will the EA seek assurances on the cleaning of pit sumps and the resealing of sump surfaces?</li> <li>2. What is the currently assumed chemical form of the tritium found in the rainwater?</li> <li>3. The BAT assessment is well written and describes the situation clearly. The explanations are clearly laid out and conclusions justified, assuming that the source term and other applied data are correct. The calculations and proposed limits appear valid, leading to an extremely small increase in potential radiation dose to the public.</li> <li>4. In conclusion, the COMARE Authorisations Working Group have no opposition to this application</li> </ol>
<b>Summary of actions taken or show how this has been covered</b>
<ol style="list-style-type: none"> <li>1. We have included pre-operational measures for future development in Table S1.3B which require confirmation that cleaning of pit sumps has been completed before the new disposal route can be used. This applies to each sump pit individually.</li> <li>2. We have confirmed with the applicant that previous investigations have shown that the tritium present is more than 99.95% tritiated water so we are satisfied that the discharge can be modelled as such rather than as organically bound tritium.</li> </ol>

<b>Response received from</b>
UK Health Security Agency (previously Public Health England)
<b>Brief summary of issues raised</b>
UKHSA are satisfied that their issues were adequately addressed by the COMARE response.
<b>Summary of actions taken or show how this has been covered</b>
Refer to response from COMARE

<b>Response received from</b>
Office for Nuclear Regulation
<b>Brief summary of issues raised</b>
The ONR confirmed that it had no comments
<b>Summary of actions taken or show how this has been covered</b>
N/A

<b>Response received from</b>
Defence Nuclear Safety Regulator
<b>Brief summary of issues raised</b>
The DNSR confirmed that it had no comments
<b>Summary of actions taken or show how this has been covered</b>
N/A

<b>Response received from</b>
Department for Business, Energy & Industrial Strategy
<b>Brief summary of issues raised</b>
BEIS confirmed that it had no comments
<b>Summary of actions taken or show how this has been covered</b>
N/A

<b>Response received from</b>
Food Standards Agency
<b>Brief summary of issues raised</b>
“The FSA have considered the information provided and the proposed changes to the aquatic discharges. We have conducted a dose assessment and concluded that the applied for discharge limits at HMNB Devonport are well below the 300 micro Sievert per year site constraint. We are therefore content that this application does not represent a significant risk to human health via the food chain.”
<b>Summary of actions taken or show how this has been covered</b>
N/A

<b>Response received from</b>
Natural England
<b>Brief summary of issues raised</b>
“Natural England broadly draws the same conclusions on potential environmental impacts as the Environment Agency have, based on the information that the EA and Devonport HMNB have submitted. The margins of safety look considerable, even considering possible background values and the lower end of range Derived Consideration Reference Levels (DCRLs) for some taxa.” Natural England asked for clarification on a number of detail points relating to how the Environment Agency assesses radioactive discharges and their potential impact on protected habitats and species.
<b>Summary of actions taken or show how this has been covered</b>
We wrote back to Natural England to provide the clarification they requested. Natural England subsequently that they were satisfied with our explanation of how we had taken into account their detail queries.

<b>Response received from</b>
Luke Pollard MP
<b>Brief summary of issues raised</b>
<ul style="list-style-type: none"> <li>• What testing will be carried out to ensure that levels are properly managed in the river?</li> <li>• What procedures will be put in place as conditions of the licence to ensure radioactive contaminants are not aggregating or affecting local habitats?</li> <li>• What material improvements can be made to the dockside facilities to reduce the amount of potentially contaminated rainwater being generated and thus released into the river?</li> <li>• The arrangements for communication about this variation were not satisfactory – the Environment Agency needed to have engaged better with the public about this and needs to do so for any future activities.</li> <li>• Regular testing of the local marine habitat should be an additional requirement of the release to ensure that levels are minimal and that there is no aggregation or collection of radioactivity in the water column, river and seabed and in local marine and coastal habitats. I am sure existing licences require such testing, but I believe such conditions are necessary in building public understanding and support for any decision.</li> </ul>
<b>Summary of actions taken or show how this has been covered</b>
<ul style="list-style-type: none"> <li>• All batches of rainwater will be tested by the Operator for concentrations of the radionuclides and for conventional parameters specified in the application. Only if the concentration are below specified limits will discharges be made to river. The Environment Agency will use an independent monitoring contractor to carry out spot checks and provide reassurance about the radiological analysis used to decide whether discharges are made to the river (or not).</li> <li>• There is an existing requirement in the permit held by Devonport Royal Dockyard Ltd (DRDL), which shares the Dockyard with HMNB (Devonport), to carry out an environmental monitoring programme. The results are reported annually to the Environment Agency. The Ministry of Defence also carries out environmental monitoring around Devonport, the results of which are made available to the Environment Agency, but that monitoring is not a condition of the approval. Environmental monitoring for radioactivity is also carried out independently and made available in the annual reports on Radioactivity in Food and the Environment (RIFE), the most recent being available here: <a href="https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/91111/rife-2020-report.pdf">Radioactivity in Food and the Environment, 2020 (publishing.service.gov.uk)</a> These reports have not identified any aggregation of radioactivity in local habitats. We therefore consider that existing environmental monitoring arrangements are sufficient.</li> <li>• The Operator has already committed themselves in the application to further efforts to reduce the ingress of water into the effluent tank sump pits. We will review progress with these improvements as part of a planned inspection against the requirements of the approval during 2022/23.</li> <li>• We acknowledge concerns about the communication of this variation. We will work with HMNB (Devonport) to improve future public engagement.</li> <li>• As noted above, the permit for DRDL requires an environmental monitoring programme. This includes sampling of river water, river sediment, seawater, seaweed, fish and mussels. Similar sampling takes place in the RIFE programme. The range of testing for radioactivity, and the consistently low reported results, provides reassurance the radioactivity is not accumulating in local marine and coastal habitats.</li> </ul>

