Trawsfynydd Ponds Complex Demolition and Disposal (PCCD)

Health Impacts Assessment

TRAWS-24-002 Issue 1

Date: April 2024

Introduction

This Health Impacts Assessment (HIA) has been prepared to accompany and support a full planning application for:

i the demolition of the Trawsfynydd ponds complex buildings;
ii the infill of below-ground voids of the ponds complex, mainly with radioactively contaminated demolition arisings, and the permanent retention of the infill (which, in environmental permitting terms, is the disposal of radioactive waste);
iii the permanent retention of the radioactively contaminated residual below-ground structures of and around the ponds complex (which, in environmental permitting terms, also involves the disposal of radioactive waste);
iv the capping of the footprint of the former ponds complex with a concrete cap; and
v modifications to the local drainage on and around the concrete cap.

The main focus of this assessment is understanding and addressing potential impacts and views around the health of individuals and communities from the works, both in the short and longer terms. The activities of focus for these timescales are:

- short term impacts from work to complete enabling activities, demolition of the ponds complex to ground slab level including partial infilling of its below-ground voids, capping, and modifications to the surface water drainage.
- Longer term impacts of the completed works, including potential release of radioactivity via groundwater.

Overview of Legislation

The Well-Being of Future Generations (Wales) Act 2015 aims to improve lives both now and 100 years into the future. It requires public bodies in Wales to consider the long-term impact of their decisions with a view to avoiding or minimising persistent problems such as poverty, health inequalities and climate change in a way that accords with the sustainable development principle. It has seven wellbeing goals:

- a prosperous Wales;
- a resilient Wales;
- a more equal Wales;
- a healthier Wales;
- a Wales of cohesive communities;
- a Wales of vibrant culture and thriving Welsh language; and
- a globally responsible Wales.

Under each of these goals there are a number of objectives. A table showing how the proposed development interacts with these goals can be found in the Magnox Stakeholder Workshop Output Report[1].

Although the Applicant is not considered as a public body under this Act, it is aware of the duty and responsibility of local Councils to consider the factors of this legislation as part of their decision making related to the planning application. Snowdonia National Park Authority, now Eryri National Park Authority,

[1] Magnox Stakeholder Workshop 4th October 2023 – Output Report, Document ref. TRAWS-23-034 Issue 1, December 2023.

requested in their response to the Environmental Impacts Assessment Scoping report that a HIA was carried out for this proposal to support the planning application.

Background

The Trawsfynydd NLS is operated by Nuclear Restoration Services Limited on behalf of the Nuclear Decommissioning Authority (NDA), to carry out the decommissioning and remediation process. Nuclear Restoration Services (NRS) Limited was, up until the 2nd April 2024, known as Magnox Limited when the company officially changed its name, hereafter in this document the company is referred to as 'the Applicant'. The site is currently undergoing decommissioning and waste management operations. Decommissioning involves the systematic removal and management of plant, buildings and waste previously associated with electricity generation and subsequent operations.

The intention for decommissioning the ponds complex at Trawsfynydd now involves leaving the radioactive below ground structures in place and back-filling the voids with suitable radioactively contaminated concrete and brick rubble from the demolition of the above ground structure, prior to capping the area with a concrete slab to enable reuse of the area to support further decommissioning of the site.

The impacts of the demolition works on the local communities as well as the long-term effects of decommissioning the ponds complex by retaining some slightly radioactively contaminated waste on site were the focus for the HIA.

Overview of Assessment

NRS has regular engagement and communication with its stakeholders and the local communities. These are outlined in the Statement of Community Involvement that supports the application. In addition to the regular updates provided on this application at these scheduled events, Magnox also sought the public's views on this option for decommissioning the complex through a series of local drop-in events in summer 2023 and a parallel online engagement.

The feedback and attendee analysis from these events, the checklists[2] and methodologies detailed in the Wales Health Impact Assessment Support Unit (WHIASU) guide, "Health Impact Assessment: A Practical Guide", and the scale and times of the proposed development were used to inform the methodology of the HIA. Due to amount of information already shared with the local communities and opportunities for stakeholders to comment on the plans and progress of the development, a rapid prospective assessment was most appropriate. This took the form of a one-day Health Impacts Workshop involving people from the three most local communities, Trawsfynydd, Gellilydan and Maentwrog. The objective was to provide the opportunity for a variety of stakeholders to learn in more detail about the proposals and feed back their views and any concerns on the potential impact on health and wellbeing within the area.

HIA Stakeholder workshop

The workshop was held in October 2023 in the Conference and Visitor Centre at the Trawsfynydd NLS.

The main aims for the session were:

- For Magnox to explain the proposals and their impacts now, and in the future.
- To hear the voices of key stakeholders who represent Trawsfynydd, Gellilydan and Maentwrog.
- To gather views to be incorporated into the Health Impact Assessment.
- To enable Magnox to respond to any concerns.

[2] Including the Vulnerable/Disadvantaged Groups checklist and the Health and Well-Being Determinants Checklist

Ten people attended the five-hour workshop, representing eight local organisations and the general community. Another eleven organisations were invited but were unable to attend. The attendees were:

- Parc Cenedlaethol Eryri,
- Trawsfynydd Clay Pigeon shooting,
- Côr Meibion Prysor,
- Local Forestry Company,
- Seren Ffestiniog,
- Trawsnewid,
- Betsi Cadwaladr University Health Board, and
- Prysor Fishery and Lakeside café.

Eight members of Magnox staff (plus note takers) were also present to help support the workshop.

The workshop was run by a Welsh speaking external consultant to ensure impartiality. Most of the workshop was held in Welsh with a live translator for the English-speaking participants. A list of invitees to the workshop can be found in Report TRAWS-23-034 and a profile of the community in relation to Wales and the UK can be found in the Welsh Language Impact Assessment.

Structure of the workshop

The workshop was structured to provide information in as many forms as possible throughout the day. The main room, where the workshop was held, included many bilingual pop ups explaining the site and the proposals[3]. Time was provided at the beginning of the workshop and throughout the event to allow people to read and return to this information as needed.

There were 2 main sessions, one before and one after lunch. These both consisted of presentations to set the scene and explain the session context and technical information followed by breakout sessions to discuss the information and proposals in more depth. Magnox employees were stationed in these breakout groups to ensure that both the near term and long-term impacts were discussed and to provide additional detail as required. At the end of each session the key points raised during the breakout groups were shared with the rest of the room.

The lunch break between the 2 main sessions also provided an opportunity for people to discuss their views with each other in more detail and seek additional information from the Magnox employees as needed.

The first session focused on providing an overview of what Magnox had been doing so far on site, since decommissioning started, before going into detail about the proposed plans to decommission the ponds complex. The breakout groups then discussed their initial thoughts on the decommissioning plan.

The second session looked in more depth at the long-term effects of decommissioning the ponds complex by retaining suitable, slightly radioactively contaminated, waste on site and the long-term effects of the disposals of radioactively contaminated structures. This time the breakout groups focused on discussing their initial thoughts on the long-term effects of the proposed plan.

Potential impacts identified

During each breakout session questions were asked around the works control measures, monitoring proposals, regulatory systems and if the attendees would like any further information about a particular aspect of the proposed plans.

[3] The pop-up banners used to support the HIA workshop were the same as the ones used for the events that took place during summer 2023. For more detail see the Statement of Community Involvement (TRAWS-23-043).

The outputs captured from the workshop have been used to develop the list of potential impacts from the proposal that were identified and the concerns raised, in line with best practice and as discussed in the workshop. The effect that these impacts could have on the different parts of the communities and the potential likelihood and impacts duration are outlined in the table below.

Both the comments from Session 1 - proposed plans to decommission the ponds complex, and Session 2 - long-term effects of decommissioning the ponds complex by retaining the waste on site, are represented together due to overlapping themes and impacts. Both positive and negative impacts were identified in the workshop and are captured in the table below

The timescales for effects were split into short and long term.

- Short term is classified as the works phase of the proposal, including applying and getting planning permission, all demolition and site works, and the construction of the concrete cap.
- Long term is anything after completion of the physical works.

To measure the likelihood of impacts happening, three different categories have been used, definite, probable, and speculative.

- Definite is where the impact identified would definitely occur if no control measures were put into place, or if a decision has already been agreed about the impact outside of the control of the proposal. It does not mean that the impact will occur.
- Probable covers the situation where impacts identified could happen with or without additional mitigation.
- Speculative is used where impacts identified are subject to control outside of the proposed work or are too far in the future to predict with any certainty. In relation to this report speculative means that an impact is unlikely.

Control measures and mitigations for the potential impacts that were identified in the workshop are also covered in the table below.

Table 1 – Summary of HIA workshop with controls and enhancements

Impact topic raised	Summary of key points	Nature of impact (positive / negative)	Likelihood (definite, probable or speculative)	Timing (short / long)	Distribution of effects	Mitigating controls, and recommended enhancements
Social and community influences on health						
Feeling of safety	Adequate safety measures would be put in place for the works. At the workshop there were questions also about the safety of the concrete cap, the sites control measures (were there back up plans in place to protect people and the environment), dust dispersion, and how unforeseen circumstances would be managed.	Positive	Definite	Short and Long	Safety measures cover employee safety as well as public and environmental safety and protection. This will positively impact not only the workers on the site and the local communities, but also the health of Wales.	Established company management arrangements complying with relevant legislation governing safety to the workers and public. No further recommendations.
Local pride	There was a strong desire for people to know more about the site. Including: • the younger generation as they will be living with the results of this disposal plan • the general community with newspaper articles, displays in local venues such as the lakeside café/community halls • have regular communications when further progress is made, or if any changes are required. • that communications to the public should be simplified further for the public to learn about nuclear waste • instructions on who to inform if the local community see anything untoward when the work is being carried out.	Positive	Probable	Short and Long	Workers, their families and people within the local area.	No further recommendations.
Fear of pollution during demolition	There was a question about where the detailed information on the calculations, assumptions and data, can be found. The demolition of the ponds complex and leachate from the in-situ disposal causes pollution to the Trawsfynydd lake. No adequate control measures for dealing with unforeseen circumstances during the works, for example if the silt-buster failed, should there be a back-up / contingency silt-buster.	Negative	Probable	Short	Members of the public involved in recreational and local activities and local residents such as the local farm houses and village of Gellilydan.	Controls will be in place to prevent pollution. Recommend providing local resident with leaflets that educate the public on the controls in place to provide protection. Independent checks by regulators are being carried out now, and will be carried out during the ponds demolition work and for the in-situ disposal. Public display signs to be placed locally providing information to members of the public using the local area.
Fear of long-term hazard from disposal	There was a discussion around long-term record keeping and whether there is enough budget to keep the site safe in the long-term. Bodies such as Natural Resources Wales and Office for Nuclear Regulation (ONR) will/may not have the necessary resources to monitor the in-situ disposal in the future.	Negative	Probable	Long	Members of the public involved in recreational and local activities and local residents such as the local farm houses and village of Gellilydan.	Disposals will only be permitted where they can be proven to be safe. Recommend providing local residents with leaflets that educate the public on the controls in place to provide protection.

Impact topic raised	Summary of key points	Nature of impact (positive / negative)	Likelihood (definite, probable or speculative)	Timing (short / long)	Distribution of effects	Mitigating controls, and recommended enhancements
						Public display signs to be placed locally providing information to members of the public using the local area.
Neighbourliness	There were no concerns raised around the site being a good neighbour.	Positive	Probable	Short and Long	Benefits for the local residents and those using the land around the lake.	NRS operates schemes to support local communities. Recommend investigating whether contractual commitments can be made to provide long term benefits to the area in recognition of accepting disposal at the site, e.g. continued commitment to maintain the bridges and lake perimeter path.
Living / environmental conditions affecting health						
Noise	There were no concerns raised around the noise of the proposed works.	Negative	Definite	Short	Members of the public involved in recreational and local activities and local residents such as the local farm houses and village of Gellilydan.	Noise emitting works will not commence before 08:00 or continue beyond 18:00 Monday to Friday, and 13:00 on Saturday. Levels will not exceed Category A thresholds. If limited nighttime works are required (such as concrete pour of cap), a separate application under section 61 of the Control of Pollution Act will be made. Nighttime activities would be unlikely ro result in any significant effects due to the nature of the work done. The noise best practice measures that will be followed are outlined in the Construction and Demolition Environment Management Plan (CEMP)
Air and water quality	There were discussions around the effect on Trawsfynydd lake – how safe will it be for fishing; how will the work affect the pH levels. Dust dispersion from the concrete crushers is unpredictable and will impact local communities and the environment The demolition of the ponds complex and leachate from the in-situ disposal might cause pollution to the Trawsfynydd lake.	Negative	Speculative	Short and Long	Members of the public involved in recreational and local activities and local residents such as the local farm houses and village of Gellilydan.	Works at the Trawsfynydd site have to comply with the stringent limits set by Natural Resource Wales on the pH of any water discharged to the lake. Dust dispersion from these works will have a negligible effect on the biodiversity and surrounding area. Various methods will be adopted to prevent the spread of dust, including the use of water sprays and keeping the site in a good condition with the use of road cleaning. The environmental mitigation measures that will be followed are outlined in the CEMP.
Waste disposal hazard	There were concerns expressed around whether bodies such as Natural Resources Wales, ONR etc have the necessary resources to monitor future work on site There was a request for further information around radioactivity in the environment – the attendees were referred to the annual Radioactivity in Food and the Environment (RiFE) reports available on the internet.	Negative	Definite	Long	Future land users after permit is surrendered.	GRR requirement provides limits for the disposal that limits the allowable hazard
Road hazards	If lorries are to be used as part of the demolition work, a request was made that Magnox ensure that they don't affect the local community	Negative	Definite	Short	Road users along routes connecting the site with suppliers.	Road transportation will be minimised by on-site disposals and re-use of recovered clean waste in place of virgin material.

Impact topic raised	Summary of key points	Nature of impact (positive / negative)	Likelihood (definite, probable or speculative)	Timing (short / long)	Distribution of effects	Mitigating controls, and recommended enhancements
						Residual transportation is expected to be not significant and therefore no further actions necessary.
Economic conditions affecting health						
Local employment	There was a question relating to the number of workers expected to be involved in undertaking the works – 20–25 contractors was suggested. Much of the work will be conventional demolition. There was a strong feeling amongst the attendees that Magnox ensures that local workers are employed wherever possible to carry out this phase of decommissioning.	Positive	Definite	Short	Local unemployed residents and local contractors.	Magnox's corporate policy is to use local contractors where it is appropriate to do so. This issue is reflected in the company's contractor selection processes. However, it should be noted that the demolition of radioactive facilities is a specialist activity, and it may not be possible to only utilise local contractors. No further recommendations.
Long term unemployment	A question was raised as to whether the proposal would result in less long term unempoloyment because it would inovle removing less of the radioactive waste.	Negative	Definite	Long	Workers employed at the site. Future generations needing work within the local communities.	There is no great difference in employment duration caused by on-site disposal. The proposed work could enable the land to be re-used for other employment opportunities, reducing the unemployment concerns. No further recommendations.

ACCEPTANCE OF CONTRACTOR'S DOCUMENT INTO DOCUMENT SYSTEM

Contractor:	Bethan Williams Price (Management and Communications Consultant) Member of '*The Consultation Institute*'
Contractor's Document No:	N/A
Document Title:	Magnox Stakeholder Workshop, 4th October 2023 Output Report
Author(s):	Bethan Williams Price
Issue:	1
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Magnox Allocated Reference Code:	TRAWS-23-034 – Issue 1
Task File No:	N/A
Keywords:	Magnox Stakeholder Workshop Planning GRR Public Consultation Trawsfynydd Ponds Complex

(Magnox Responsible Person)					
Name	Sion Richards	**Signature**		**Date**	11/12/2023

* For documents requiring formal authorised IC acceptance this must be obtained prior to completing this form.

Magnox Stakeholder Workshop, 4th October, 2023

Output Report

OVERVIEW OF THE EVENT

The objective of this workshop was for Magnox to engage the community in Trawsfynydd, Gellilydan and Maentwrog in discussion, gathering their honest views and opinions on the proposed demolition and disposal plans for the ponds complex at the Trawsfynydd site.

New regulatory guidance developed by the three UK environment agencies has been trialled by Magnox. The intention for decommissioning the ponds complex at Trawsfynydd now involves leaving the radioactive below ground structures in place and back-fill the void with suitable, radioactively contaminated concrete and brick rubble from the demolition of the above ground structure, prior to topping the area with a concrete cap to enable reuse of the area to support further decommissioning of the site.

In the summer of 2023 Magnox sought the public's views on this option for decommissioning the complex through a series of local drop-in events. However, the purpose of this October workshop was to invite a variety of stakeholders so that they could learn in more detail about the plans and for them to feed back their views and any concerns on the potential impact on health and wellbeing within the area.

The views expressed on the day will be included in the Health Impact Assessment that will be submitted as part of the necessary consents required for the demolition and disposal of the ponds complex at Trawsfynydd.

AIM OF THE EVENT

- For Magnox to explain the plans and their impacts now, and for the future.
- To hear the voices of key stakeholders who represent Trawsfynydd, Gellilydan and Maentwrog.
- To gather views to be incorporated into the Health Impact Assessment.
- To enable Magnox to respond to any concerns.

THE PARTICIPANTS

Participants were invited to the event by Magnox **(Appendix 1 – invite list and letter sent)**. The event was facilitated by Bethan Williams Price. Eight members of Magnox staff (plus note takers) were also present to help support the workshop (**Appendix 2 – list of Magnox staff and job titles)**. It was a bilingual event with simultaneous translation available.

Ten people attended the five-hour workshop, representing eight local organisations and the general community (Parc Cenedlaethol Eryri, Trawsfynydd Clay Pigeon shooting, Côr Meibion Prysor, Local Forestry Company, Seren Ffestiniog, Trawsnewid, Betsi Cadwaladr University Health Board, Prysor Fishery and Lakeside café). Another eleven organisations were invited but were unable to attend.

For the breakout sessions, one group discussed the issues in Welsh and the other in English.

STRUCTURE OF THE WORKSHOP

1. Opportunity to read the information pop-ups located in the room (**Appendix 3 – bilingual pdf of pop-ups**)
2. Presentations on the context of the proposals, near term plans and impacts, and long-term impacts (**Appendix 4 – presentations)**
3. Two breakout sessions to discuss near term and long-term impacts with main points from each table being fed back to the whole group.

THE WORKSHOP AND INFORMATION GATHERED

Morning session

During the morning session the attendees were given two presentations. Ian Warner, End State Manager at Magnox gave an overview of what Magnox had been doing so far on site since decommissioning started, and Sion Richards, Principal Waste Consultant at Magnox then went into detail about the proposed plans to decommission the ponds complex.

The attendees then split into two groups – one Welsh and one English – to discuss their initial thoughts on the decommissioning plan.

Feedback

At each table discussions were facilitated by a Magnox member of staff (Sion Richards at the Welsh-speaking table, and Nigel Wright at the English-speaking table). Questions were asked around the works control measures, monitoring proposals, regulatory systems and if they would like any further information about a particular aspect of the proposed plans.

Controls and monitoring

- There was a general feeling in the room that adequate safety measures would be put in place. Stakeholders were reassured that Magnox is not a profit-making organisation and decision making not biased by commercial objectives.
- A question was asked whether any independent checks are being or would be carried. How confident are Magnox of their understanding of the hazard potentials and assumptions. Are they being independently assessed?
- There was a request for clear instructions on who to inform if the local community see anything untoward when the work is being carried out and who other than the site could be contacted if there were concerns about the way Magnox were operating.
- There were discussions around the effect on Trawsfynydd lake – how safe will it be for fishing; how will the work affect the pH levels.
- There were questions also about the safety of the concrete cap (though this was a topic for discussion in the afternoon session).
- There was a request for reassurances around the control measures if any issues arise – e.g if the silt-buster failed, should there be a back-up / contingency silt-buster?
- Points were made about the unpredictability of dust dispersion.
- There was a request for more information on when the permit and planning decisions will be made and how the public will be notified.
- There was a strong feeling amongst the attendees that Magnox ensures that local workers are employed wherever possible to carry out this phase of decommissioning.
- A question was raised about dealing with unforeseen circumstances during the works. The extensive characterisation works planned were explained such that a good level of data was being established in planning the works and measures would be in place to manage unforeseen situations.