## Representations from community and other organisations

Note that where the representation included matters that are outside the scope of the determination of this application, those matters have not been addressed below

<b>Response received from</b>
West Country Rivers Trust
<b>Brief summary of issues raised</b>
<p>Discharging untreated surface rainwater, even if it contains low level radioactive contaminants, directly into the Tamar estuary increases the chronic impacts to this European designated Special Area of Conservation.</p> <p>If surface rainwater can be completely isolated from operations discharge of this component directly to the river is acceptable.</p> <p>If approval is granted we would want to see regular testing to confirm the levels do not vary over time and that management structures are in place to deal with acute events or accidents that could wash into the river.</p> <p>Additionally, it is unclear if the current surface water generated during high rainfall events overloads the treatment mechanism to the point of untreated discharge. If this is the case and it has been an historically accepted approach to manage storm flows it would strengthen the EA case as the net discharge may well be less. This is not clear though."</p>
<b>Summary of actions taken or show how this has been covered</b>
<p>Our cautious radiological assessment shows that impact on the Tamar Estuary, of radioactive discharges from the Dockyard as a whole, is well below the level which might cause any adverse effects on protected wildlife. The change arising from this variation increases the impact of those discharges by about 0.1%</p> <p>All discharges that will be allowed as a consequence of this variation will be tested first. We will review the results to ensure compliance with the activity limits specified and share our inspection findings with the Devonport Local Liaison Committee.</p> <p>For clarity, high rainfall events do not lead to untreated discharges. We are satisfied that there is adequate effluent storage capacity available.</p>

<b>Response received from</b>
British Sea Kayaks
<b>Brief summary of issues raised</b>
<p>This will create a perception with the public that they could be placing themselves in a harmful situation, such as the from accidental ingestion of sea water, while taking part in a wide variety of leisure activities in the waters around the Dockyard, particularly in kayaks and other human-powered vessels. This will detract from the enjoyment and health benefits of this form of exercise. This perception of harm from radioactive waters may also adversely affect local commercial paddle sport organisations.</p> <p>What are the impacts on wildlife in the Tamar which is an AONB and valuable wildlife habitat?</p> <p>Why can HM Dockyard increase the general level of radiation in the waterways surrounding Plymouth (affecting all who use it) in order to reduce levels in the dockyard itself? This appears to be shifting risk from employees, who are recompensed for the risks to which they are exposed, to the wider population and wildlife.</p>
<b>Summary of actions taken or show how this has been covered</b>
<p>The Environment Agency uses a very cautious screening tool for radiological risk assessment. That assessment discounts ingestion of seawater because people spit it out and very, very little is actually swallowed. The population group likely to receive the highest dose arising from Dockyard's discharges to river are coastal fishermen (or women). People undertaking leisure activities and even those in commercial paddle sport businesses are not anticipated to spend as much time in/on the water as those</p>

engaged in fishing. The increase in dose to the coastal fishermen group arising from the variation is 0.01  $\mu\text{Sv}/\text{year}$  and the total dose to this group from the Dockyard as a whole is 10  $\mu\text{Sv}/\text{year}$ . This is very small compared to the dose constraint of 300  $\mu\text{Sv}/\text{year}$ .

Our cautious radiological assessment shows that impact on the Tamar Estuaries Complex Special Protection Area and the Plymouth Sound and Estuaries Special Area of Conservation Tamar Estuary, of radioactive discharges from the Dockyard as a whole, is well below the level which might cause any adverse effects on protected wildlife. The change arising from this variation increases the impact of those discharges by about 0.1%

The proposed discharge, at permitted limits, will have a very small impact on dose to public and wildlife. In practice the net change will be almost zero, because the tritium that will be discharged direct to the Hamoaze would have been discharged to the same place indirectly, via DRDL's effluent treatment plant.

<b>Response received from</b>
Plymouth Swim Collective
<b>Brief summary of issues raised</b>
Opposed to "this dumped in our backyard, where we share the water with so much marine life."
<b>Summary of actions taken or show how this has been covered</b>
Our radiological impact assessment demonstrates that potential impacts on the public and wildlife are, respectively, well below public dose limits and levels at which adverse impacts on wildlife are foreseeable.

<b>Response received from</b>
Firestone Freezer
<b>Brief summary of issues raised</b>
Potential impacts on water ecology, health of people, marine life and the wider environment. In particular is the potential impact greater for regular swimmers and is there a bioaccumulation effect in marine organisms and sediments.
<b>Summary of actions taken or show how this has been covered</b>
Our radiological impact assessment demonstrates that potential impacts on the public and wildlife are, respectively, well below public dose limits and levels at which adverse impacts on wildlife are foreseeable. Existing monitoring arrangements for both sediments and fish/seafood do not show evidence of accumulation of radioactivity over time.

<b>Response received from</b>
Healthscape CIC Plymouth
<b>Brief summary of issues raised</b>
Concerns about poor water quality and its impact on people who swim in seawater and on marine diversity.
<b>Summary of actions taken or show how this has been covered</b>
Our radiological impact assessment demonstrates that potential impacts on the public and wildlife are, respectively, well below public dose limits and levels at which adverse impacts on wildlife are foreseeable.

<b>Response received from</b>
Swimmers at Firestone Bay
<b>Brief summary of issues raised</b>
Objection to any more radionuclides being discharged to the River Tamar by the MOD.
<b>Summary of actions taken or show how this has been covered</b>
There will be no net increase in discharges of radioactivity to the River Tamar because the direct discharges from HMNB (Devonport) will replace indirect discharges from DRDL

<b>Response received from</b>
N.G.O. Save Our Lakes and Coastal Environment.
<b>Brief summary of issues raised</b>
How did the rainwater become contaminated with radioactivity? What is the concentration and is that allowed under government policy? Will the contamination of rainwater lead to seagulls, other birds or rodents spreading the radioactivity? How is the radioactivity affecting the river mud adjacent to the Dockyard and fish which swim through the river for either people or natural predators to eat?
<b>Summary of actions taken or show how this has been covered</b>
The rainwater is understood to become contaminated with radioactivity in two ways. Tritium is released to air through approved ventilation routes and then absorbed by rain, which then enters the ground and migrates into the sump. Tritium is exceptionally mobile and may also migrate through the tank and pipes serving the Tidal X-Berth effluent receipt tanks. The concentrations of radioactivity that will be permitted for discharge are specified by the Operator in the application (<10 Bq/cm <sup>3</sup> tritium, <0.1 Bq/cm <sup>3</sup> gross beta, <0.1 Bq/cm <sup>3</sup> Cobalt-60) with annual quantity limits set in Table S3.2 of Schedule 3 to the varied approval. Government policy sets limits on the radiological impact on the public rather than discharges to the environment. This is addressed in the Radiological Impact section of the main body of this Decision Document. Our radiological assessment confirms that this variation makes an extremely small change to the impact on people and wildlife (some of which lives in the river sediment). The radiological impact from the Dockyard as whole is well within government policy limits (for people) and levels which ensure no adverse effects on protected wildlife. The contaminated rainwater is within enclosed spaces and therefore not accessible by birds or rodents.

<b>Response received from</b>
Water Automation Technology
<b>Brief summary of issues raised</b>
Concern that the global eco-system is affected by any toxic pollutants, which should be reduced and then stopped. Any licensing of discharges should be tightened not loosened.
<b>Summary of actions taken or show how this has been covered</b>
The limits set for discharges to river in the varied approval are very low and we are satisfied that the proposed disposal route represents Best Available Techniques.