- There was a question relating to the number of workers expected to be involved in undertaking the works – 20–25 contractors was suggested. Much of the work will be conventional demolition.

Regulatory

- There were concerns expressed around whether bodies such as Natural Resources Wales, ONR etc have the necessary resources to monitor future work on site.

More general themes and comments

- A question was asked if the concrete was taken off site, could this lead to the railway line being reopened. [This was "off topic" but noted].
- If lorries are to be used as part of the demolition work, a request was made that Magnox ensure that they don't affect the local community – staggered movement rather that the use of convoys. References made to the way work was carried out at Llyn Tegid by NRW.

Afternoon session

During the afternoon session the attendees were given a further presentation by Sion Richards, Principal Waste Consultant at Magnox, on the long-term effects of decommissioning the ponds complex by retaining the waste on site (i.e., the long-term effects of the disposals of radioactive structures).

Once again, the attendees then split into two groups – one Welsh and one English – to discuss their initial thoughts on the long-term effects of the proposed plan.

Feedback

At each the table discussions were facilitated by a Magnox member of staff (Sion Richards at the Welsh-speaking table, and Nigel Wright at the English-speaking table). Questions were asked around the environmental and safety assessments, confidence in the regulatory systems to ensure the safety of local people and the environment, any areas of concern regarding the on-site disposal plans and if they required any further information.

Environmental and safety assessments

- There was re-assurance in the thoroughness of the scope of the assessments as explained as part of the presentation, provided all the calculations are correct and accurate.
- Stakeholders felt that Magnox were being transparent by sharing this information.
- There was a request for further information around radioactivity in the environment – the attendees were referred to the annual Radioactivity in Food and the Environment (RiFE) reports available on the internet.
- A question was asked as to whether there are any elevated cancer rates in the area – the public health representatives on the table said there was no evidence of this.
- There was a discussion around malicious intrusion – what would happen if someone wanted to damage the area in years to come?
- Also, there was a feeling that a lot of assumptions have been made – how certain are Magnox that these are correct?
- There was a question about where the detailed information on the calculations, assumptions and data, can be found.

Regulatory

- There was a discussion around long-term record keeping.
- There was a discussion around whether there is enough budget to keep the site safe in the long-term.

Areas of concern/further information required

- There was a strong desire to educate the community and especially the younger generation as they will be living with the results of this disposal plan. It was suggested that school visits are arranged to educate young people. But also, the need to educate the community in general using newspaper articles, displays in local venues such as the lakeside café/community halls was identified.
- Stakeholders wanted to encourage regular communications when further progress is made, or if any changes are required.
- There was a request for any future presentation to compare the current radioactive doses in the area to what is anticipated after the work is completed – there was a desire for regular community updates as the project progresses.
- There was a feeling that any future presentation to the public should be simplified further – suggestion of an easy read exhibition for the public to learn about nuclear waste etc

What next

Formal responses by Magnox to issues raised during the workshop will be provided as part of the planning application process and within the permit application documentation.

Bethan Williams Price

23/10/23

Appendixes

Appendix 1 (invite list and letter sent)

People that confirmed in an email that that they were attending and were present.	**People that confirmed in an email that that they were attending and were not present.**	**List of additional people who received the email invite who either did not respond or sent their apologies.**
David Jones - Awdurdod Parc Cenedlaethol Eryri **(only morning session)** John Richards - Trawsfynydd Clay Pigeon Shooting Adrian Roberts - Cor Meibion Prysor and Local Forestry Company Sioned Lewis - Seren Ffestiniog Rhian Jones – Trawsnewid Gywn Williams – Aelod o'r cymuned Sarah Andrews – BCUHB Dr Dawn Poh - BCUHB Malcolm Atherton -Prysor Fishery and Lakeside Café Eifion Lewis - Seren Ffestiniog	Keith O'Brien - SSG Chair **(verbal tentative)** Elfed Roberts - SSG Vice Chair **(verbal tentative)** Joanne Farrington - Seren Ffestiniog Iwan Jones - Cyngor Gwynedd **(sent last minute apologies)** Nia Bowden - Cyngor Gwynedd **(sent last minute apologies)** Rhys Llywellyn - Prysor Angling Association **(was tentative if able to attend)** Gwenlli Evans - Cwmni Cymunedol Bro Ffestiniog Cynghorydd MW Williams – Cyngor Cymuned Maentwrog Dafydd Jarrett – NFU	Trawsfynydd Community Council – cyngor.trawsfynydd@gmail.com Cyngor Tref Ffestiniog – clerc@cynortrefffestiniog.cymru Gwen Pettifor – Women's Institute Iestyn Pritchard – NFU Hilary/Alan Norton – Meirionydd Ramblers Francesca Williams – Gellilydan Volunteer artists Jonathan Cawley – Parc Cenedlaethol Eryri **(apologies)** Peter Rutherford – Parc Cenedlaethol Eryri

From: Elin Parry Jones (Magnox)
Sent: 15 September 2023 13:50
To: Elin Parry Jones (Magnox)
Subject: Gwahoddiad - Gweithdy cymunedol fel rhan o'n Hasesiad Effaith ar Iechyd i ddymchwel a gwaredu'r cyfadeilad pyl

Categories: Egress Switch: Please make a selection

Annwyl Cynrychiolydd / Dear Representative,

Hoffwn eich gwahodd i: **Gweithdy cymunedol a lluniaeth ysgafn– fel rhan o'n Hasesiad Effaith ar Iechyd i ddymchwel a gwaredu'r cyfadeilad pyllau yn Nhrawsfynydd.** **Pryd:** 10:00 – 15:00 ddydd Mercher, 4 Hydref **Ble:** Canolfan Ymwelwyr Magnox, Safle Trawsfynydd, Blaenau Ffestiniog, Gwynedd LL41 4DT **Dyma wahoddiad i ymuno â ni i gymryd rhan mewn gweithdy wedi'i hwyluso yn ogystal â darpariaeth o luniaeth ysgafn** Hoffem drafod a chi y camau nesaf o 'r gwaith datgomisiynu rhestredig yn Nhrawsfynydd a clywed eich barn ar sut rydym yn bwriadu ymgymryd â'r gwaith fel rhan o'n taith ddadgomisiynu ac adfer cynlluniedig parhaus. Rydym yn awyddus i gychwun sgwrs gyda'r gymuned ar camau nesaf y safle a fydd yn cynnwys dymchwel cyfadeiladau y pyllau, ac sut rydym yn bwriadu rheoli'r rwbel a gwastraff gynhyrchir. Bydd y drafodaeth yn llunio rhan allweddol o'n Hasesiad Effaith ar Iechyd yn benodol i'r prosiect yma, a fydd yn galluogi ni i ddeall y pryderon ynghylch unrhyw effeithiau iechyd canfyddedig o'r cam nesaf o'r gwaith. Rydym yn awyddus i glwyed gan ystod eang o bobl yn y gymuned leol yn ogystal a rhoi cyfle i chi ofyn cwestiynau, ac felly byddwn ddiolchgar pe bo chi neu aelod o'ch grŵp/busnes yn mynychu'r digwyddiad hwn. A fyddech chi cystal ag anfon eich ateb i elin.parryjones@magnoxsites.com er mwyn sicrhau eich lle. **Beth sy'n digwydd nesaf?** Byddwn yn ysgrifennu ac yn rhannu adroddiad gyda mynychwyr ar ôl y gweithdy, gyda rhanddeiliaid ehangach ac yng nghyfarfodydd Cynghorau Cymuned y pentrefi. Bydd yr adroddiad yn cyfrannu at ein Asesiad Effaith ar Iechyd a fydd yn cael ei gynnwys mewn ceisiadau yn y dyfodol gyda chyrff llywodraethu perthnasol.	**You are invited to:** **Community workshop and refreshments – as part of our Health Impact Assessment of the demolition and disposal of the ponds complex at Trawsfynydd** **When:** Wednesday 4 October, 10:00 – 15:00 **Where:** Magnox Visitor Centre, Trawsfynydd Site, Blaenau Ffestiniog, Gwynedd LL41 4DT **You are invited to join us and take part in a facilitated workshop with the provision of some light refreshments**. We would like to discuss with you the next phase of the scheduled decommissioning works at Trawsfynydd and hear your views on how we plan to undertake the work, as part of our journey of continuous planned decommissioning and restoration. We want to start a conversation with the community on our next phase at the site which will include the demolition of the ponds complex and how we aim to manage the debris and waste generated. his discussion will form a key part of our Health Impact Assessment, specifically for this project and will enable us to understand the concerns regarding any perceived health effects of this next phase of works. We would like to hear from a broad range of people in the local community and give you the opportunity to ask questions, and so would love for you or a member of your group/business to attend this event. Please RSVP to elin.parryjones@magnoxsites.com to confirm your place. **What happens next?** We will write and share a report with attendees after the workshop, including at village Community Council meetings and with wider stakeholders. The report will form inputs to our Health Impact Assessment which will be included in future applications with relevant governing bodies.

Elin Parry Jones

Uwch Swyddog Cyfathrebu – Safleoedd Cymru / *Senior Communications Officer – Welsh Sites*
Patrwn Gweithio – Dydd Llun (8am-4.30pm) i Gwener (8am-1.30pm) / *Working pattern - Mon (8am-4.30pm) to Friday (8am-1.30pm)*

Rhif ffon / *Mobile*: 07745667176
Ebost / *Email*: elin.parryjones@magnoxsites.com

Appendix 2 - list of Magnox staff and job titles

Angharad Rayner - Trawsfynydd Site Director
Sion Richards - Principal Waste Consultant (presenter and break-out facilitator)
Ian Warner – End State Manager (presenter)
Stephen Wilmott – Principal Waste Consultant (break-out facilitator)
Nigel Wright – Senior Project Manager (break-out facilitator)

Taking Notes

Kate McAfee – Assistant Engineer
Tegwen Jones – Document Controller, Trawsfynydd Site
Alwena Roberts – Quality Assurance Assistant, Trawsfynydd Site
Carys Jones – Administration, Trawsfynydd Site

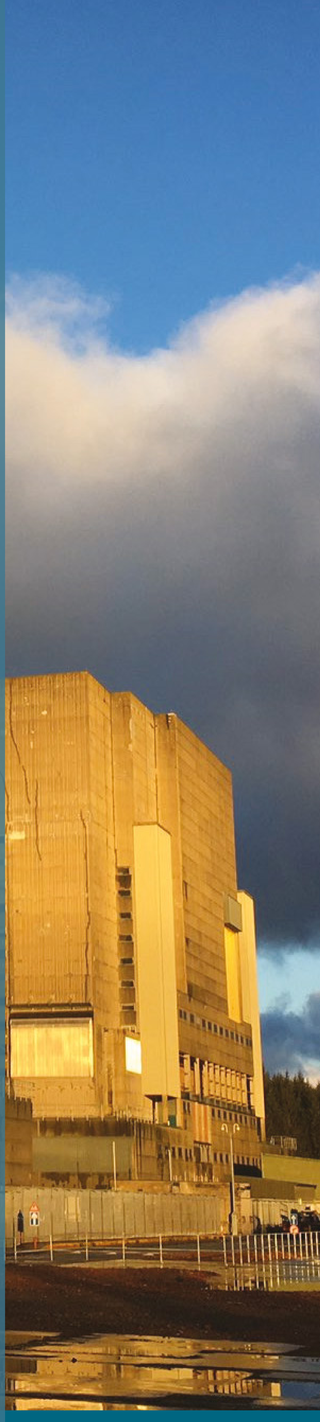
Observers

Elin Parry Jones – Senior Communications Officer
Jo Hodgson - Environmental Impact Assessment lead
Benjamin Bridgewater – Senior Waste Consultant

Appendix 3 - Bilingual pdf of pop ups

Fersiwn Cymraeg

Hanes



Mae Safle Trawsfynydd wedi ei leoli ar ymyl Llyn Trawsfynydd ac mewn lleoliad unigryw ym Mharc Cenedlaethol Eryri, Gogledd Cymru. Crëwyd y llyn yn wreiddiol yn y 1920au i gyflenwi dŵr i orsaf bŵer trydan dŵr Maentwrog, sy'n dal i gael ei gweithredu gan Magnox heddiw.

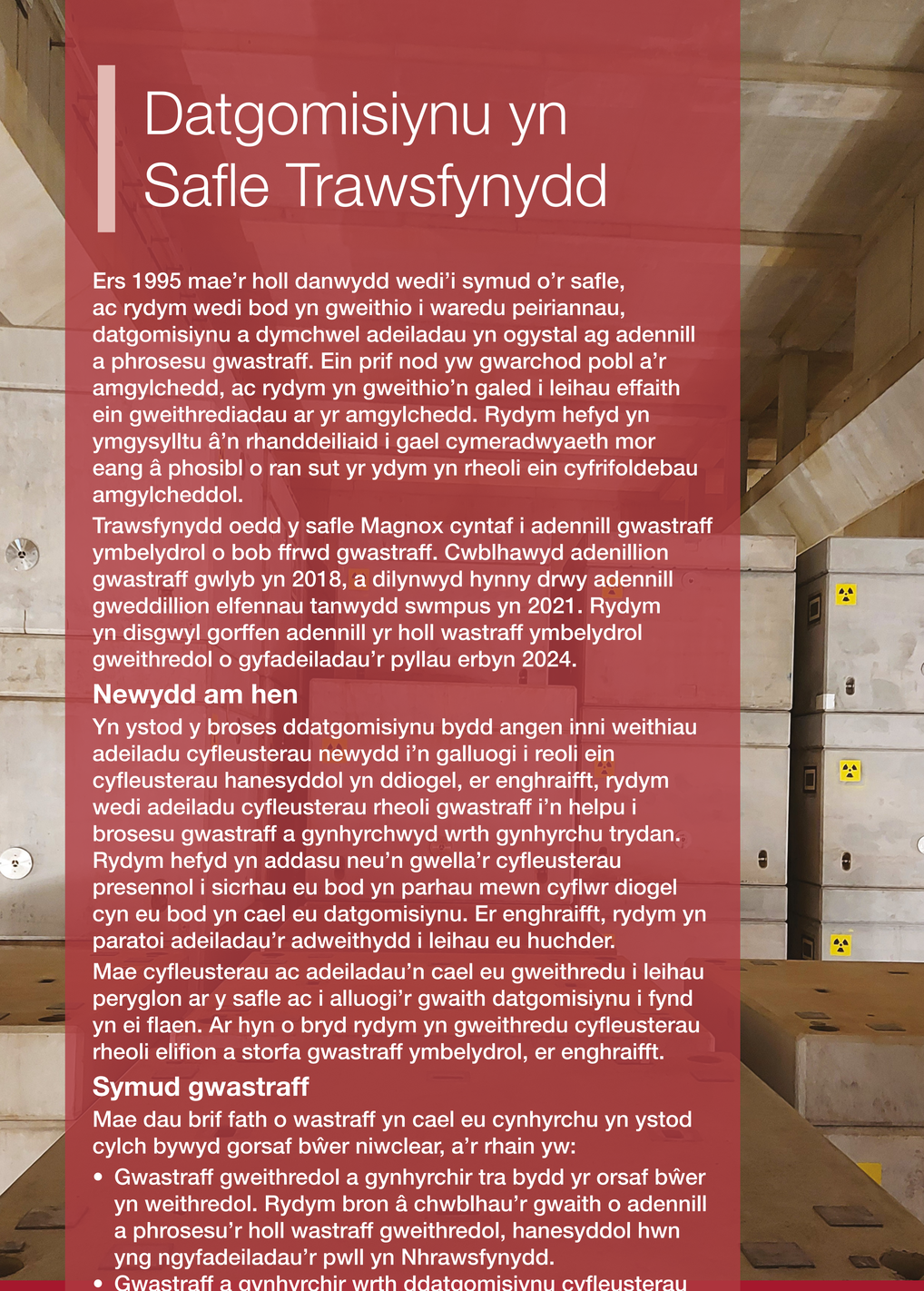
Dechreuwyd adeiladu'r safle 15.4 hectar ym mis Gorffennaf 1959. Trawsfynydd oedd yr unig orsaf ynni niwclear fewndirol yn y DU, a defnyddiwyd y llyn i gyflenwi dŵr oeri i'r adweithyddion Magnox gefeilliol 500 megawat pan ddechreuon nhw weithredu ym mis Mawrth 1965. Ar y pryd roedd y safle yn gallu cyflenwi holl anghenion trydan Gogledd Cymru.

Yn ogystal â'r adweithyddion, roedd y safle'n cynnwys adeilad pwll oeri, neuadd dyrbinau, a llu o adeiladau atodol. Fodd bynnag, yn dilyn 26 mlynedd o gynhyrchu llwyddiannus a diogel, daeth gwasanaeth Trawsfynydd i ben ym 1991. Yn ystod ei oes weithredol roedd y safle wedi cynhyrchu cyfanswm o 69 awr terawat o drydan. Dechreuwyd ar y gwaith o dynnu tanwydd o'r adweithyddion ym 1993 ac fe'i cwblhawyd 21 mis yn ddiweddarach yn ystod 1995. Gwelodd y gwaith hwn 99% o gyfanswm y deunydd ymbelydrol yn cael ei symud o'r safle.

Ers 1995 mae Trawsfynydd wedi bod yn mynd trwy broses barhaus o ddatgomisiynu diogel, gan ganolbwyntio ar leihau peryglon a chlirio gwastraff.

Magnox

Datgomisiynu yn Safle Trawsfynydd



Ers 1995 mae'r holl danwydd wedi'i symud o'r safle, ac rydym wedi bod yn gweithio i waredu peiriannau, datgomisiynu a dymchwel adeiladau yn ogystal ag adennill a phrosesu gwastraff. Ein prif nod yw gwarchod pobl a'r amgylchedd, ac rydym yn gweithio'n galed i leihau effaith ein gweithrediadau ar yr amgylchedd. Rydym hefyd yn ymgysylltu â'n rhanddeiliaid i gael cymeradwyaeth mor eang â phosibl o ran sut yr ydym yn rheoli ein cyfrifoldebau amgylcheddol.

Trawsfynydd oedd y safle Magnox cyntaf i adennill gwastraff ymbelydrol o bob ffrwd gwastraff. Cwblhawyd adenillion gwastraff gwlyb yn 2018, a dilynwyd hynny drwy adennill gweddillion elfennau tanwydd swmpus yn 2021. Rydym yn disgwyl gorffen adennill yr holl wastraff ymbelydrol gweithredol o gyfadeiladau'r pyllau erbyn 2024.

Newydd am hen

Yn ystod y broses ddatgomisiynu bydd angen inni weithiau adeiladu cyfleusterau newydd i'n galluogi i reoli ein cyfleusterau hanesyddol yn ddiogel, er enghraifft, rydym wedi adeiladu cyfleusterau rheoli gwastraff i'n helpu i brosesu gwastraff a gynhyrchwyd wrth gynhyrchu trydan. Rydym hefyd yn addasu neu'n gwella'r cyfleusterau presennol i sicrhau eu bod yn parhau mewn cyflwr diogel cyn eu bod yn cael eu datgomisiynu. Er enghraifft, rydym yn paratoi adeiladau'r adweithydd i leihau eu huchder.

Mae cyfleusterau ac adeiladau'n cael eu gweithredu i leihau peryglon ar y safle ac i alluogi'r gwaith datgomisiynu i fynd yn ei flaen. Ar hyn o bryd rydym yn gweithredu cyfleusterau rheoli elifion a storfa gwastraff ymbelydrol, er enghraifft.

Symud gwastraff

Mae dau brif fath o wastraff yn cael eu cynhyrchu yn ystod cylch bywyd gorsaf bŵer niwclear, a'r rhain yw:

- Gwastraff gweithredol a gynhyrchir tra bydd yr orsaf bŵer yn weithredol. Rydym bron â chwblhau'r gwaith o adennill a phrosesu'r holl wastraff gweithredol, hanesyddol hwn yng ngyfadeiladau'r pwll yn Nhrawsfynydd.
- Gwastraff a gynhyrchir wrth ddatgomisiynu cyfleusterau segur, er enghraifft gwaith pibelli, tanciau, pympiau a rwbel wedi'i ddymchwel.