<b>Response received from</b>
Devonport Royal Dockyard Limited
<b>Brief summary of issues raised</b>
DRDL supports the position that the continued processing of rainwater with traces of radioactivity is grossly disproportionate to the extremely small environmental impact of discharging directly to the river. It therefore follows that processing of this rainwater prior to discharge does not represent the best available technique.
<b>Summary of actions taken or show how this has been covered</b>
N/A

<b>Response received from</b>
Calstock Boatyard
<b>Brief summary of issues raised</b>
<p>Concern about the existing amounts of nuclear discharge that are being put into the Tamar, that these have not been independently tested and this additional discharge will be more detrimental to the inhabitants of the Tamar - both humans and wildlife. Particular mention of the protected wildlife sites in the River Tamar.</p> <p>Concern about radioactive contaminants in the river sediments, given that people work in close proximity to the shores of the River Tamar and Plymouth Sound.</p> <p>The response includes questions about nuclear submarines which are outside the scope of the determination of this application.</p> <p>Is there independent testing of all vulnerable and protected areas?</p>
<b>Summary of actions taken or show how this has been covered</b>
<p>All radioactive discharges to the River Tamar will be individually tested by the Operator to ensure compliance with the approval.</p> <p>We will make arrangements for periodic check monitoring of the rainwater, by an independent contractor working on behalf of the Environment Agency, to confirm compliance with the arrangements for this new discharge route.</p> <p>There are existing arrangements to monitor the environment around the Dockyard for radioactivity. These are carried by separately by the Ministry of Defence, Devonport Royal Dockyard Ltd and an independent contractor working on behalf of the Environment Agency.</p> <p>Our radiological impact assessment demonstrates that potential impacts on the public and wildlife are, respectively, well below public dose limits and levels at which adverse impacts on wildlife are foreseeable. For wildlife that assessment focusses on the Tamar Estuaries Complex Special Protection Area and the Plymouth Sound and Estuaries Special Area of Conservation. Other designated wildlife sites mentioned in the response are either within one of these sites or further away from the Dockyard and therefore will be as well protected.</p>

<b>Response received from</b>
PEAR Core
<b>Brief summary of issues raised</b>
We see no good reason to stop the present treatment of radioactive rainwater contaminated on the nuclear submarine base.

<b>Summary of actions taken or show how this has been covered</b>
We are satisfied that the Operator has established that the current treatment of rainwater contaminated with tritium is not effective. We are satisfied that the proposal represents Best Available Techniques.

<b>Response received from</b>
Maker with Rame Parish Council

<b>Brief summary of issues raised</b>
<ol style="list-style-type: none"> <li>1. Is the MOD position that, because the Dockyard Effluent Treatment Works are not capable of removing the radioactivity, there is no value in this water going through the treatment?</li> <li>2. The current issue is unique to the T-class submarines and that this will only continue for approx. 3 more years. Will this issue continue with the A-class submarines, having a different system which we assume will prevent any radioactive waste from escaping?</li> <li>3. While efforts are reported to have been made to fix the problem of rainwater ingress with the storage tanks, they have not been successful and the MoD no longer consider it cost effective to continue to fix the tank issue given the lifetime of the T-boats. This is not consistent with being a safe operator.</li> <li>4. The area of Plymouth Sound has recently been granted funding for the area to be designated a Marine Park, the proposal to discharge any effluent into a Marine Park is not consistent with the conservation efforts being developed.</li> <li>5. While the half-life of the radioactive substance proposed for release is reported as low, the accumulation of waste activity in the river and sea bed sediment could require hotspot removal, increasing the potential impact to the environment.</li> </ol>

<b>Summary of actions taken or show how this has been covered</b>
<ol style="list-style-type: none"> <li>1. We are satisfied that the Operator has established that the treatment of rainwater contaminated with tritium is not effective and that their proposal to change the discharge route represents Best Available Techniques.</li> <li>2. The Operator has applied to address a current issue. We understand that the problem may be reduced or eliminated in future submarines, but this variation relates to the current issue.</li> <li>3. We are satisfied that the continuing efforts made by the Operator to address the problem of rainwater ingress have reduced but not eliminated the problem. Condition 2.3.1 in the approval requires that “The operator shall use the best available techniques to minimise the activity of radioactive waste produced on the premises that will require to be disposed of on or from the premises” and that includes continuing to reduce rainwater ingress to the effluent sump pits.</li> <li>4. Our radiological impact assessment demonstrates that potential impacts on the public and wildlife are, respectively, well below public dose limits and levels at which adverse impacts on wildlife are foreseeable. For wildlife that assessment focusses on the Tamar Estuaries Complex Special Protection Area and the Plymouth Sound and Estuaries Special Area of Conservation. We are satisfied that protection of these Natura 2000 sites ensures that other sites are sufficiently protected.</li> <li>5. There are existing arrangements to monitor the environment around the Dockyard for radioactivity. These are carried by separately by the Ministry of Defence, Devonport Royal Dockyard Ltd and an independent contractor working on behalf of the Environment Agency. These monitoring programs include sediment sampling which has not identified any evidence of radioactivity building up in the environment.</li> </ol>



<b>Response received from</b>
Environment Plymouth
<b>Brief summary of issues raised</b>
<p>It is not appropriate to allow further releases of pollutants into the Tamar even if they were previously approved and however small the impact.</p> <p>Why is the MOD not held responsible for the precautionary principle in terms of preventing the need for this in the first place?</p> <p>The process for submitting a response to the consultation was difficult.</p>
<b>Summary of actions taken or show how this has been covered</b>
<p>We are satisfied that the Operator is taking responsibility for preventing/minimising the creation of this waste and we will continue to hold them to account against the conditions of their approval.</p> <p>We are satisfied that the disposal quantities and concentrations that will be allowed under the approval will not have a material impact on the receiving environment.</p> <p>We regret any difficulty experienced when responding to the consultation. We would be pleased to pass on information about the problem that Environment Plymouth experienced to help make future engagement with consultations easier.</p>

<b>Response received from</b>
Rame Peninsula Beach Care
<b>Brief summary of issues raised</b>
<p>The increase in radioactivity discharged to the Tamar.</p> <p>Why is the infrastructure leaking and failing in ways that are apparently not understood?</p> <p>Preventing deterioration as sea levels rise, from storm surges, from more frequent flooding and more intense rainfall.</p> <p>Radioactive discharges do not go away and cannot be diluted to safe levels and may be concentrated in way that are not predicted.</p> <p>In relation to this application, how is a safe environmental level of radioactivity determined, given that the impact will not be the same on all organisms?</p> <p>The documents provided with this application only seem to mention 'wildlife' and 'a fisherman' as potential receptors of radiation. This appears to be an extremely dated and unscientific approach, given the large number of species, habitats, and human water users likely to be exposed in different ways.</p> <p>Has any consideration been given to the large (and increasing) number of sea swimmers regularly exercising around the mouth of the Tamar?</p> <p>We would also like to know how this application fits in with the Government's nature recovery ambitions, and would request to see the Habitats Regulations Assessment, detailing the potential impacts to the European Marine Site (Plymouth Sound and Estuaries SAC &amp; Tamar Estuary Complex SPA) and any proposed mitigation.</p> <p>Given the fact we understand that Derriford Hospital also discharges radioactive waste, we would like to understand the assessment of the cumulative impact, as well as the sensitivities of individual receptors (for example the pink sea fan and Allis shad – given that the Tamar is the last breeding site for this species in the entire country).</p> <p>Is there an MCZ assessment? This should also be available to view, and we would like to see this, addressing the impacts to smelt etc., and features of the Tamar Estuary Sites MCZ.</p>