Dymchwel

Mae gwastraff datgomisiynu fel peiriannau a chyfarpar yn cael eu symud a'u gwaredu'n ddiogel oddi ar y safle. Gwastraff y bernir sy'n addas i'w gadw ar y safle yw deunyddiau concrid a briciau'n bennaf a gaiff eu cynhyrchu yn ystod gwaith dymchwel, yn amodol ar gael y caniatâd angenrheidiol. Bydd y gwastraff hwn yn cynnwys cydrannau ymbelydrol a heb fod yn ymbelydrol. Mae gwaith yn cael ei wneud ar hyn o bryd i baratoi ar gyfer dymchwel cyfadeiladau'r pwll.

Mae cyfleusterau segur yn cael eu dymchwel, a bydd rhai deunyddiau priodol a ddymchwelwyd yn cael eu cadw ar y safle. Mae'r neuadd dyrbin, y gweithdai a'r adeiladau gweinyddol gwreiddiol i gyd wedi'u dymchwel eisoes. Hyd yma mae hyn wedi golygu bod miloedd lawer o dunelli o groncrid a briciau o'r adeiladau'n cael eu hailddefnyddio ar y safle yn hytrach na chael eu cludo oddi yno mewn lorïau.

Cyflwr terfynol

Ni chyrhaeddir cyflwr terfynol y safle hyd nes y byddwn wedi cwblhau'r holl weithgarwch a gynlluniwyd ar y safle ac y gellir rhyddhau'r tir ar gyfer y defnydd nesaf a fwriadwyd ar ei gyfer. Yn achos Trawsfynydd rhagwelir y cyrhaeddir y cyflwr hwn tua chanol y ganrif.

Magnox

Cyfadeiladau'r pwll

Mae cyfadeiladau'r pwll yn gasgliad o 38 o adeiladau a adeiladwyd dros 50 mlynedd yn ôl i brosesu ac anfon tanwydd a ddisbyddwyd o'r adweithyddion ac i ymgymryd â gweithrediadau storio a phrosesu gwastraff. Y prif adeiladwaith yw'r pyllau eu hunain (pedair lôn pyllau, sydd tua 100m o hyd, 10.5m o led a 4.3m o ddyfnder) ynghyd â chromgelloedd gweddillion gwastraff, gwaith trin dŵr, cyfleusterau golchi dillad a chyfleusterau prosesu gwastraff lefel ganolraddol.

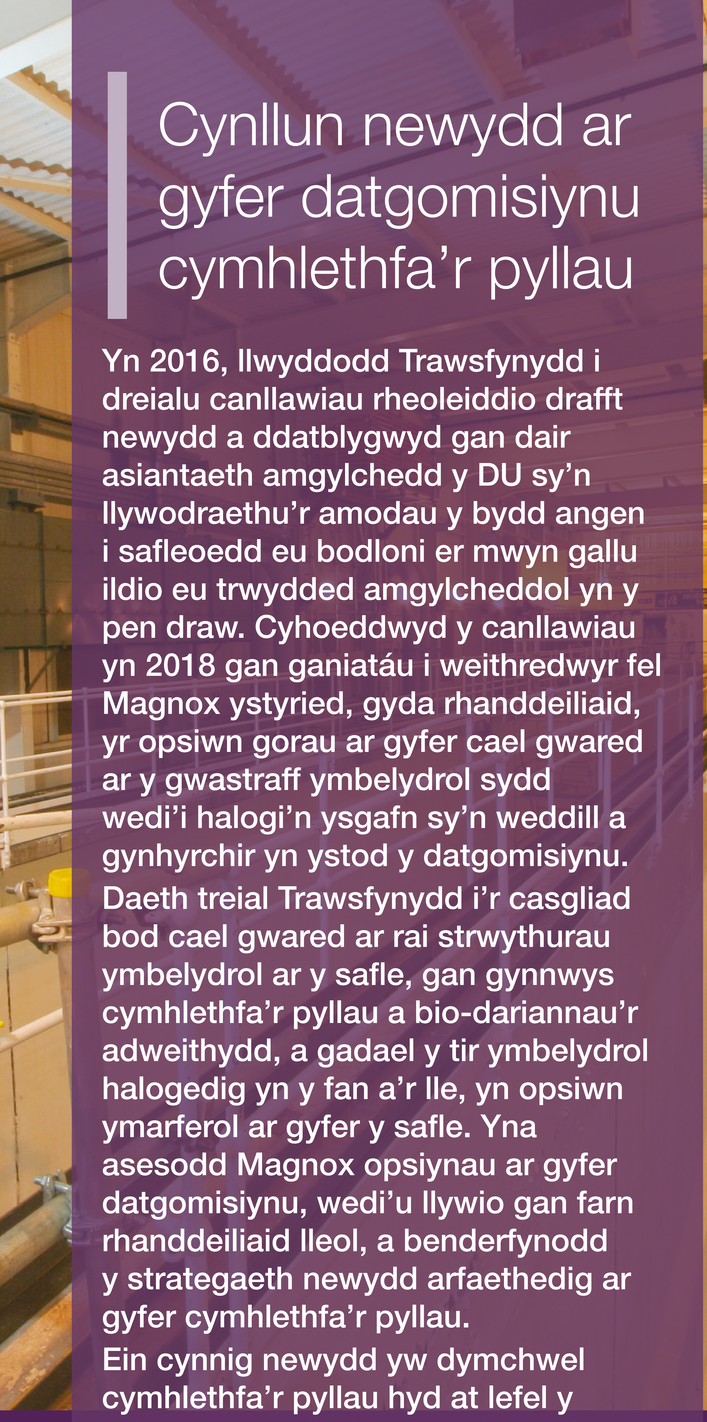
Ar ôl gorffen gwagio'r tanwydd, cafodd y dŵr ei wagio o lonydd y llau, gan adael strwythur concrid sych gyda haen arwyneb wedi'i halogi. Defnyddiwyd cerbydau sy'n cael eu gweithredu o bell i symud yr haen ar yr wyneb o goncrid o du mewn i'r adeilad i waredu'r halogiad swmpus, gyda mwy na 120 tunnell o rwbel concrid halogedig wedi'i symud o'r safle.

Fodd bynnag, ar ôl cwblhau'r gwaith hwn, bydd rhywfaint o ymbelydredd gweddilliol yn yr adeiladwaith. Ar ôl degawdau o weithgarwch gweithredol mi wyddom fod y tir o amgylch y safle hefyd yn cynnwys lefelau isel o ymbelydredd, sy'n cael ei fonitro'n rheolaidd ac rydym yn adrodd arno fel rhan o'n gwaith o reoli'r safle.

Y cynllun gwreiddiol ar gyfer datgomisiynu cyfadeiladau'r pyllau oedd gwaredu'r holl ymbelydredd a oedd yn uwch na lefelau rheoliadol o'r adeiladwaith i'w waredu oddi ar y safle, ac yna dymchwel i lefel y tir ac ôl-lenwi unrhyw wagle â deunydd newydd, a fyddai'n cael ei gludo i'r safle o rywle arall.

Ein cynllun arfaethedig newydd ar gyfer y safle yw parhau i adael yr adeiladwaith o dan y ddaear yn ei le ond ôl-lenwi'r gwagle â rwbel addas o'r adeiladwaith uwchben lefel y ddaear, cyn gosod cap concrid i allu ailddefnyddio'r tir i helpu i ddatgomisiynu'r safle ymhellach.

Magnox



Cynllun newydd ar gyfer datgomisiynu cymhlethfa'r pyllau

Yn 2016, llwyddodd Trawsfynydd i dreialu canllawiau rheoleiddio drafft newydd a ddatblygwyd gan dair asiantaeth amgylchedd y DU sy'n llywodraethu'r amodau y bydd angen i safleoedd eu bodloni er mwyn gallu ildio eu trwydded amgylcheddol yn y pen draw. Cyhoeddwyd y canllawiau yn 2018 gan ganiatáu i weithredwyr fel Magnox ystyried, gyda rhanddeiliaid, yr opsiwn gorau ar gyfer cael gwared ar y gwastraff ymbelydrol sydd wedi'i halogi'n ysgafn sy'n weddill a gynhyrchir yn ystod y datgomisiynu.

Daeth treial Trawsfynydd i'r casgliad bod cael gwared ar rai strwythurau ymbelydrol ar y safle, gan gynnwys cymhlethfa'r pyllau a bio-dariannau'r adweithydd, a gadael y tir ymbelydrol halogedig yn y fan a'r lle, yn opsiwn ymarferol ar gyfer y safle. Yna asesodd Magnox opsiynau ar gyfer datgomisiynu, wedi'u llywio gan farn rhanddeiliaid lleol, a benderfynodd y strategaeth newydd arfaethedig ar gyfer cymhlethfa'r pyllau.

Ein cynnig newydd yw dymchwel cymhlethfa'r pyllau hyd at lefel y ddaear gan adael y strwythur sy'n weddill o dan y ddaear yn y fan a'r lle a'i fewnlenwi â rwbel a gynhyrchir o ddymchwel y strwythurau uwchben y ddaear. Bydd hyn yn amodol ar sicrhau pob caniatâd cyfreithiol a rheoliadol angenrheidiol. Credwn mai manteision y dull diwygiedig hwn yw:

- lleihau risgiau iechyd a diogelwch yn ystod datgomisiynu
- llai o effaith amgylcheddol oherwydd materion fel llai o symudiadau lori
- llai o ddos i weithwyr ac i'r cyhoedd yn ystod datgomisiynu
- arbedion cost sylweddol i drethdalwyr y DU

Gallwch ddarllen gwybodaeth fanylach am sut rydym wedi asesu effeithiau ein cynigion fel rhan o'r arddangosfa hon.

Magnox

Ymgysylltu hyd yma

Ers 2016 rydym wedi ymgysylltu'n helaeth â Grŵp Rhanddeiliaid Safle (SSG) Trawsfynydd ar y canllawiau newydd a sut y gellid eu cymhwyso ar y safle. Mae'r grŵp yn cynnwys cynrychiolwyr o'r gymuned leol a grwpiau â diddordeb.

Mae hyn wedi cynnwys gweithdai i ddeall y canllawiau; cynnal ymweliadau safle i weld cymhlethfa'r pyllau; sesiynau wyneb yn wyneb i ddeall y ffactorau sy'n bwysig i randdeiliaid a'r gymuned wrth ystyried y ffordd orau o ddatgomisiynu'r gymhlethfa, a diweddariadau niferus ar ein cynnydd yng nghyfarfodydd chwe-misol y Grŵp Rhanddeiliaid Safle.

Rydym wedi ystyried adborth gan y grŵp yn ein gwaith i ddatblygu'r strategaeth i ddatgomisiynu cymhlethfa'r pyllau, o fewn cyd-destun y gofynion rheoleiddio.

Rydym wedi ymrwymo i barhau i wrando ar eich barn, a byddem yn croesawu'n fawr eich adborth ar ein cynigion, y byddwn yn eu hystyried wrth ddatblygu'r dyluniadau ar gyfer gwaredu ar y safle a wnelo cymhlethfa'r pyllau.

Gallwch weld sut y gellid tynnu cymhlethfa'r pyllau i lawr ac ôl-lenwi'r gwagleoedd o'r animeiddiad sy'n rhan o'r arddangosfa hon.

Cwblhewch y ffurflen adborth, neu e-bostiwch eich sylwadau i haveyoursay@magnoxsites.com neu postiwch i Rhadbost MAGNOX HAVE YOUR SAY.

Magnox

Beth sy'n digwydd nesaf?

Rydym yn bwriadu cyflwyno cais cynllunio i Awdurdod Parc Cenedlaethol Eryri yn ystod gwanwyn 2024 a fydd yn cael ei gefnogi gan ddatganiad amgylcheddol sy'n crynhoi effeithiau posibl ein cynigion.

Byddwn hefyd yn cyflwyno cais i amrywio'r drwydded amgylcheddol bresennol i Cyfoeth Naturiol Cymru. Bydd y cais yn cael ei gefnogi gan achos diogelwch amgylcheddol ar gyfer y safle cyfan a fydd yn cynnwys manylion ynghylch sut mae'r gwarediad arfaethedig yn ddiogel, ar ôl ei weithredu ac i'r dyfodol. Bydd Cyfoeth Naturiol Cymru yn adolygu'r achos a gall hefyd ymgysylltu â chymunedau lleol ar y cynigion.

Magnox

Beth fydd yn digwydd os bydd y cais cynllunio a chaniatâd amgylcheddol yn cael eu caniatáu?

Cyfadeiladau y Pyllau (1):

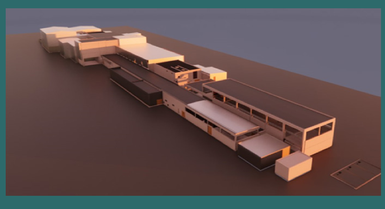
Rydym eisoes yn cael gwared ar y peiriannau a'r offer yng nghymhlethfa'r pyllau i baratoi'r adeiladau ar gyfer eu dymchwel. Pan fydd hyn wedi'i gwblhau bydd yr adeiladau'n wag ac yn barod i'w dymchwel (2).

Pan fydd gennym ganiatâd rheoleiddiol i wneud hynny, byddwn yn gweithio gyda chontractwr dymchwel arbenigol i ddymchwel cymhlethfa'r pyllau. Bydd adeiladau'n cael eu datgymalu'n ofalus i lawr i lefel y slabiau llawr gwaelod presennol (3).

Mae'r strwythurau o dan y ddaear yn cynnwys gwagleoedd a nodweddion islawr. Bydd y rhain yn cael eu gadael a'u llenwi gan ddefnyddio'r rwbel a grëwyd o ddymchwel y strwythurau uwchben y ddaear, a elwir yn Waredu at Ddiben (4).

Yna bydd haen gapio goncrit newydd yn cael ei hadeiladu dros ôl troed cymhlethfa'r pyllau a fydd yn creu gofod gwerthfawr y gellir ei ddefnyddio ar gyfer datgomisiynu parhaus ar y safle (5).

Bydd draeniad yn cael ei osod i gasglu dŵr glaw o'r haen gapio a'i anfon i'r rhwydwaith ddraenio dŵr wyneb bresennol ar y safle. Mae gwaith monitro dŵr daear arferol o'r safle eisoes wedi'i wneud a bydd hyn yn cael ei wella unwaith y bydd y prosiect wedi'i gwblhau.



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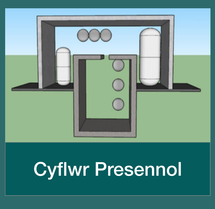

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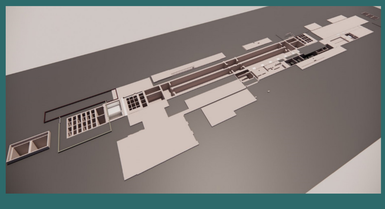

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5

Magnox

Yr amgylchedd a diogelwch

Beth fydd lefelau'r ymbelydredd a fydd yn weddill yn ardal y pyllau?

Mae asesiadau technegol wedi'u cynnal i ganfod sut y bydd gwaredu cyfadeiladau'r pwll yn ymddwyn dros amser hir a thrwy ystod o senarios newid yn yr hinsawdd i asesu unrhyw risgiau i bobl a'r amgylchedd. O dan ofynion ein trwydded amgylcheddol, a gyhoeddwyd gan Cyfoeth Naturiol Cymru, mae gofyniad arnom i sicrhau nad yw dosau ymbelydrol i'r cyhoedd sy'n deillio o'n gweithgarwch ar y safle'n mynd dros werth uchaf o 0.3 mSv/y flwyddyn. Adwaenir hyn fel y cyfyngiad dos. Er mwyn i'r safle gael ei ryddhau o reoliad – rhagwelir y bydd hyn yn digwydd yn ail hanner y ganrif – rhaid i'r dos ymbelydrol a gyfrifir o'r safle, gan gynnwys gwaredïad arfaethedig y pyllau ac unrhyw waredïadau eraill, fod o leiaf 10 gwaith yn is na'r cyfyngiad dos cyfredol.

I osod y cyd-destun, pe bai'r pyllau'n cael eu codi allan a'u symud o'r safle byddai modd gwaredu'r gwastraff a gynhyrchir mewn safle tirlenwi a ganiateir sy'n addas.

Cyfeirir at lefel yr ymbelydredd a geir fel y dos ac uned y dos yw'r sievert (Sv). Mae'r Sievert, fodd bynnag, yn uned fawr ac i fod yn fwy ymarferol rydym yn dueddol o ddefnyddio milisievertau (mSv), yn yr un ffordd ag y byddem yn mesur uchder pobl mewn metrau yn hytrach nag mewn cilometrau.

Mae'r tabl isod yn dangos cymhariaeth o ddosau ymbelydredd nodweddiadol o ffynonellau amlygu, a'r cyfyngiadau cyfreithiol perthnasol:

Cyfyngiad cyfreithiol y DU ar gyfer amlygiad o bob ymbelydredd artiffisial	1000mSv
Cyfyngiad dosau ar gyfer Safle Trawsfynydd[1]	300mSv
Dos a gyfrifwyd i'r cyhoedd o Safle Trawsfynydd yn 2021[2]	0.04mSv (4% of the legal limit)
Amlygiad cyfartalog blynyddol y DU (ymbelydredd naturiol ac artiffisial)	2300mSv
Pelydr-x deintyddol	0.005mSv
Pelydr-x ar y frest	0.014mSv
Hediad ar draws Fôr Iwerydd	0.08mSv
Bwyta 100g o gnau brasil	0.01mSv
'Guidance: Decommissioning of nuclear sites and release from regulation' (GRR) risk guidance level for the site after release from regulation (including any on site disposals of radioactive wastes)[3]	Equates to ~0.03mSv per year
Lefel canllaw dosau GRR	• 3 mSv/y flwyddyn ar gyfer amlygiad hir • Cyfanswm o 20 mSv ar gyfer amlygiad dros dro

[1]Mae'r cyfyngiad hwn yn cael ei gymhwyso i'r safle drwy'r drwydded amgylcheddol gan CNC

[2]Cyhoeddir y data ar gyfer 2021 yn yr adroddiad Radioactivity in Food and the Environment report (RIFE 27) a gyhoeddwyd gan Lywodraeth y DU ym mis Tachwedd 2022

[3]Management of radioactive waste from the decommissioning of nuclear sites: guidance on the requirements for release from radioactive substances regulation

Magnox

Mynegi eich barn

Diolch am gymryd yr amser i ymweld â'n harddangosfa ar y camau nesaf yn Safle Trawsfynydd. Mi hoffem glywed eich barn am y bwriadau ar gyfer cyfadeiladau'r pwll.

Gofynnir i chi gwblhau'r ffurflen adborth, neu e-bostiwch eich sylwadau i haveyoursay@magnoxsites.com neu i Freepost MAGNOX HAVE YOUR SAY.

Y Camau Nesaf

Byddwn yn ystyried eich adborth wrth ddatblygu'r dyluniadau ar gyfer gwaredu cyfadeiladau'r pwll ar y safle.

Rydym yn bwriadu cyflwyno cais cynllunio i Awdurdod Parc Cenedlaethol Eryri yng ngwanwyn 2024 a fydd yn cael ei ategu gan ddatganiad amgylcheddol sy'n crynhoi effeithiau posibl ein cynigion.