<p><b>Summary of actions taken or show how this has been covered</b></p> <p>The increased discharge limit is small in comparison to existing permitted discharges from the Dockyard as a whole. Increased actual discharges from the HMNB Devonport will be result in reduced actual discharges from DRDL.</p> <p>We are satisfied that the continuing efforts made by the Operator to address the problem of rainwater ingress reflect a sufficient understanding of the problem.</p> <p>Coastal fishermen have been identified as the representative group in our radiological assessment screening tool i.e. the population group likely to experience the greatest impact from discharges into an estuary. Those fisherman are assumed to be working on a daily basis in the estuary and also to consume significant amounts of fish caught in the estuary. In comparison even to daily swimmers, those fisherman will have a greater exposure to radioactivity arising from discharges from the Dockyard. We discount ingestion of seawater, assuming most will be spat out and very little swallowed.</p> <p>Our wildlife dose assessment in the same tool considers a number of different species that may be present in the estuary/coastal environment and predicts the dose to the most-affected species.</p> <p>Our screening tool is based on a cautious simplification of current scientific methods; its predicted doses are expected to over-estimates.</p> <p>Our assessment (based on our “Radioactive Substances Regulation (RSR) Habitats Screening Tool) estimates the “existing dose” from existing permitted discharges, including Derriford Hospital and Devonport Dockyard that impact on both the Tamar Estuaries Complex Special Protection Area (SPA) and the Plymouth Sound and Estuaries Special Area of Conservation (SAC). We then add to this the wildlife dose predicted by our screening tool (IRAT2) for the Dockyard as a whole (which necessarily involves some double counting).</p> <ul style="list-style-type: none"> <li>• Tamar Estuaries Complex Special Protection AreaA – Existing 1.1 µGray/hour plus 0.1 µGray/hour from the in-combination assessment from the Dockyard (all discharge routes). Total 1.2 µGray/hour.</li> <li>• Plymouth Sound &amp; Estuaries SAC – Existing 1.1 µGray/hour plus 0.1 µGray/hour from the in-combination assessment from the Dockyard (all discharge routes). Total 1.2 µGray/hour.</li> </ul> <p>We are satisfied that potential impacts on wildlife are well below levels at which we would normally consult Natural England (40 µGray/hour from discharges) and the level at which adverse impacts on wildlife populations might be seen (100 µGray/hour total). We nevertheless chose to consult with them (see that section of this document). While this assessment does not explicitly include the Tamar Estuary Sites MCZ, the parts of this MCZ that are nearest to Devonport Dockyard are coincident with parts of the Tamar Estuaries Complex SPA. We therefore conclude that species in this MCZ habitat are as well protected as those in the SPA.</p>
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<p><b>Response received from</b></p> <p>Blue Marine Foundation</p>
<p><b>Brief summary of issues raised</b></p> <p>Concerns over the discharge of nuclear material into the water of Plymouth Sound. As we are all aware this is adjacent to a city of over 250,000 people with all the attendant water quality requirements. It seems to us that there should be a viable method of keeping out seeping water from the storage tanks without having to pose a threat to the environment and human health.</p>
<p><b>Summary of actions taken or show how this has been covered</b></p> <p>We are satisfied that the Operator is taking responsibility for preventing/minimising the creation of this waste and we will continue to hold them to account against the conditions of their approval. We have included pre-operational measures for future development in Table S1.3B which require confirmation that cleaning of pit sumps has been completed before the new disposal route can be used.</p> <p>Our radiological impact assessment demonstrates that potential impacts on the public and wildlife are, respectively, well below public dose limits and levels at which adverse impacts on wildlife are foreseeable.</p>

<b>Response received from</b>
PDSSA
<b>Brief summary of issues raised</b>
Summary Plymouth Sound and the Hamoaze are marine conservation areas and breeding grounds for many plants and creatures. The sea is also used for water sports etc. Any increase in contamination is damaging to the environment. This water needs to be treated via effluent plants as it is now, never mind the MOD trying to save a few pennies
<b>Summary of actions taken or show how this has been covered</b>
The potential impact on the environment is addressed in our response to "Rame Peninsula Beach Care" We are satisfied that the Operator has established that the treatment of rainwater contaminated with tritium in DRDL's effluent treatment plant is not effective and that their proposal to change the discharge route represents Best Available Techniques.

## Representations from individual members of the public

We have grouped together responses that broadly raise the same issue. Each issue has been considered and addressed below.

Note that where the responses included matters that are outside the scope of the determination of this application, those matters have not been addressed below

<b>Brief summary of issue raised</b>
Concern as a swimmer/for swimmers (adult & children), sailors, paddle boarders, kayakers, fishermen in the sound/need to stop swimming. Exposure in the sea Lido. Loss of access to the bathing waters/ mental health benefits.
<b>Summary of actions taken or show how this has been covered</b>
We are satisfied that coastal fishermen are an appropriately cautious representative group for the purposes of radiological risk assessment (see our response to British Sea Kayaks). The proposed variation will not materially affect existing radiological exposures, which for that representative group are well below the source constraint and public dose limit (see the Radiological Assessment section).

<b>Brief summary of issue raised</b>
Concern about nature, the environment, ecology, especially Seahorses, Dolphins, Seals, natural river status, Ocean city, National Marine Park, SSSI's, legality of discharges to AoNB, etc. especially as Plymouth has high RA Background.
<b>Summary of actions taken or show how this has been covered</b>
We are satisfied that the proposed discharges, taken in combination with existing discharges, will not have an adverse effect on any of the protected habitats/species in the vicinity of the Dockyard (see our response to Rame Peninsula Beach Care).

<b>Brief summary of issue raised</b>
No, not even minimal, discharges are acceptable. Regardless of the amount because they represent a risk especially to sensitive elements of the population or the environment. Further discharges against precautionary principle/summation of minor things
<b>Summary of actions taken or show how this has been covered</b>
Whether or not radioactive discharges to the environment are acceptable in principle is a matter for the government, not the Environment Agency. We are satisfied that the impacts on the public and the environment are well below the limits set by government policy (see the Radiological Assessment section).