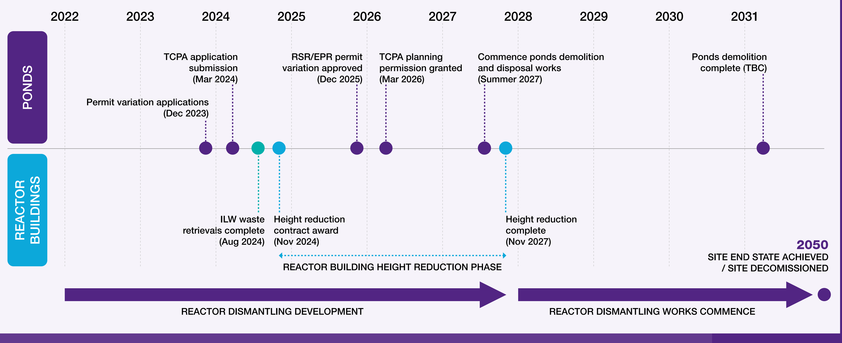
Byddwn hefyd yn cyflwyno cais Cyfoeth Naturiol Cymru i amrywio'r drwydded amgylcheddol bresennol. Bydd y cais yn cael ei ategu gan achos diogelwch amgylcheddol safle cyfan a fydd yn cynnwys manylion am sut y bydd y gwarediad arfaethedig yn ddiogel, ar ôl gweithredu ac yn y dyfodol. Bydd Cyfoeth Naturiol Cymru yn adolygu'r achos a gallant ymgysylltu â chymunedau lleol ar y cynigion.

Cadw mewn cysylltiad

Rydym yn awyddus eich bod yn cael clywed beth sy'n digwydd, felly dewch draw i'r cyfarfodydd rheolaidd o'n grŵp rhanddeiliaid safle. Mae manylion ar gael yn **www.magnoxstakeholdergroups.com**

Text to translate below

Amserlen Trawsfynydd o'r presennol i'r cyflwr terfynol



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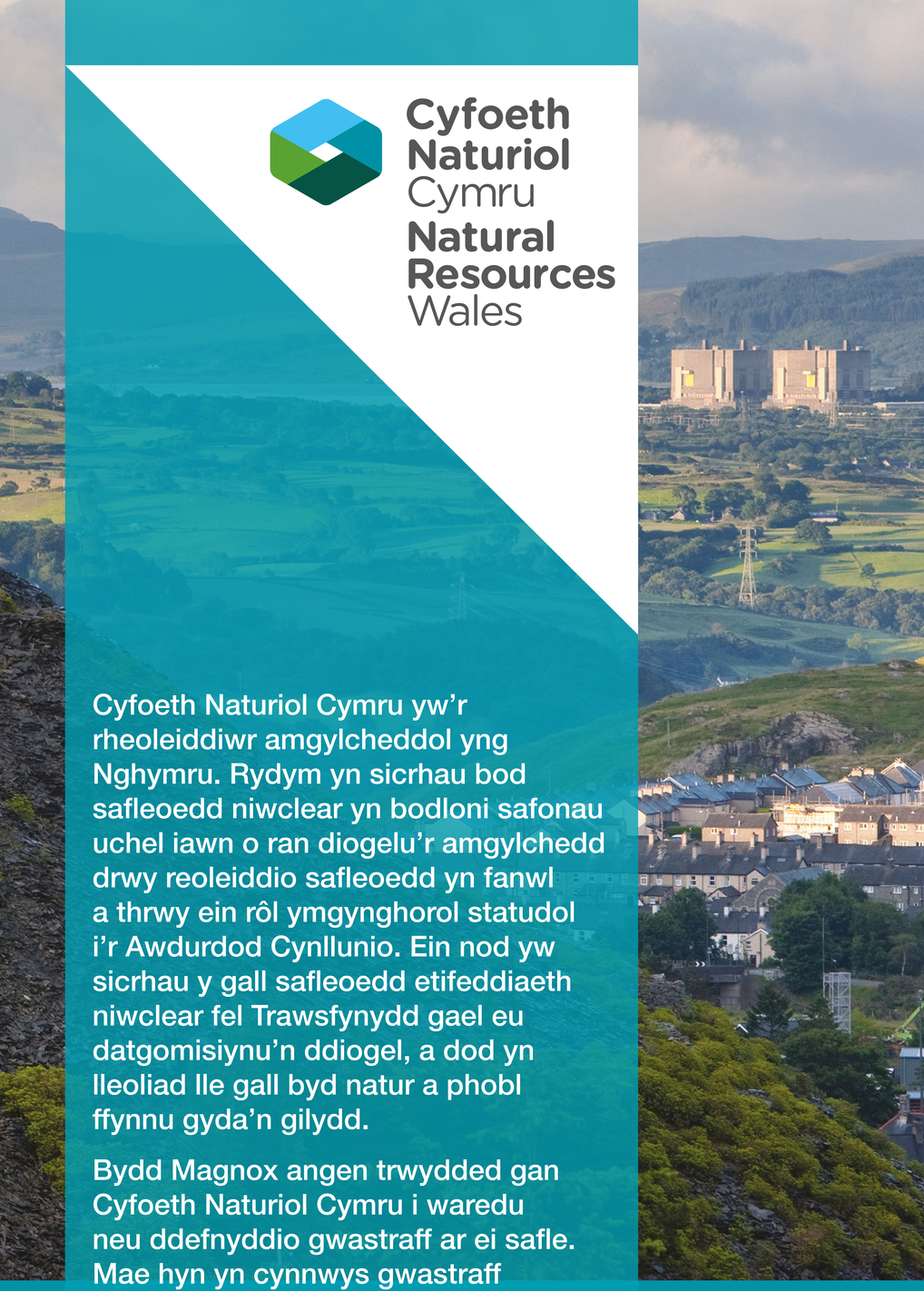


Cyfoeth Naturiol Cymru
Natural Resources Wales

Cyfoeth Naturiol Cymru yw'r rheoleiddiwr amgylcheddol yng Nghymru. Rydym yn sicrhau bod safleoedd niwclear yn bodloni safonau uchel iawn o ran diogelu'r amgylchedd drwy reoleiddio safleoedd yn fanwl a thrwy ein rôl ymgynghorol statudol i'r Awdurdod Cynllunio. Ein nod yw sicrhau y gall safleoedd etifeddiaeth niwclear fel Trawsfynydd gael eu datgomisiynu'n ddiogel, a dod yn lleoliad lle gall byd natur a phobl ffynnu gyda'n gilydd.

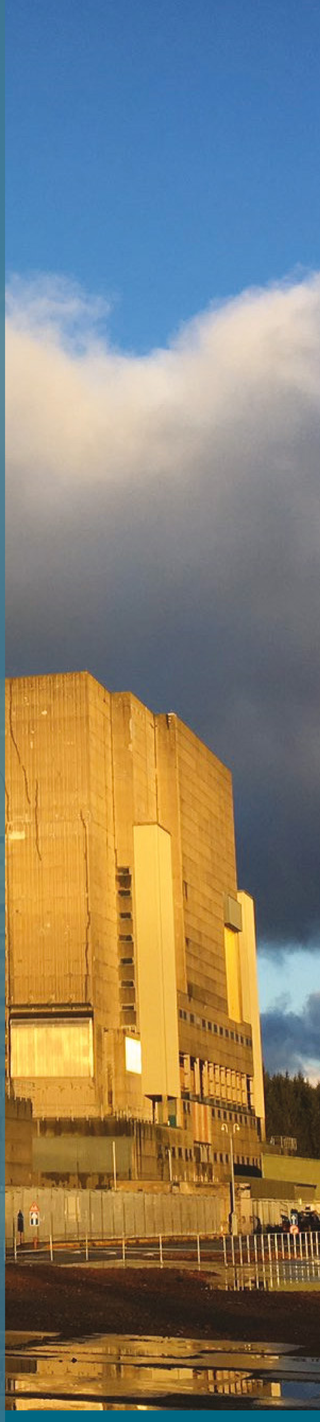
Bydd Magnox angen trwydded gan Cyfoeth Naturiol Cymru i waredu neu ddefnyddio gwastraff ar ei safle. Mae hyn yn cynnwys gwastraff ymbelydrol lefel isel a gwastraff anymbelydrol. Rydym yn disgwyl i Magnox wneud cais am newid i'w drwydded amgylcheddol bresennol ac ar yr adeg honno byddwn yn cychwyn ymgynghoriad i geisio barn y cyhoedd a rhanddeiliaid allweddol ar eu cynlluniau.

Rydym yn gweithio'n agos gyda chyrff rheoleiddio eraill a'r Awdurdod Datgomisiynu Niwclear i helpu i ddatblygu dulliau o ddatgomisiynu a glanhau hen safleoedd niwclear.

Appendix 3 - Bilingual pdf of pop ups

English Version

A history



Trawsfynydd Site is situated on the edge of Trawsfynydd Lake and uniquely located in Snowdonia National Park, North Wales. The lake was originally created in the 1920s to supply water to the Maentwrog hydro-electric power station, which is still operated by Magnox today.

Construction of the 15.4 hectare site started in July 1959. Trawsfynydd was the only inland nuclear power station in the UK, and the lake was used to supply cooling water to the 500 megawatt twin Magnox reactors when they started operating in March 1965. At the time the site was capable of supplying all of North Wales' electricity needs.

As well as the reactors, the site was made up of a cooling pond building, a turbine hall, and a multitude of ancillary buildings. However, following 26 years of successful and safe generation, Trawsfynydd was taken offline in 1991. During its operational life the site had produced a total of 69 terawatt hours of electricity. Defuelling of the reactors commenced in 1993 and was completed 21 months later during 1995. This work saw 99% of the total radioactive material removed from site.

Since 1995 Trawsfynydd has been undergoing an ongoing process of safe and secure decommissioning, focusing on hazard reduction and waste retrieval.

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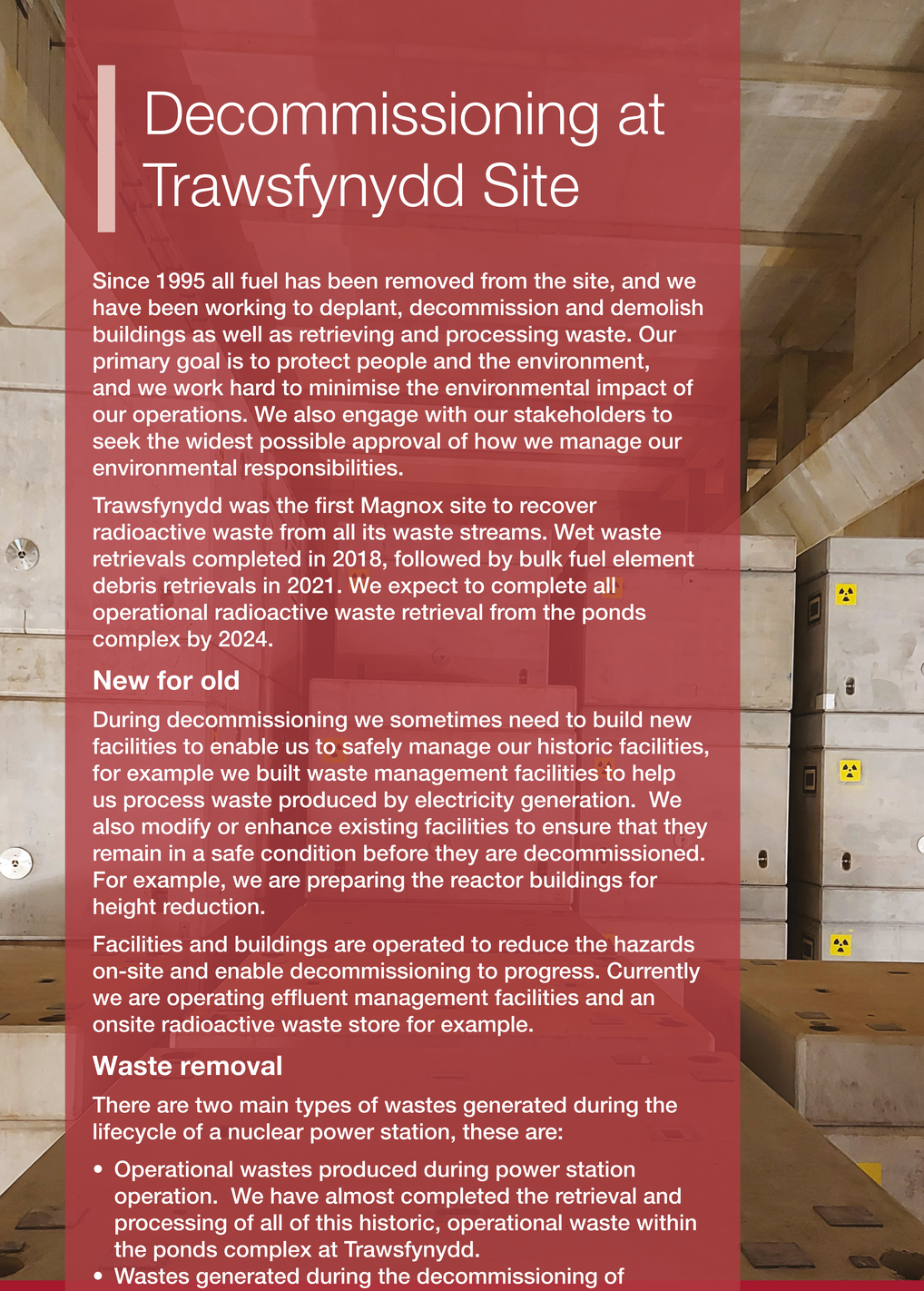
Decommissioning at Trawsfynydd Site



Since 1995 all fuel has been removed from the site, and we have been working to deplant, decommission and demolish buildings as well as retrieving and processing waste. Our primary goal is to protect people and the environment, and we work hard to minimise the environmental impact of our operations. We also engage with our stakeholders to seek the widest possible approval of how we manage our environmental responsibilities.

Trawsfynydd was the first Magnox site to recover radioactive waste from all its waste streams. Wet waste retrievals completed in 2018, followed by bulk fuel element debris retrievals in 2021. We expect to complete all operational radioactive waste retrieval from the ponds complex by 2024.

New for old

During decommissioning we sometimes need to build new facilities to enable us to safely manage our historic facilities, for example we built waste management facilities to help us process waste produced by electricity generation. We also modify or enhance existing facilities to ensure that they remain in a safe condition before they are decommissioned. For example, we are preparing the reactor buildings for height reduction.

Facilities and buildings are operated to reduce the hazards on-site and enable decommissioning to progress. Currently we are operating effluent management facilities and an onsite radioactive waste store for example.

Waste removal

There are two main types of wastes generated during the lifecycle of a nuclear power station, these are:

- Operational wastes produced during power station operation. We have almost completed the retrieval and processing of all of this historic, operational waste within the ponds complex at Trawsfynydd.
- Wastes generated during the decommissioning of redundant facilities, for example pipework, tanks, pumps and demolition rubble.

Demolition

Decommissioning wastes such as plant and equipment are carefully removed and safely disposed of off-site. Wastes which are deemed to be suitable for retention on-site are mostly concrete and brick materials that will be generated during demolition, subject to obtaining the necessary permissions. These wastes will include both radioactive and non-radioactive components. The ponds complex is currently undergoing preparation for demolition.

Redundant facilities are demolished, and some appropriate demolition materials are retained on-site. The turbine hall, workshops and original administration buildings have all been demolished previously. To date this has resulted in many thousands of tonnes of concrete and brick from the buildings being re-used on the site rather than removed in lorries.

End state

The site end state will only be reached when we have completed all our planned activities on-site and the land can be released for its next planned use. For Trawsfynydd this is anticipated to be towards the middle of the century.

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The ponds complex

The ponds complex is a collection of 38 buildings built more than 50 years ago to process and dispatch spent fuel from the reactors and undertake waste storage and processing operations. The primary structure is the ponds themselves (four ponds lanes, measuring around 100m long by 10.5m wide and 4.3m deep) along with waste debris vaults, a water treatment plant, laundries and intermediate level waste processing facilities.

After defueling was completed, the pond lanes were emptied of water, leaving a dry concrete structure with a contaminated surface layer. Remotely operated vehicles were used to remove, or 'scabble', the surface layer of concrete from inside areas of the building to remove bulk contamination, with more than 120 tonnes of contaminated concrete rubble removed from site.

After completing this work, however, the remaining structure does retain a level of residual radioactivity. We also know that after decades of operational activity some of the land around the complex also contains minimal levels of radioactivity, which we routinely monitor and report on as part of our ongoing management of the site.

The original plan for decommissioning the ponds complex was to remove all radioactivity above levels of regulatory limits from the structures for off-site disposal, and then to demolish to ground level and backfill any voids with new material, which would be brought into the site from elsewhere.

Our new proposed plan for the facility is to still leave the below ground structure in-situ but to back-fill the void with suitable rubble from the demolition of the above ground structure, prior to topping the area with a concrete cap to enable reuse of the land to support further decommissioning of the site.

Image: Ponds before being drained in 1997

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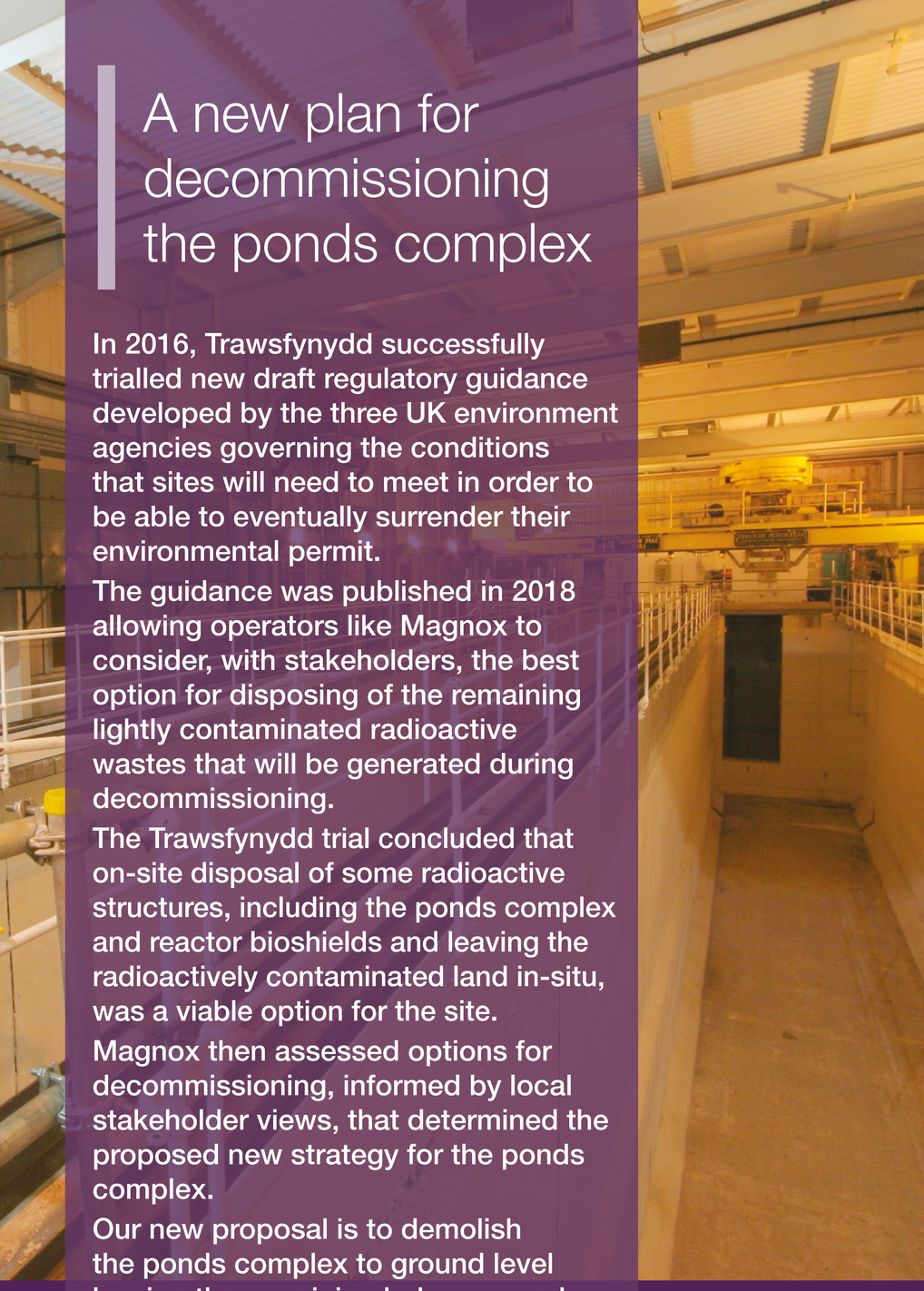

A new plan for decommissioning the ponds complex

In 2016, Trawsfynydd successfully trialled new draft regulatory guidance developed by the three UK environment agencies governing the conditions that sites will need to meet in order to be able to eventually surrender their environmental permit.

The guidance was published in 2018 allowing operators like Magnox to consider, with stakeholders, the best option for disposing of the remaining lightly contaminated radioactive wastes that will be generated during decommissioning.

The Trawsfynydd trial concluded that on-site disposal of some radioactive structures, including the ponds complex and reactor bioshields and leaving the radioactively contaminated land in-situ, was a viable option for the site.

Magnox then assessed options for decommissioning, informed by local stakeholder views, that determined the proposed new strategy for the ponds complex.

Our new proposal is to demolish the ponds complex to ground level leaving the remaining below ground structure in-situ and infilled with rubble generated from demolition of the above ground structures. This will be subject to securing all necessary legal and regulatory permissions. We believe the benefits of this revised approach are:

- reduced health and safety risks during decommissioning
- reduced environmental impact from issues such as diminished lorry movements
- reduced worker and public dose during decommissioning
- significant cost savings for the UK taxpayer

You can read more detailed information on how we have assessed the impacts of our proposals as part of this exhibition.

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Engagement to date

Since 2016 we have undertaken extensive engagement with the Trawsfynydd Site Stakeholder Group (SSG) on the new guidance and how it could be applied at the site. The group is made up of representatives of the local community and interested groups.

This has involved workshops to understand the guidance; hosting site visits to view the ponds complex; face to face sessions to understand factors important to stakeholders and the community when considering how best to decommission the complex and numerous updates on our progress at the bi-annual SSG meetings.

We have taken on board feedback from the group in our work to develop the strategy to decommission the ponds complex, within the context of the regulatory requirements.

We are committed to continuing to listen to your views, and would very much welcome your feedback on our proposals, which we will consider in the development of the designs for onsite disposals of the ponds complex.

You can see how the ponds complex might be taken down and the voids backfilled from the animation that forms part of this exhibition.

Please complete the feedback form, or alternatively email your comments to haveyoursay@magnoxsites.com or post to Freepost MAGNOX HAVE YOUR SAY.

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What happens next?

We plan to submit a planning application to Snowdonia National Park Authority in spring 2024 which will be supported by an environmental statement that summarises the potential impacts from our proposals.

We will also submit an application to vary the existing environmental permit to Natural Resources Wales. The application will be supported by a site-wide environmental safety case which will include details of how the proposed disposal is safe, both after implementation and into the future. Natural Resources Wales will review the case and may also engage with local communities on the proposals.

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What will happen if the planning application and environmental permission are granted?

The Ponds Complex Buildings (Fig 1):

We are already removing the plant and equipment in the ponds complex to prepare the buildings for demolition. When this is complete the buildings will be empty and ready for demolition (Fig 2).

When we have regulatory permissions to do so, we will work with a specialist demolition contractor to demolish the ponds complex. Buildings will be carefully dismantled down to the existing ground floor slab level (Fig 3).

The structures below ground contain voids and basement features. These will be left and filled using the rubble created from the demolition of the above ground structures, this is known as a Disposal for a Purpose (Fig 4).

A new concrete capping layer will then be constructed over the ponds complex footprint that will create valuable space that can be used for ongoing decommissioning on the site (Fig 5).

Drainage will be installed to collect rainwater from the capping layer and send it into the existing surface water drainage network on the site. Routine groundwater monitoring of the site is already undertaken and this will be enhanced once the project is complete.

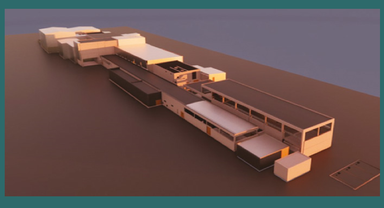

Fig 1

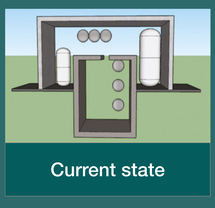

Fig 2

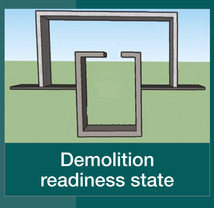

Fig 3

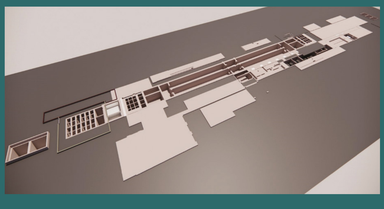

Fig 4

Fig 5

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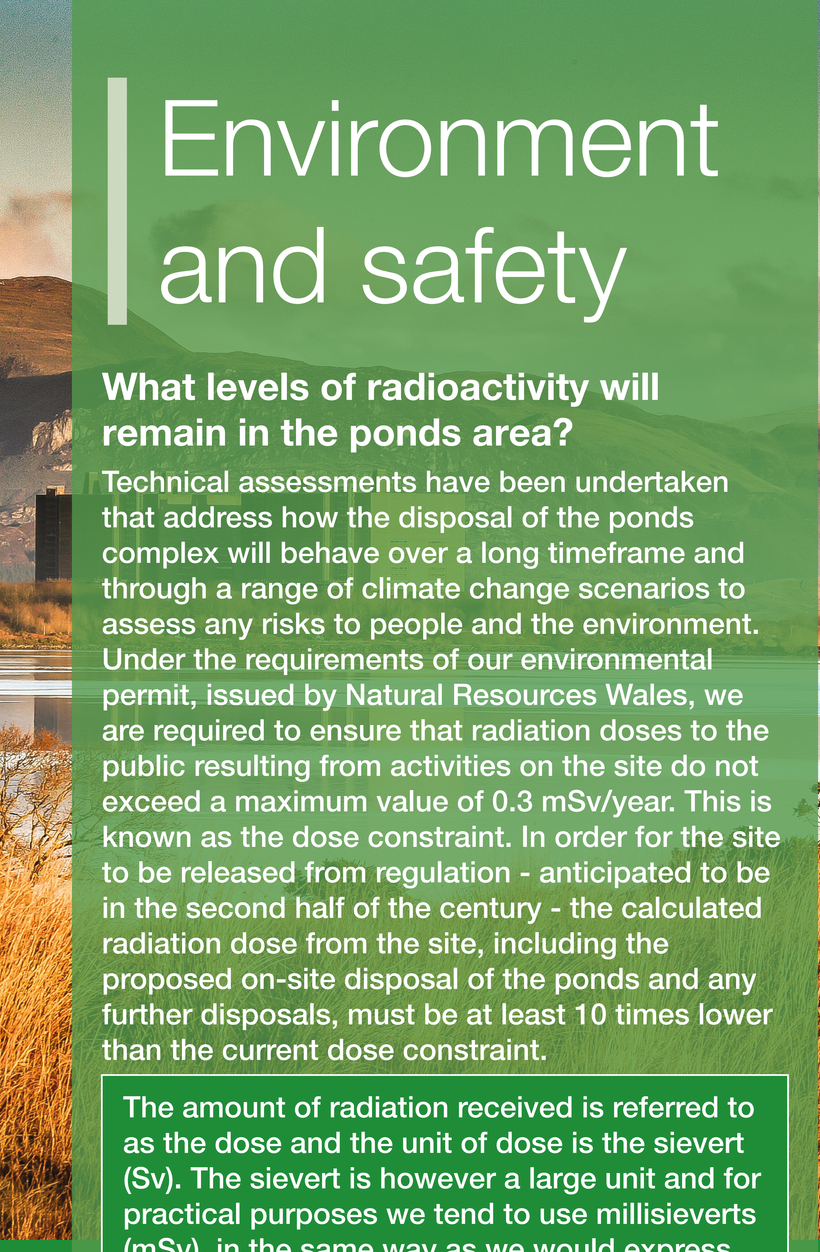

Environment and safety

What levels of radioactivity will remain in the ponds area?

Technical assessments have been undertaken that address how the disposal of the ponds complex will behave over a long timeframe and through a range of climate change scenarios to assess any risks to people and the environment. Under the requirements of our environmental permit, issued by Natural Resources Wales, we are required to ensure that radiation doses to the public resulting from activities on the site do not exceed a maximum value of 0.3 mSv/year. This is known as the dose constraint. In order for the site to be released from regulation - anticipated to be in the second half of the century - the calculated radiation dose from the site, including the proposed on-site disposal of the ponds and any further disposals, must be at least 10 times lower than the current dose constraint.

The amount of radiation received is referred to as the dose and the unit of dose is the sievert (Sv). The sievert is however a large unit and for practical purposes we tend to use millisieverts (mSv), in the same way as we would express height of a person in metres rather than in kilometres.

For context, were the ponds complex to be dug out and removed from site the waste generated would be able to be disposed of to a suitably permitted landfill.

The following table provides a comparison of typical radiation doses from sources of exposure, and relevant legal limits:

UK legal limit for exposure from all artificial radioactivity	1000mSv
Dose constraint for Trawsfynydd Site	300mSv
Calculated dose to the public from Trawsfynydd Site in 2021[1]	0.04mSv (4% of the legal limit)
UK annual average exposure (natural and artificial radioactivity)[2]	2300mSv
Dental x-ray	0.005mSv
Chest x-ray	0.014mSv
Transatlantic flight	0.08mSv
Consuming 100g of brazil nuts	0.01mSv
'Guidance: Decommissioning of nuclear sites and release from regulation' (GRR) risk guidance level for the site after release from regulation (including any on site disposals of radioactive wastes)[3]	Equates to ~0.03mSv per year
GRR dose guidance level	• 3 mSv/year for prolonged exposures • 20 mSv in total for transitory exposures

[1]This is the limit applied to the site through the environmental permit from NRW

[2]the data for 2021 is published within the Radioactivity in Food and the Environment report (RIFE 27) published by the UK Government in November 2022

[3]Management of radioactive waste from the decommissioning of nuclear sites: guidance on the requirements for release from radioactive substances regulation

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Have your say

Thank you for taking the time to visit our exhibition about our next steps at Trawsfynydd Site. We would like to know what you think about the proposal for the ponds complex.

Please complete the feedback form, or alternatively email your comments to **haveyoursay@magnoxsites.com** or post to Freepost **MAGNOX HAVE YOUR SAY**.

Next Steps

We will consider your feedback in the development of the designs for on-site disposal of the ponds complex.

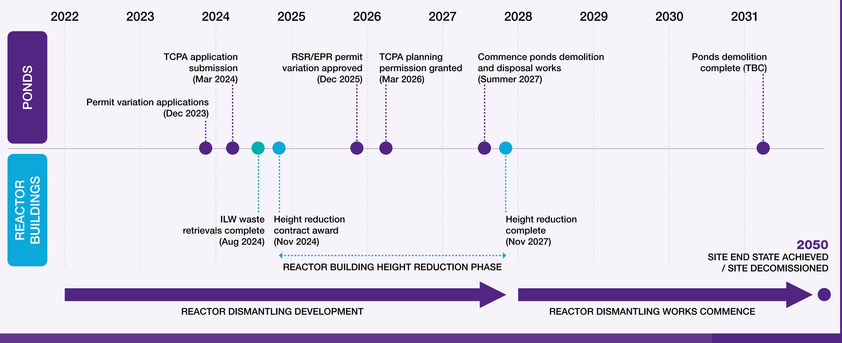
We plan to submit a planning application to Snowdonia National Park Authority in spring 2024 which will be supported by an environmental statement that summarises the potential impacts from our proposals.

We will also submit an application to vary the existing environmental permit to Natural Resources Wales. The application will be supported by a site-wide environmental safety case which will include details of how the proposed disposal is safe, both after implementation and into the future. Natural Resources Wales will review the case and may also engage with local communities on the proposals.

Keep in touch

We really want to keep you informed, so please come along to our regular site stakeholder group meetings, details of which can be found at **www.magnoxstakeholdergroups.com**

Trawsfynydd timeline from now to end state



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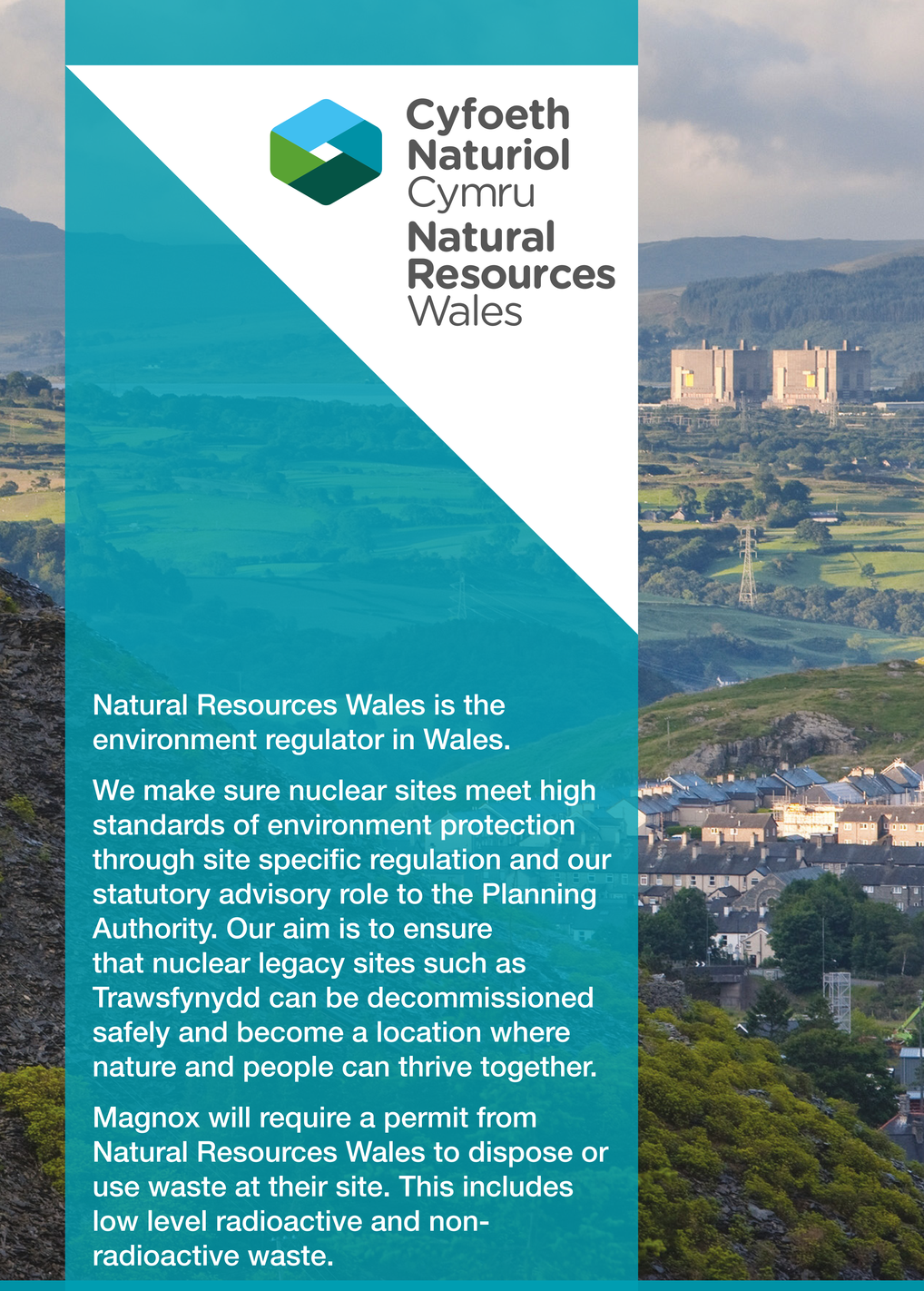

Cyfoeth Naturiol Cymru
Natural Resources Wales

Natural Resources Wales is the environment regulator in Wales.

We make sure nuclear sites meet high standards of environment protection through site specific regulation and our statutory advisory role to the Planning Authority. Our aim is to ensure that nuclear legacy sites such as Trawsfynydd can be decommissioned safely and become a location where nature and people can thrive together.

Magnox will require a permit from Natural Resources Wales to dispose or use waste at their site. This includes low level radioactive and non-radioactive waste.

We expect Magnox to apply for a change to their current environmental permit at which point we will initiate a consultation to seek the views of the public and key stakeholders on their plans.

We work closely with other regulatory bodies and the Nuclear Decommissioning Authority to help develop approaches to decommissioning and clean-up of legacy nuclear sites.

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Appendix 4 - Presentations Presented in the workshops outlining the Proposals, Near Term Plans and Long Term Impacts


Health impact assessment workshop and community engagement
Trawsfynydd visitor centre
4th October 2023

Magnox Ltd - who we are

- A wholly owned subsidiary of the Nuclear decommissioning authority (NDA).

- The NDA -*a non-departmental government body created by the Energy Act 2004 to lead the clean-up and decommissioning work at 17 UK nuclear sites on behalf of the government.*

- At Trawsfynydd, our mission is to complete the decommissioning of the site to make it available for other uses.

- Our work is wholly funded by the UK taxpayer.

Purpose of today's workshop

- To share and engage on our proposals on the next stage of site decommissioning, specifically the demolition and on-site disposal of the radioactive structures of the ponds complex and nearby features.

- To seek your views on any health and wellbeing concerns you may have with the proposals, both short and long term.

- To provide information for a report which will be part of our proposed applications for the necessary permissions to undertake the work.

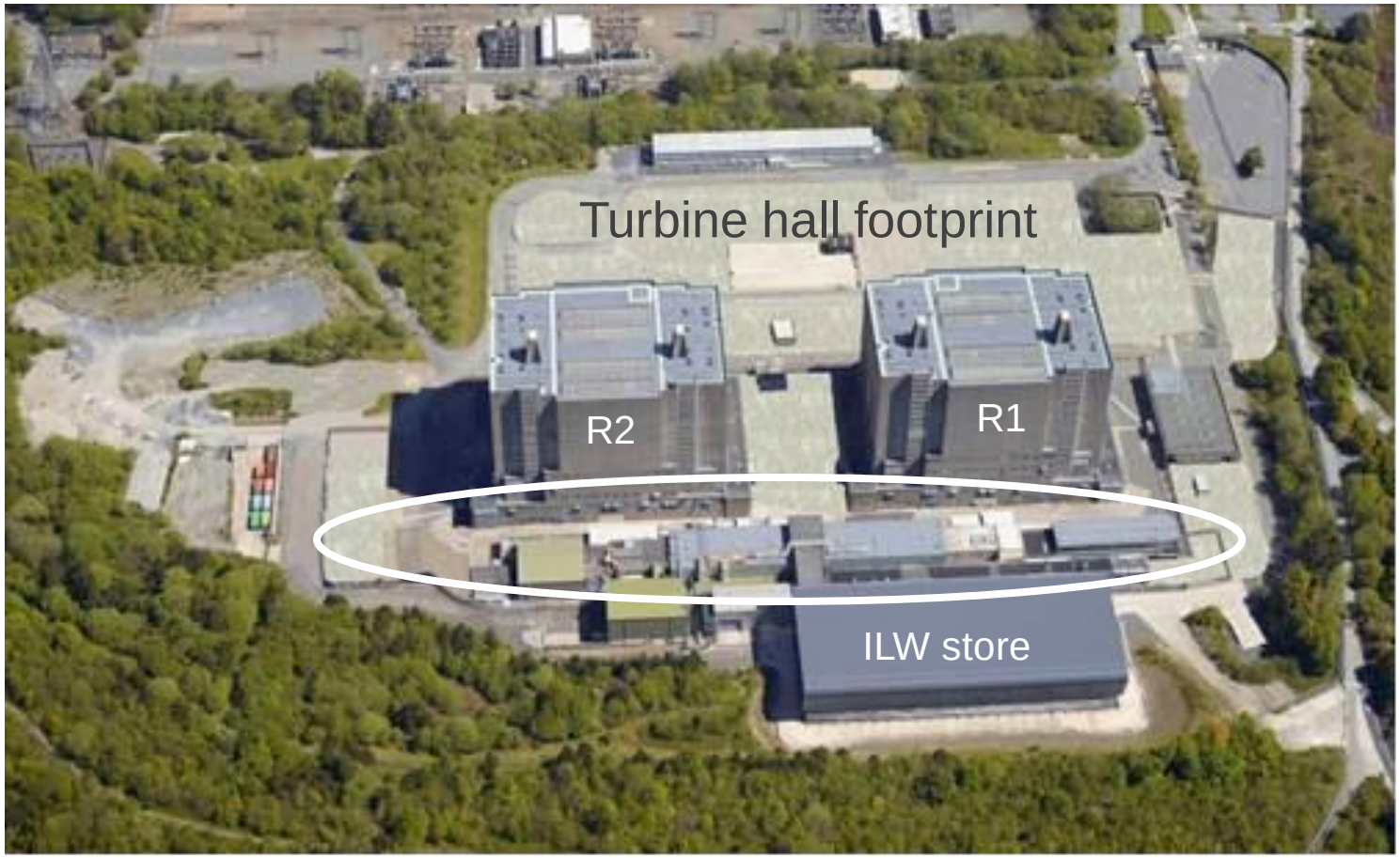
Topics assessed or considered for the planning application (April 2024)

- The ponds demolition and disposal requires a planning application accompanied by an Environmental Impact Assessment
- The EIA covers:
  - Regulatory framework
  - Alternatives considered
  - Project description
  - Noise assessment
  - Ecology assessment
  - Cap drainage performance assessment
  - Impacts on the ground and surface water environment, both during the works and in the long term.
- Topics scoped out of the EIA by Eryri National Park Authority
  - Archaeology
  - Socio-economic impacts
  - Landscape & visual impacts
  - Traffic

Agenda

1000	**Arrive, teas and coffees, pull-ups available for people to have a read of the pull-ups**
1030	Meeting starts – intros, domestics, purpose of the day and ground rules
1045	Presentation 1: Description of the proposals plus context (requirements for permissions etc) with time for questions as we go. & Near-Term Plans and Impacts, with time for questions as we go
1130	Break-out group session on near-term impacts.
1200	Plenary session on near-term impacts
1230	LUNCH
1300	Presentation 2: Long-Term Impacts, with time for questions as we go.
1345	Break-out group session on long-term impacts
1415	Plenary session on long-term impacts
1430	Wash up and next steps recap
1500	FINISH
1515	Magnox and Facilitator wash-up and note gathering for the report.