<b>Brief summary of issue raised</b>
Desire to maintain or raise environmental standards/reduce the amount of radioactivity/pollution entering the water/ find alternative treatment methods, conversely not to open the door for others to follow/ makes rules stricter/ expectation of highest standards from HM Navy.
<b>Summary of actions taken or show how this has been covered</b>
We are satisfied that Operator has demonstrated that they will use the Best Available Techniques to minimise the amount of radioactivity that will be discharged. We are also satisfied that the additional discharges as a result of this variation will be very small. Our radiological assessment considers the total discharges from the Dockyard as a whole and we are satisfied that the impacts on the public and the environment are well below the limits set by government policy (see the Radiological Assessment section). Any variation to an existing permit (or approval) is assessed on its own merits and our variation of the approval for HMNB (Devonport) holds them to the same standards as we apply to civilian nuclear operators.

<b>Brief summary of issue raised</b>
Concerns about: discharges increasing risks of e.g. cancer, validity of modelling, long term impacts, poor mixing with the sea, bioaccumulation.
<b>Summary of actions taken or show how this has been covered</b>
Concerns about specific health risks are a matter for the Local Director of Public Health. However, the public dose limits set by the government have regard to a range of potential health impacts and we are satisfied the dose to the representative group is well below the public dose limit. The cautious dose prediction provided by our screening tool is consistent with the dose estimates reported in the annual Radioactivity in Food and the Environment (RIFE) reports which are based on independent monitoring of the local environment. There are existing arrangements to monitor the environment around the Dockyard for radioactivity. The coastal exchange rate, a measure of mixing between the Tamar Estuary and the local coastal environment is low compared to some locations such the Severn Estuary. However, our radiological assessment model takes this into account. Such assessments are carried by separately by the Ministry of Defence, Devonport Royal Dockyard Ltd and an independent contractor working on behalf of the Environment Agency. These have not identified any evidence of bioaccumulation of radioactivity.

<b>Brief summary of issue raised</b>
The EA has not explained the need/benefit to (apparently) relax the limit/change the process. It is not protecting the environment or considering the impact on biodiversity. Concern that EA we will allow unmitigated nuclear waste dumping. The documents are too technical. Justification that bunds cannot be sealed is missing. How will the EA monitor to ensure limits are not breached?
<b>Summary of actions taken or show how this has been covered</b>
<p>We are satisfied that the Operator has demonstrated that the current techniques for management of the rainwater are not optimal. They have considered the available options for managing this rainwater, made a suitable assessment of the advantages and disadvantages of the options, and chosen the one which represents Best Available Techniques.</p> <p>There are regulatory controls in place to ensure the management and disposal of radioactive waste which is only permitted if the discharges meet both the dose constraints/limits set by government (see Radiological Assessment) and represent BAT.</p> <p>We are satisfied that the continuing efforts made by the Operator to address the problem of rainwater ingress have reduced but not eliminated the problem. Condition 2.3.1 in the approval requires that “The operator shall use the best available techniques to minimise the activity of radioactive waste produced on the premises that will require to be disposed of on or from the premises” and that includes continuing to reduce rainwater ingress to the effluent sump pits. We will review progress on sealing these pits during routine inspections.</p>

<b>Brief summary of issue raised</b>
Current arrangements should continue / water must be treated.
<b>Summary of actions taken or show how this has been covered</b>
Condition 2.3.1 in the approval requires that “The operator shall use the best available techniques to minimise the activity of radioactive waste produced on the premises that will require to be disposed of on or from the premises”. Having established that the current arrangements are not optimal we expect the Operator to take timely action to implement BAT which is why they have applied for this variation.

<b>Brief summary of issue raised</b>
Costs (£) of continuing as is have not been expressed / Mod just seeking to save £, political expediency/ not willing to spend money to find a solution, fix the ingress of rainwater.
<b>Summary of actions taken or show how this has been covered</b>
<p>We are satisfied that relative/qualitative costs can be used in an options assessment where those costs are not the dominant factor in the decision making. The changes will not materially benefit the MOD because their contract with DRDL to treat radioactive effluent is not volume-based. The primary benefit to the MOD is increased resilience in their arrangements for receiving radioactive effluent from submarines.</p> <p>Condition 2.3.1 in the approval requires that “The operator shall use the best available techniques to minimise the activity of radioactive waste produced on the premises that will require to be disposed of on or from the premises” and that includes continuing to reduce rainwater ingress to the effluent sump pits. We will review progress on sealing these pits during routine inspections.</p>

<b>Brief summary of issue raised</b>
Irreversibility/long-term effects / effects unknown/ further discharges

<b>Summary of actions taken or show how this has been covered</b>
Whether or not radioactive discharges to the environment are acceptable in principle is a matter for the government, not the Environment Agency. We are satisfied that the impacts on the public and the environment are well below the limits set by government policy (see the Radiological Assessment section)

<b>Brief summary of issue raised</b>
Concern regarding past MoD behaviour/discharges/honesty about releases.
<b>Summary of actions taken or show how this has been covered</b>
We are satisfied from our experience of ongoing regulation of HMNB (Devonport) that their arrangements for compliance with the approval are satisfactory and all releases are reported as required and in a timely manner.

<b>Brief summary of issue raised</b>
Concern regarding MoD Crown immunity/voluntary compliance regime.
<b>Summary of actions taken or show how this has been covered</b>
We are satisfied from our experience of ongoing regulation of HMNB (Devonport) that their arrangements for compliance with the approval are satisfactory. Our expectations of them are no different from those we have of civilian nuclear operators.

<b>Brief summary of issue raised</b>
Support the application/recognises the insignificance of the nuclide, discharge, and dose.
<b>Summary of actions taken or show how this has been covered</b>
N/A

<b>Brief summary of issue raised</b>
Concern about lack of filtration or mitigation technique. Reference was made to a laboratory technique developed in Japan for removal of tritium from water.
<b>Summary of actions taken or show how this has been covered</b>
We are satisfied that the Operator's proposal represents Best Available Techniques for management of very low levels of radioactive contamination which are primarily tritium. We note that the Japanese laboratory technique is currently only research and is not an industrially available technology.

<b>Brief summary of issue raised</b>
1, In the 'low' levels being described, can it be confirmed as absolutely certain that no marine life in the Tamar, Hamoaze, Plymouth Sound area or further beyond the Breakwater will be affected by the release of this waste material? 2, What are the current standard operating procedures for collecting, storing and disposing of this radioactive rainwater safely? 3, What are the reasons for this application to change the procedures in dealing with this waste?

4, Has there been a scientific study into the possibilities, however slight, of various health implications for the general public at large, and especially adults and children who swim in the waters in the areas of concern?

5, Is there a risk, however small, of radioactive contamination from eating any fish, crab, eel, shellfish or other marine life caught in the disposal and wider areas?

**Summary of actions taken or show how this has been covered**

1. We are satisfied (see Radiological Assessment and our response to Rame Peninsula Beach Care) that key local habitats/species will be protected from adverse impact from radioactive discharges from the Dockyard as a whole.
2. Current arrangements for managing this rainwater are explained the Operator's BAT assessment that supported the application.
3. The application explained that the current arrangements do not represent Best Available Techniques. We are satisfied that the new discharge route requested in this application is part of what is necessary to enable the Operator to implement their identified Best Available Technique for managing this waste.
4. The cautious screening tool used by the Environment Agency to predict radiological impacts is based on currently accepted science - see also our responses to British Sea Kayaks and Rame Peninsula Beach Care.
5. There will be a low radiation dose from eating fish/shellfish in the Tamar Estuary. However, that dose will be lower than that to the representative group (coastal fishermen), which is itself well below the limits set by government (see Radiological Assessment).

**Brief summary of issue raised**

Concern about tritium releases directly into the Tamar having an increased detrimental environmental impact, especially when the law of unintended consequences is given due consideration.

In particular, the use of seaweed (that grows downstream of the Dockyard discharges) as agricultural fertiliser and the impact of that on subsequent food consumption. The response refers to an internet article from 2019 which notes that 65 tonnes/year of seaweed is removed from the slipways of the Tamar Ferry crossings, combined with other green waste, processed and then used on a farm in the Tavistock area.

**Summary of actions taken or show how this has been covered**

The 2020 report on Radioactivity in Food and the Environment (RIFE) considers three representative persons for its radiological dose assessments which are based on measured levels of radioactivity in the local environment. These groups are: "seafood consumers", "houseboat occupants" and "inhabitants and consumers of locally grown food". All of these predicted to receive an annual dose arising from activities at Devonport of less than 5  $\mu$ Sv/year. These doses are well below the levels specified by government (see Radiological Assessment). The "habits survey" that informed these estimates identified local direct consumers of seaweed and people using seaweed as an allotment fertiliser for vegetables for their own consumption. We are satisfied that the dose received by consumers of vegetables grown on commercial farmland, where seaweed is incorporated into fertiliser, will be lower than the dose received by the local groups identified in the habits survey.