Trawsfynydd site cooling ponds complex



Some Site History

Used for cooling & packaging spent fuel between 1965 & 1995

1965

1997

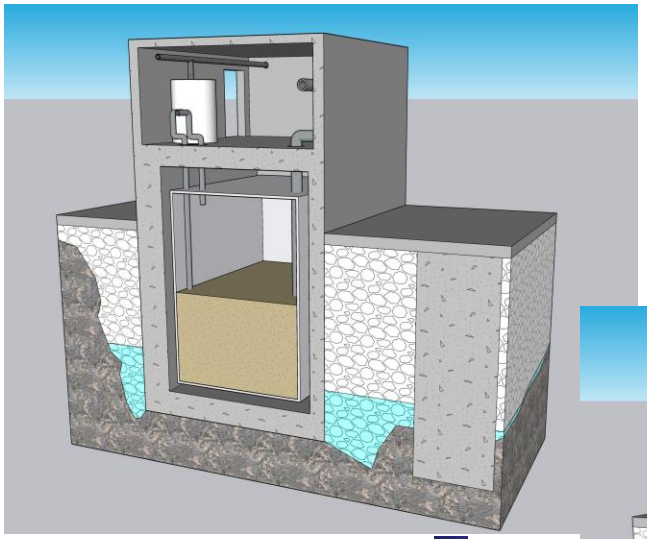
2020

Emptied of water in 1997

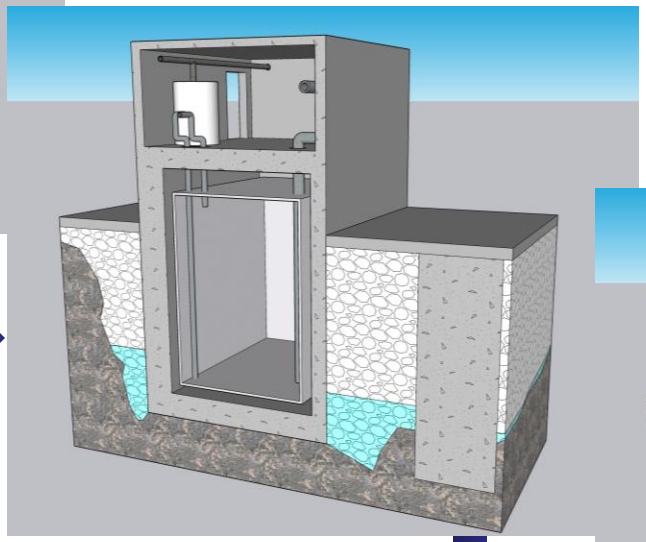
Since being emptied, most of the contaminated wall & floor surfaces have been removed

Decommissioning Work

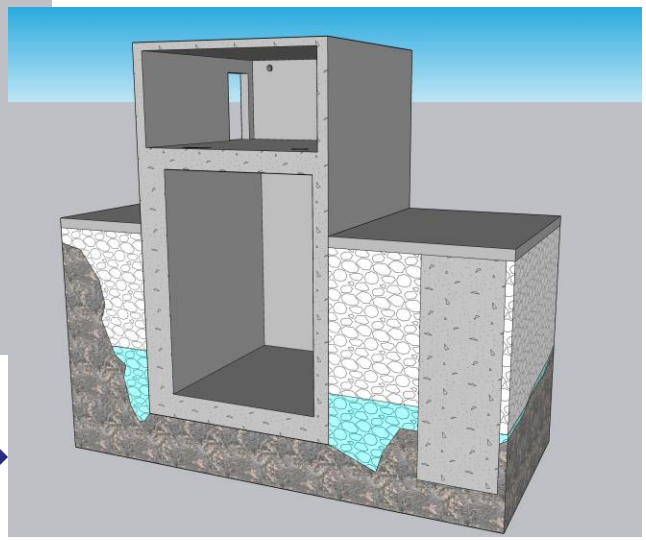
Operational



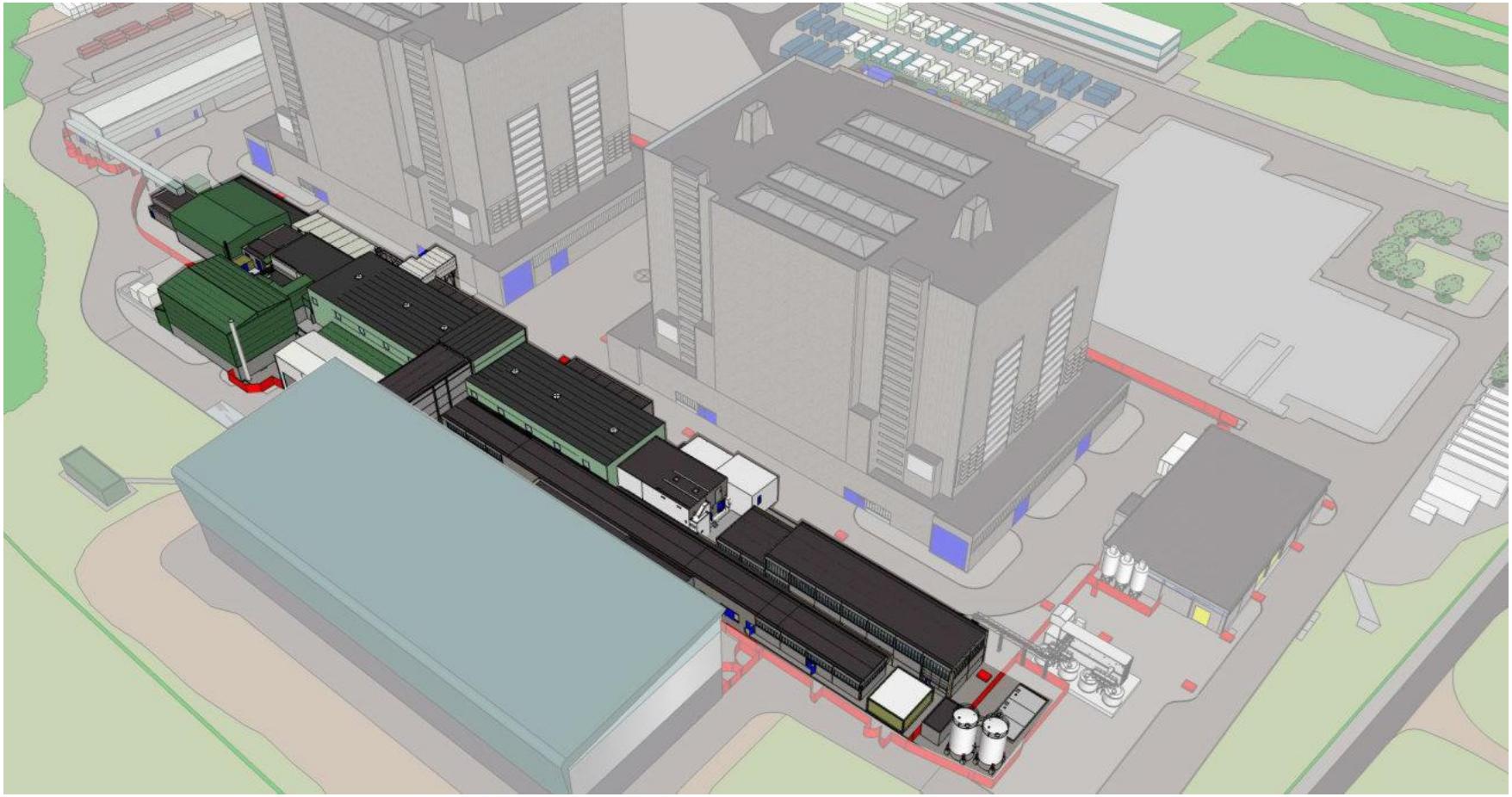
ILW Retrieval



De-plant Structures



What's next for the Ponds Complex?



Demolition and Disposal Project Task

- Demolish the above ground structure
- Fill below ground voids to create a flat profile
- Construct a concrete cap

So why do we want to demolish the ponds?

- Part of the ongoing decommissioning mission to prepare the site for alternative uses
- The facility is now largely redundant
- Ongoing asset care costs (60+ years old now)
- Valuable “real estate” for the decommissioning mission
- New regulatory guidance

When do we want to do it?

Permissioning phase

- Application to NRW to vary the site environmental permit **Dec'23**
- Application to ENPA for planning permission **Apr'24**
- Minimum 2-year determination period built into the programme

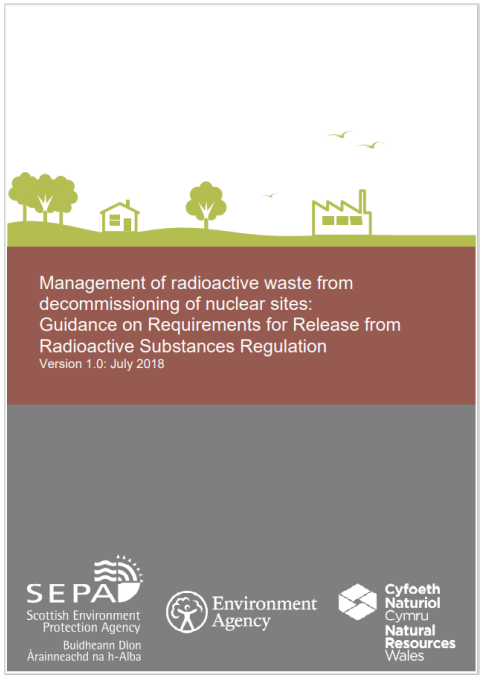
Physical works phase

- Commencement of demolition activities **2028/9**
- Completion of all physical works **2031/2**

Post implementation monitoring

- Through to completion of all physical works on entire site, plus several more decades beyond this date
  (Towards the end of the century)

New regulatory guidance –issued in 2018



- UK Environment Agencies' issued guidance for releasing sites from regulations.
- Requires an optimised waste management plan.
- Requires a site-wide environmental safety case.
- Provides new guidance levels for protection of people and the environment now and in the future.

Options to deal with the ponds complex

A range of options were considered:

A. Excavate around all remaining structures, demolish and dispose of all radioactive waste off-site
B. Demolish all above ground structures with radioactive demolishing arisings disposed of off-site, below ground structures remain in place
C. Demolish all above ground structures, leave all below ground structures in place, use radioactive demolition arisings to fill the below ground contaminated voids.
D. Variations on the above themes

Best Option : Option (C) Demolish all above ground structures, leave all below ground structures in place, use radioactive demolition arisings to fill the below ground radioactively contaminated voids.

BENEFITS

- Minimises the volume of radioactive waste for off-site disposal
- Minimises disruption to the planned decommissioning programme
- Minimises disruption to the local area/environment
- Minimises risks to workers
- Cost
- Won't impact on future reuse of the site

DISBENEFITS

- Leaves some radioactivity on the site
- ?

Are any other disposals on site planned?

- The ponds disposal would be the first of two proposed disposals on site.

- The second would be the reactor bioshields:
  - The concrete “jacket” that surrounds each reactor
  - Large concrete structures that are ~25% below ground level
  - Above ground section would be cut up and disposed in the below ground reactor voids
  - Envisaged timeline for disposal would be ~2040/45
  - We would need to go through the same permissioning process

How does this fit with the remaining work to finish the site?

Site made ready for RD works:

- Reactor Building Height Reduction completed

Construction of:

- Reactor retrievals buildings.
- Waste management facilities.
- ILW store.
- Transport infrastructure.
- Ancillary facilities

- Large scale demolition phase:
- Large cranes on-site to remove boiler sections.
- Reactor buildings reduced to ground level

Principal Regulatory Controls on the site

Environmental Permitting (England and Wales) Regulations	Natural Resources Wales Management of radioactive waste from decommissioning of nuclear sites: Guidance on Requirements for Release from Radioactive Substances Regulation Version 1.0: July 2018 (GRR)
Nuclear Installations Act	Office for Nuclear Regulation 36 site licence conditions
Ionising Radiations Regulations	HSE Dose limits
Town and Country Planning Act & TCPA (Environmental Impact Assessment Regulations)	Eryri National Park Authority (ENPA) Submission of Environmental Statement, Planning Statement, Community & Linguistic Impact Assessment, Health Impact Assessment etc.

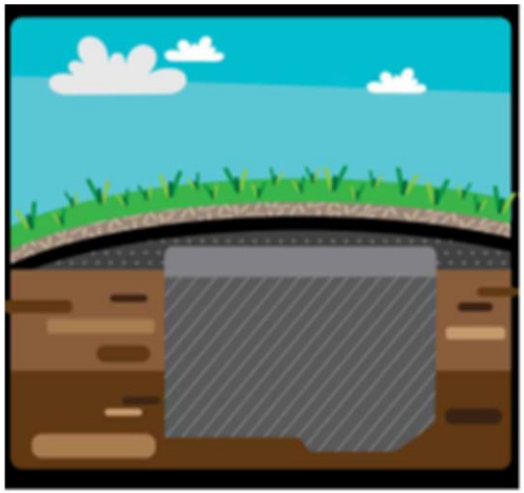
A little bit more about the new guidance:

It places 15 requirements on nuclear operators

Requirements

- R1 - Optimisation of waste management options
- R4 - Engagement with local communities and others
- R13 - Optimisation of on-site disposals

"Best Available Technique" to keep exposures "ALARA"



Decontamination?

Capping?

Enhanced engineering?

Emplacement method?

Waste treatment?

Other GRR Requirements

Requirement R10. Risk guidance level after release from radioactive substances regulation
…a risk of death or heritable defect of 1 in a million per year due to exposure to ionising radiation.

Requirement R11. Inadvertent human intrusion dose guidance level after release from radioactive substances regulation
The assessed effective dose should not exceed a dose guidance level…

Requirement R14. Protection of the environment
Operators shall assess the radiological effects of the site on the environment with a view to showing that all aspects of the environment are adequately protected.

Requirement R15. Protection against non-radiological hazards
Operators shall bring their site to a condition at which it can be released from radioactive substances regulation, through a process that will protect people and the environment against any non-radiological hazards.

Some terminology from the guidance:

- **In situ disposal-** On-site disposal of solid radioactive waste, such as a buried structure, by leaving it permanently in position.

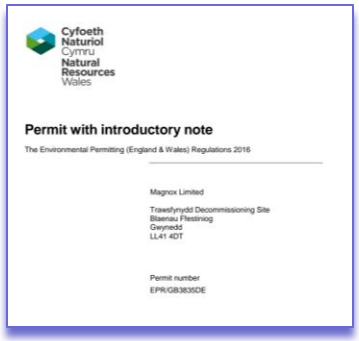
- **Disposal for a purpose**-On-site disposal of solid radioactive waste by permanent deposit where, if suitable radioactive waste were not available, other materials would have to be found to fulfil the purpose.

- **Optimisation**- The principle of ensuring that all exposures to ionising radiation of any members of the public and of the population as a whole are kept As Low As Reasonably Achievable (ALARA), economic and social factors being taken into account.

- **Site reference state-** The condition of the site when it has met the conditions for release from regulation.

How are Discharges Regulated?

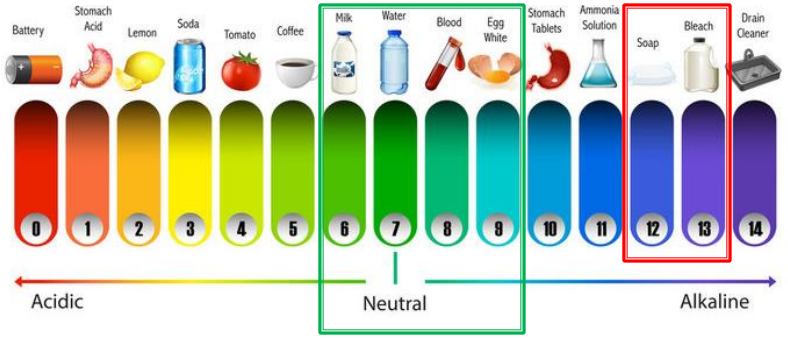
- The site has existing permits issued by Natural Resource Wales to regulate discharges:
  - to water
  - to air



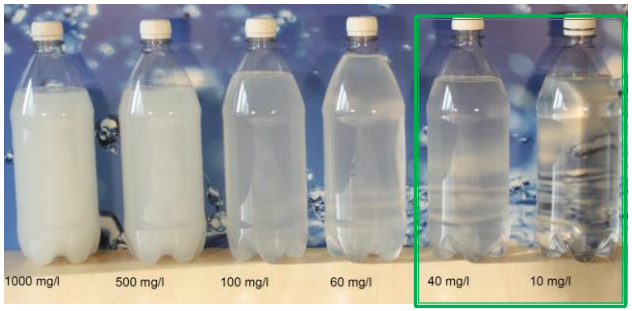
- Permits limit the amount of pollutant that can be discharged to protect the environment.
- For radioactive discharges the permit also requires Magnox to minimise discharges by deploying the Best Available Technique.

Existing Discharges Conditions

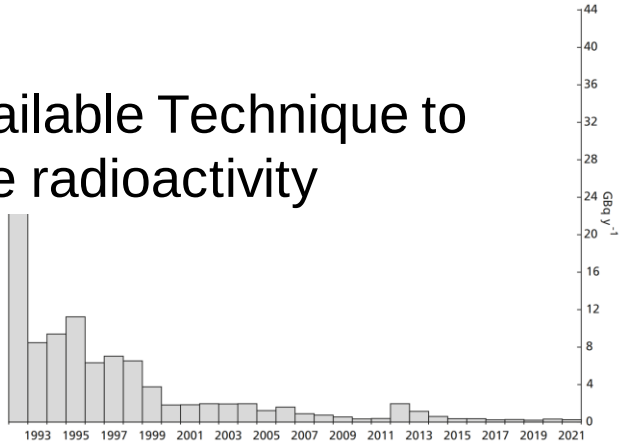
- Water pH between 6 and 9



- 50mg/ltr of suspended solids

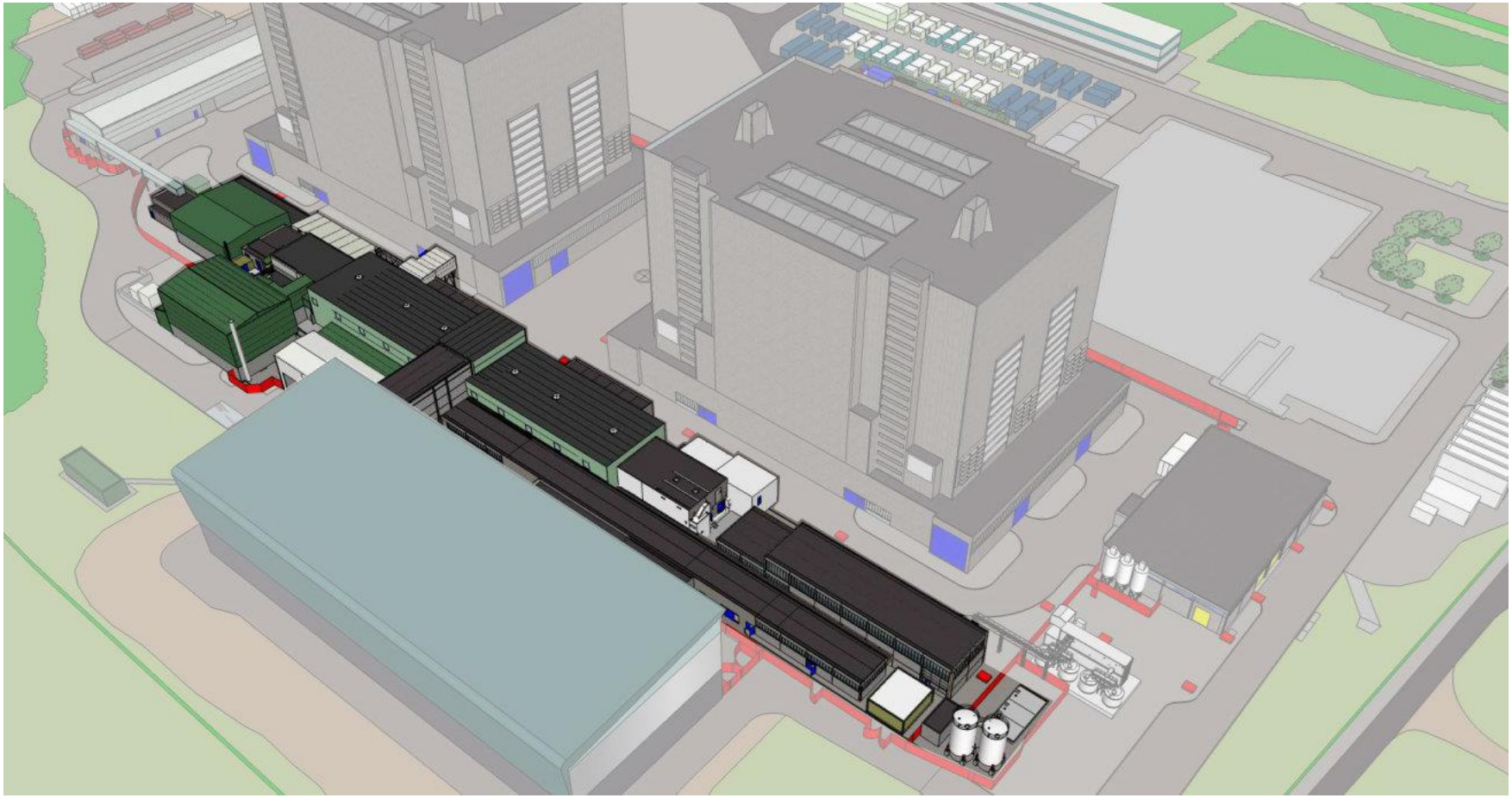


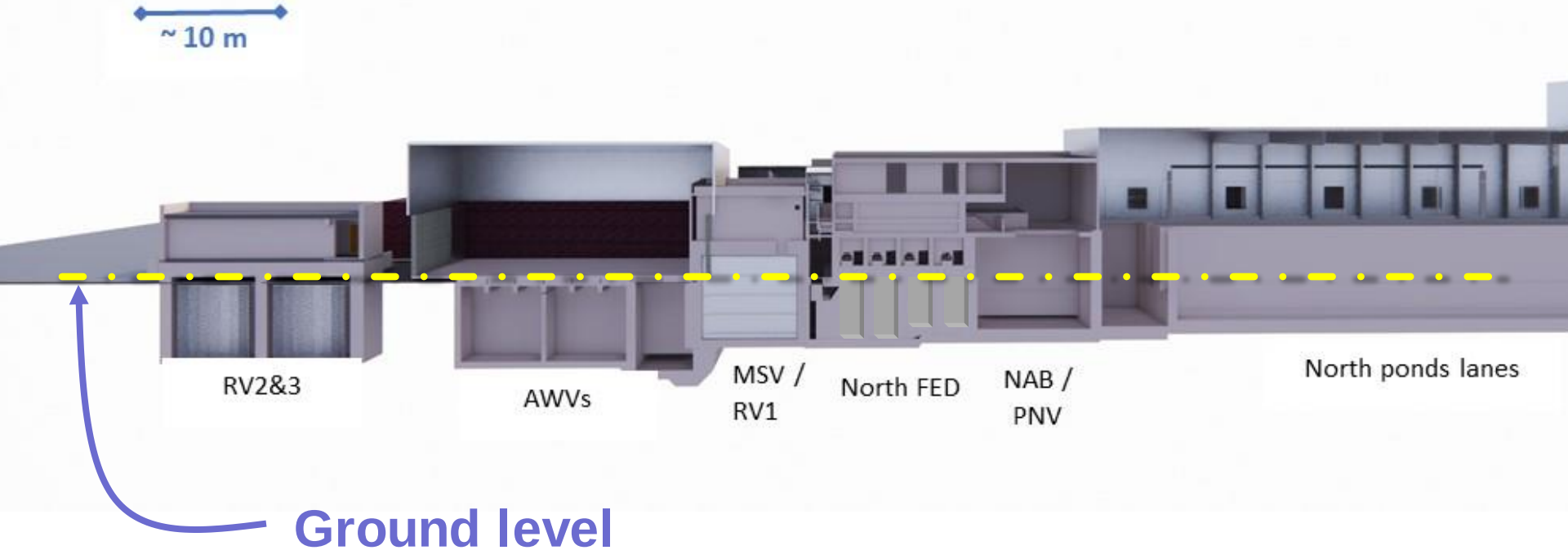
- Best Available Technique to minimise radioactivity



Back to the Project…

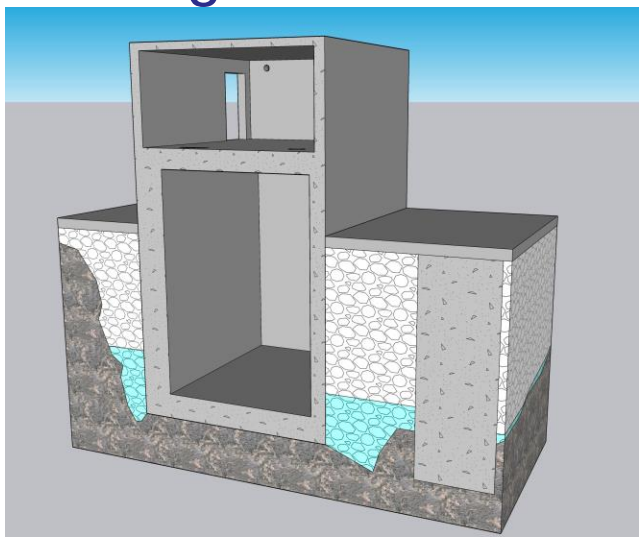
The Project: Ponds Complex Demolition & Disposal




~ 10 m
RV2&3
AWVs
MSV /
RV1
North FED
NAB /
PNV
North ponds lanes
Ground level

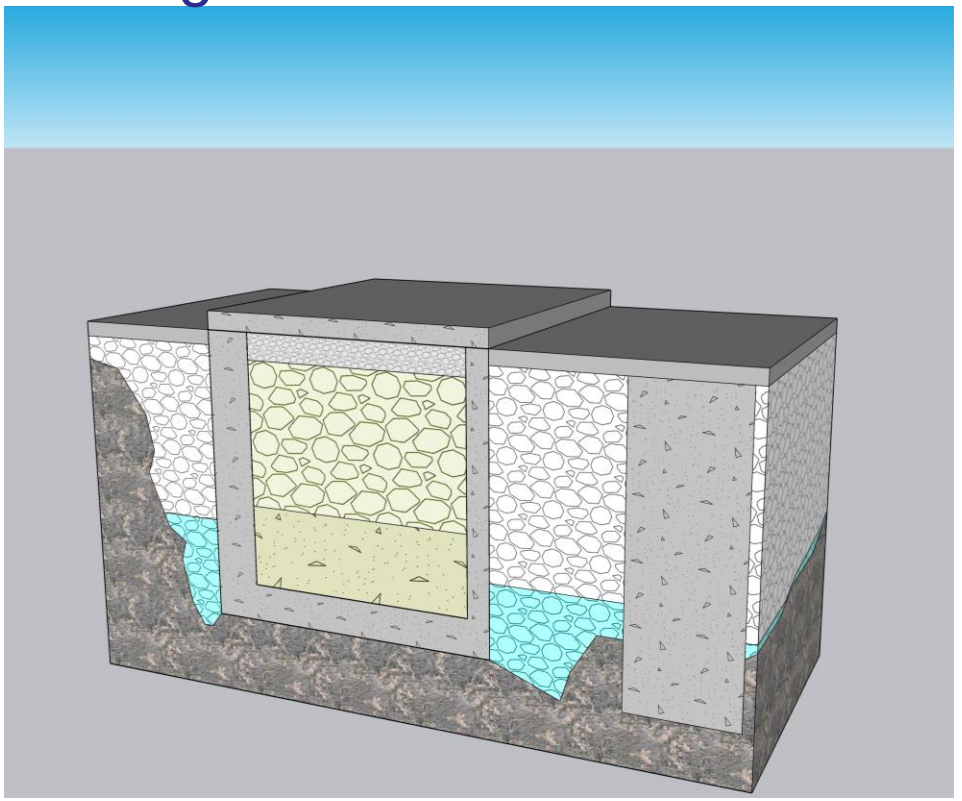
Demolition & Disposal

Starting Point



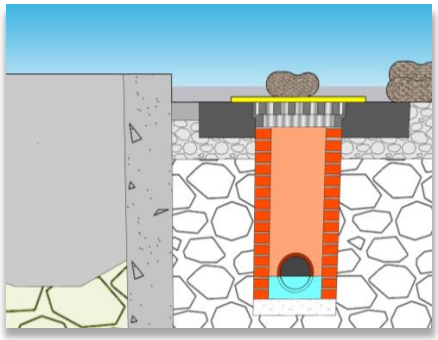
Demolition & Disposal Work

Demolished & Final Disposal Configuration



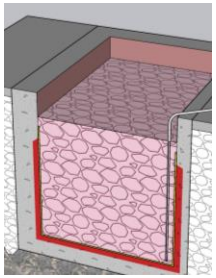
Controlling any releases to air and water

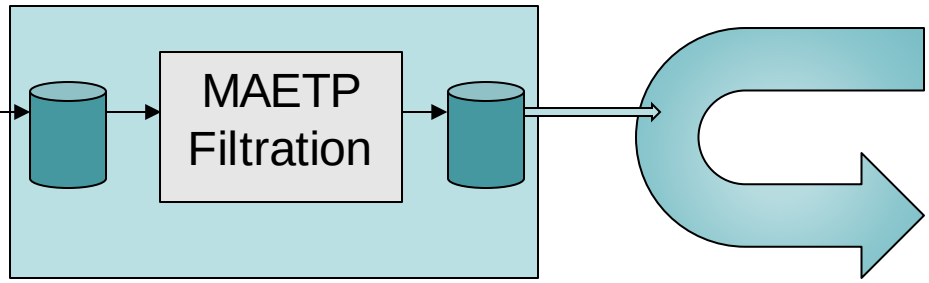
Controlling Discharges to Water

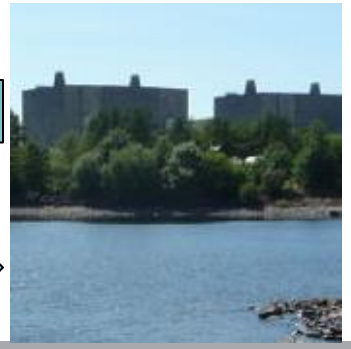


- Surface run-off water is captured within a bund
  - Bund can be made of sandbags, by utilising the base of demolished walls or by a combination of both
- Captured surface water is treated to remove suspended solids and neutralise pH

- Covers used to minimise water entering disposal voids. Contaminated water discharged using the site's active effluent treatment plant

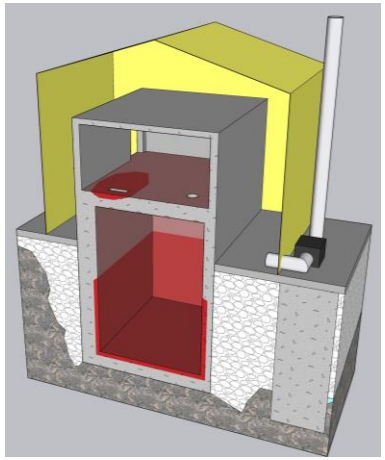






Controlling Discharges to Air

- Where radioactive dust can be generated, demolition will take place within enclosures.



- For demolition in open-air, demolition rubble piles will be covered and water misting machines will be used during dusty activities.

Monitoring of Pollutants

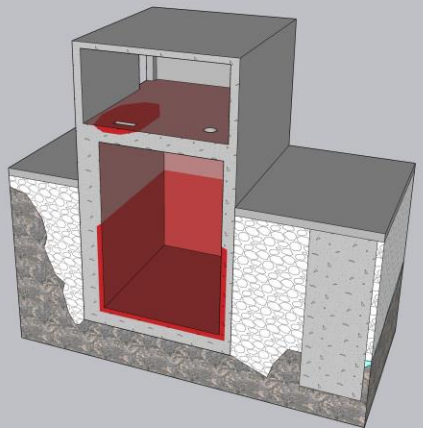
- Regular monitor regime for surface water, ground water and any aerial discharges.

- Monitoring objectives:
  - Statutory reporting
  - Monitoring performance of ALARA controls

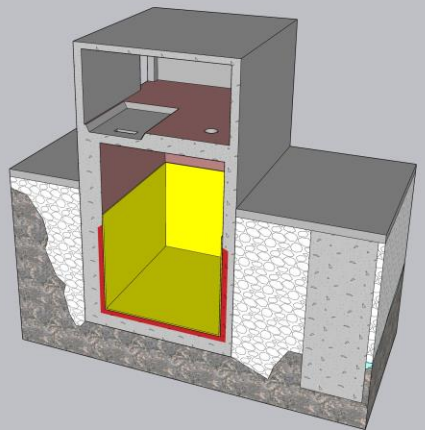
Monitoring will prompt action where deteriorating trends or abnormal results are observed.

Structures with Low Levels of Contamination

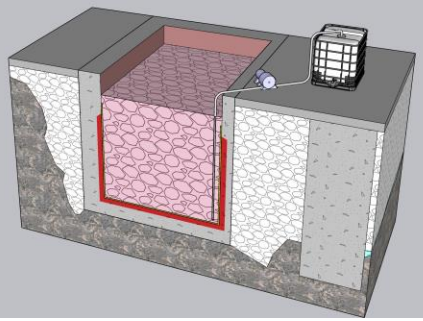
Starting point



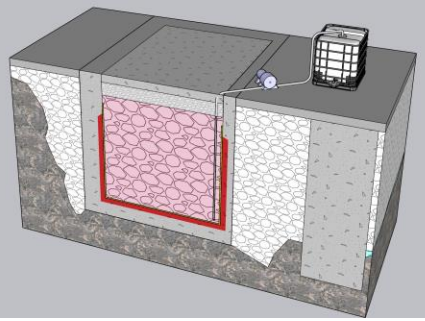
Above ground → removal of higher contamination
Below ground → seal contamination onto structure



Demolish in open air.
Minimise void exposed to rainwater.
Extract water into containers for treatment and disposal.

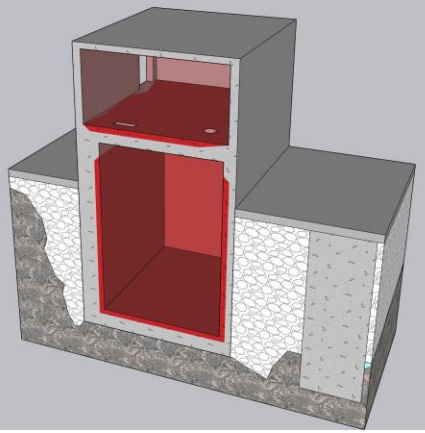


Once waste is deposited, cover vault with a clean layer of hardcore and cap with a nonpermeable layer, e.g. concrete.

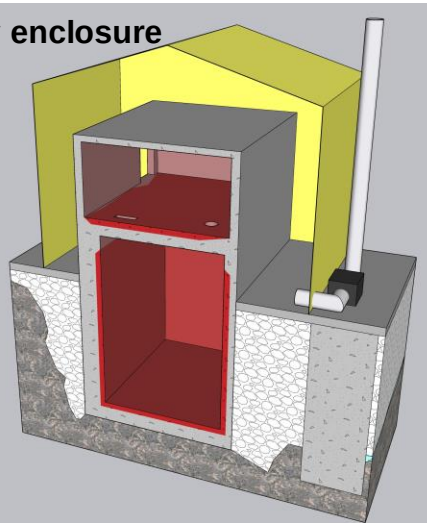


Structures with Higher Levels of Contamination

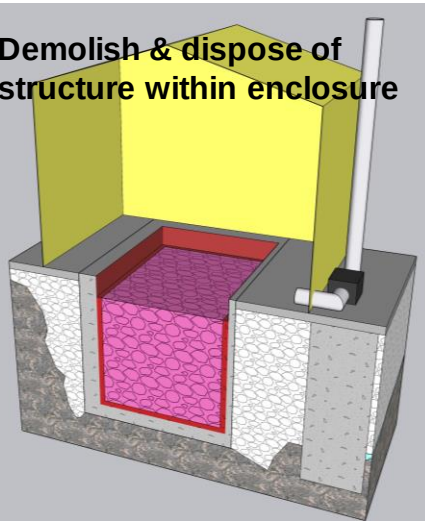
Starting point



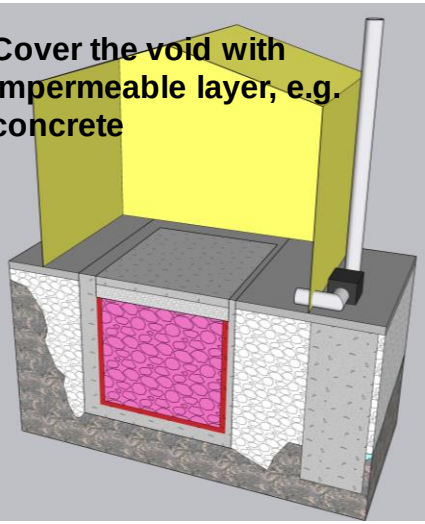
Erect temporary enclosure



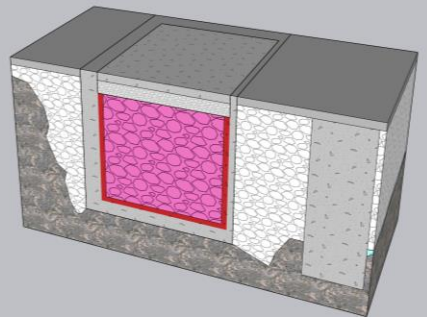
Demolish & dispose of structure within enclosure



Cover the void with impermeable layer, e.g. concrete



Remove temporary enclosure after void is capped on area is cleaned.



Key Points

- Where radioactive dust is produced, works will be conducted within an enclosure.

- Any water entering disposal voids is removed and analysed before treatment and disposal.

- Regular monitoring will be conducted to assess the performance of our controls – this includes dust on and around the site, groundwater, surface water, and effluent being discharged.

Any Questions?

Long Term Impacts

Long-Term Impacts: Aspects to Consider

1. Potential future land uses

2. Radiological impacts on people and the environment –
   - "natural evolution"
   - drinking water abstraction from the ground

3. Inadvertent intrusion directly into the disposals
   - Doses to "intruders"
   - Doses due to re-use of excavated materials

4. Future occupancy of the disposal area

5. Non-radiological Impacts on the environment – the effects of placing concrete and masonry demolition arisings in the ground

GRR: Requirement R10 – Risk Guidance Level

R10 Risk guidance level after release from radioactive substances regulation

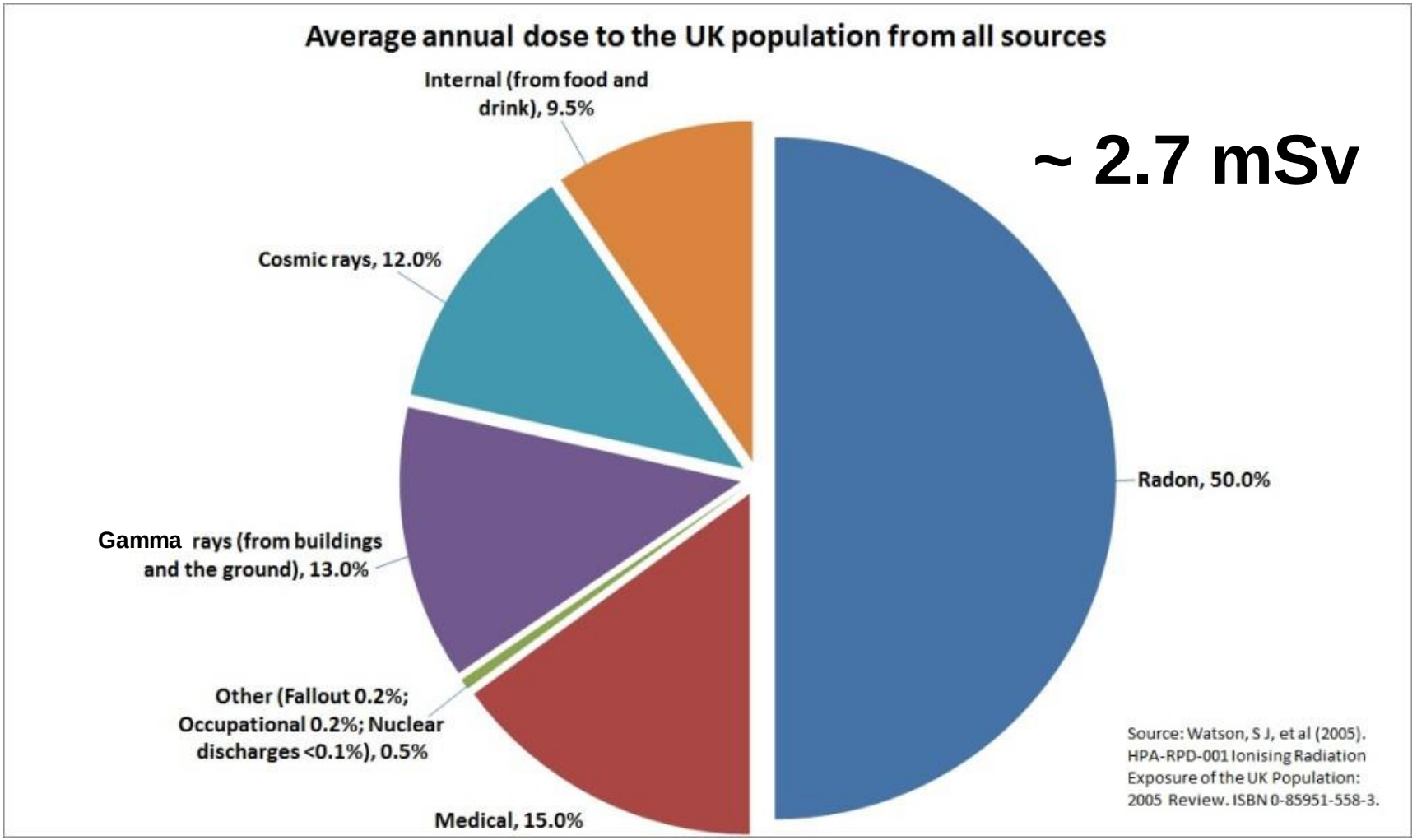
Contamination left on site

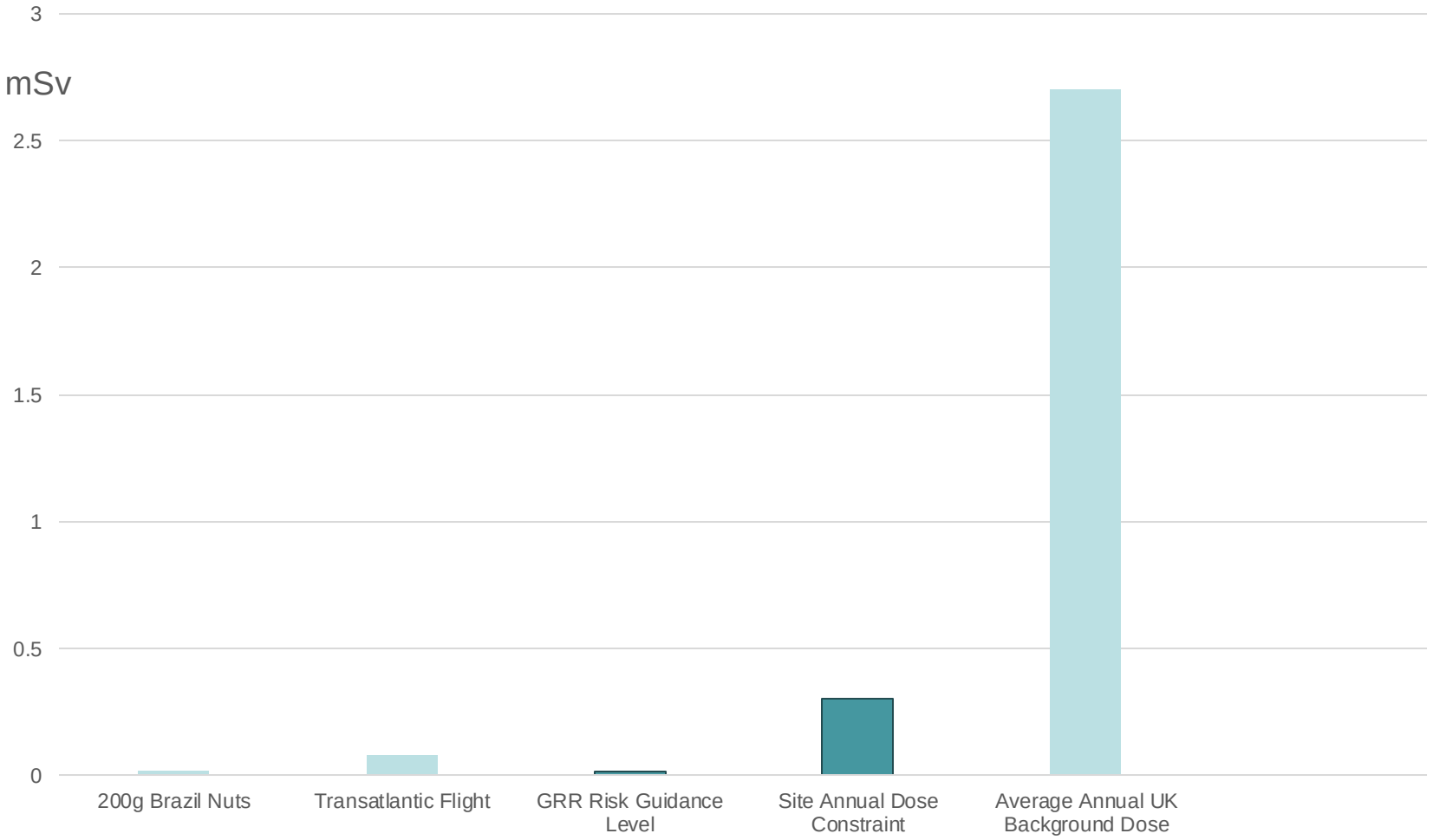
Disposed waste

Assessed risk from remaining radiological hazards to a representative person consistent with one-in-a-million (10^{-6}) per year

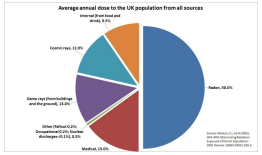
~0.017mSv/y

Average Ionising Radiation Exposure in UK

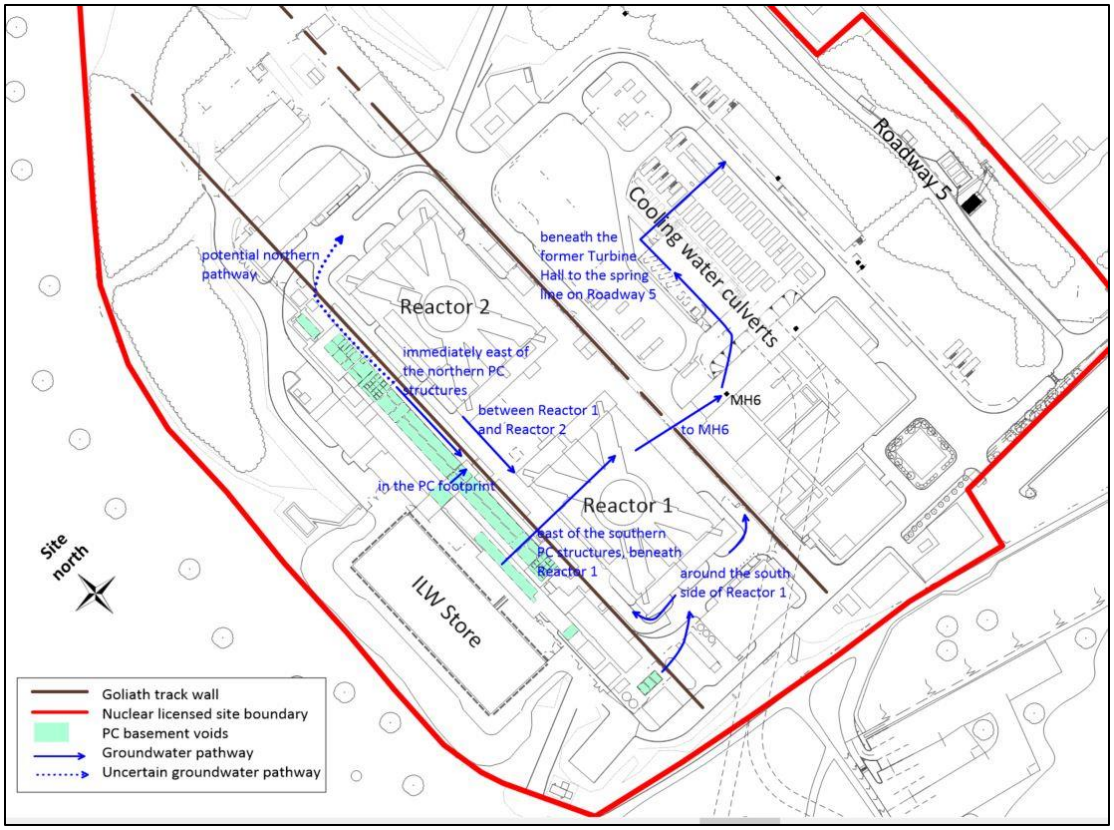


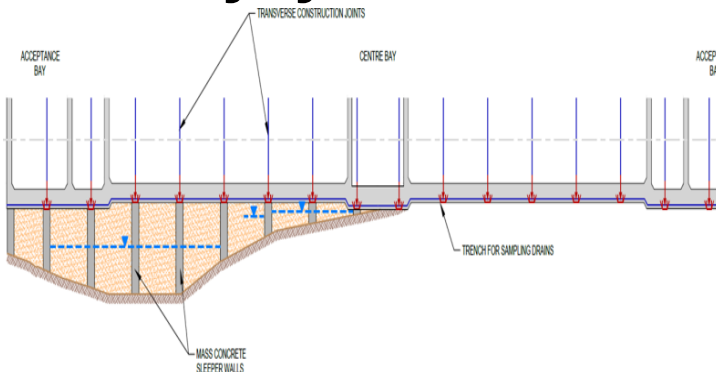

3
mSv
2.5
2
1.5
1
0.5
0
200g Brazil Nuts
Transatlantic Flight
GRR Risk Guidance Level
Site Annual Dose Constraint
Average Annual UK Background Dose


TESCO
BRAZIL NUTS
QUALITY & TASTE



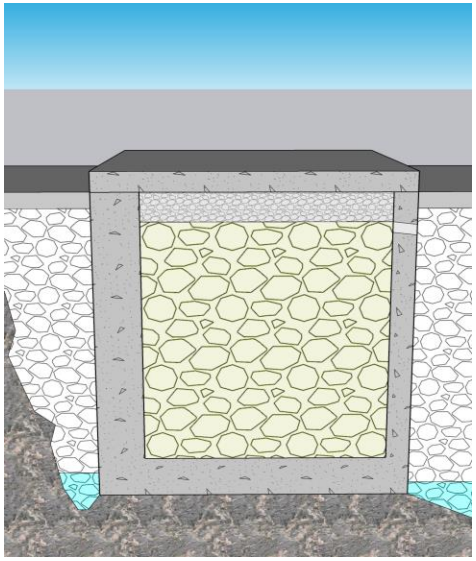
The Groundwater Environment at Trawsfynydd Site



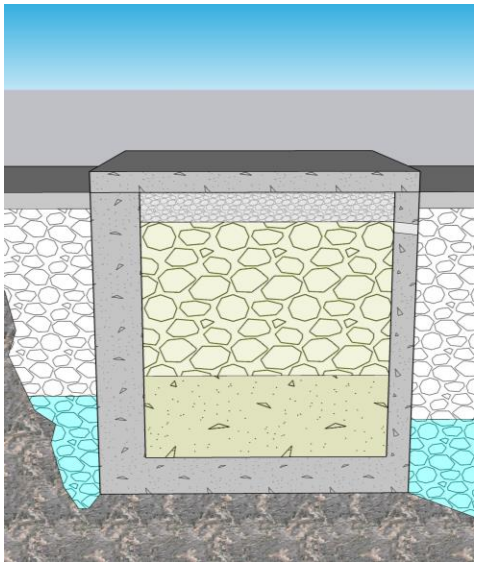


Site groundwater monitoring network

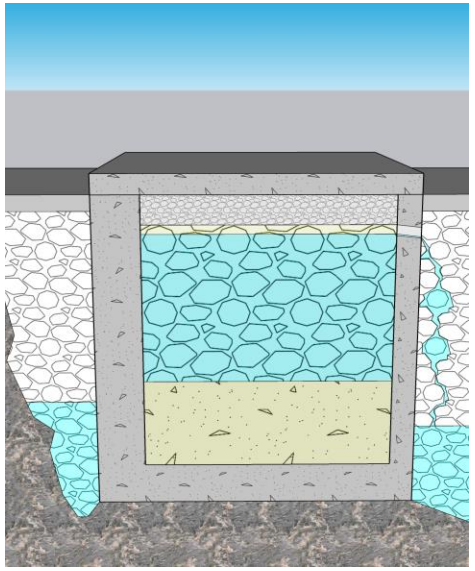
Protecting Groundwater from Contamination



- Voids above ground water level.
- Voids can be filled with demolition rubble.



- Voids that extend below ground water level.
- Only utilise part of the void that is above the water table to dispose of loose demolition rubble.



Preventing water reaching the ground surface:

- Drainage holes made at a high level

“Natural Evolution” Radiological Impacts on People and the Environment

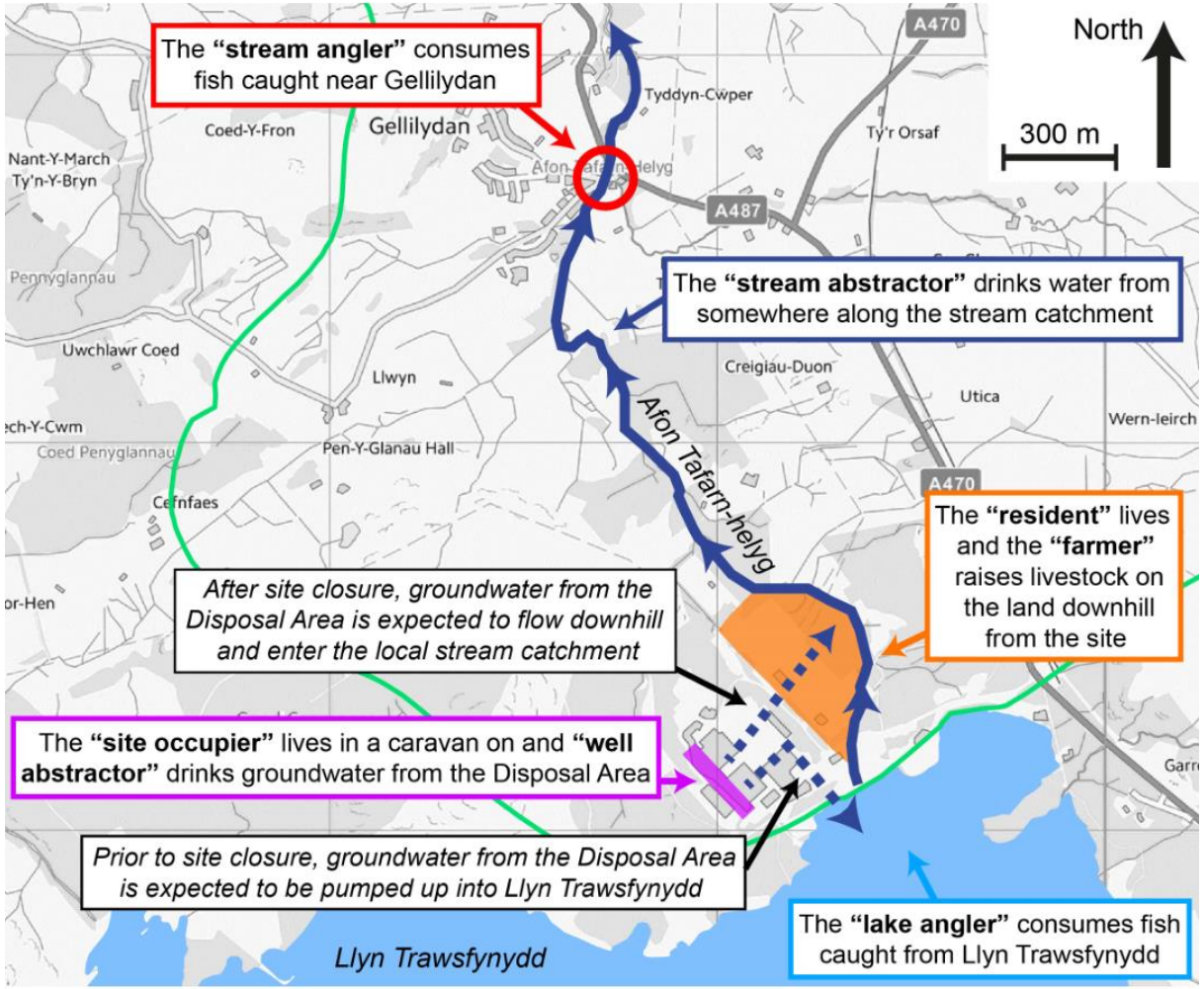
Environmental “receptors”:

- Groundwater and streams
- Plant and aquatic species using local watercourses

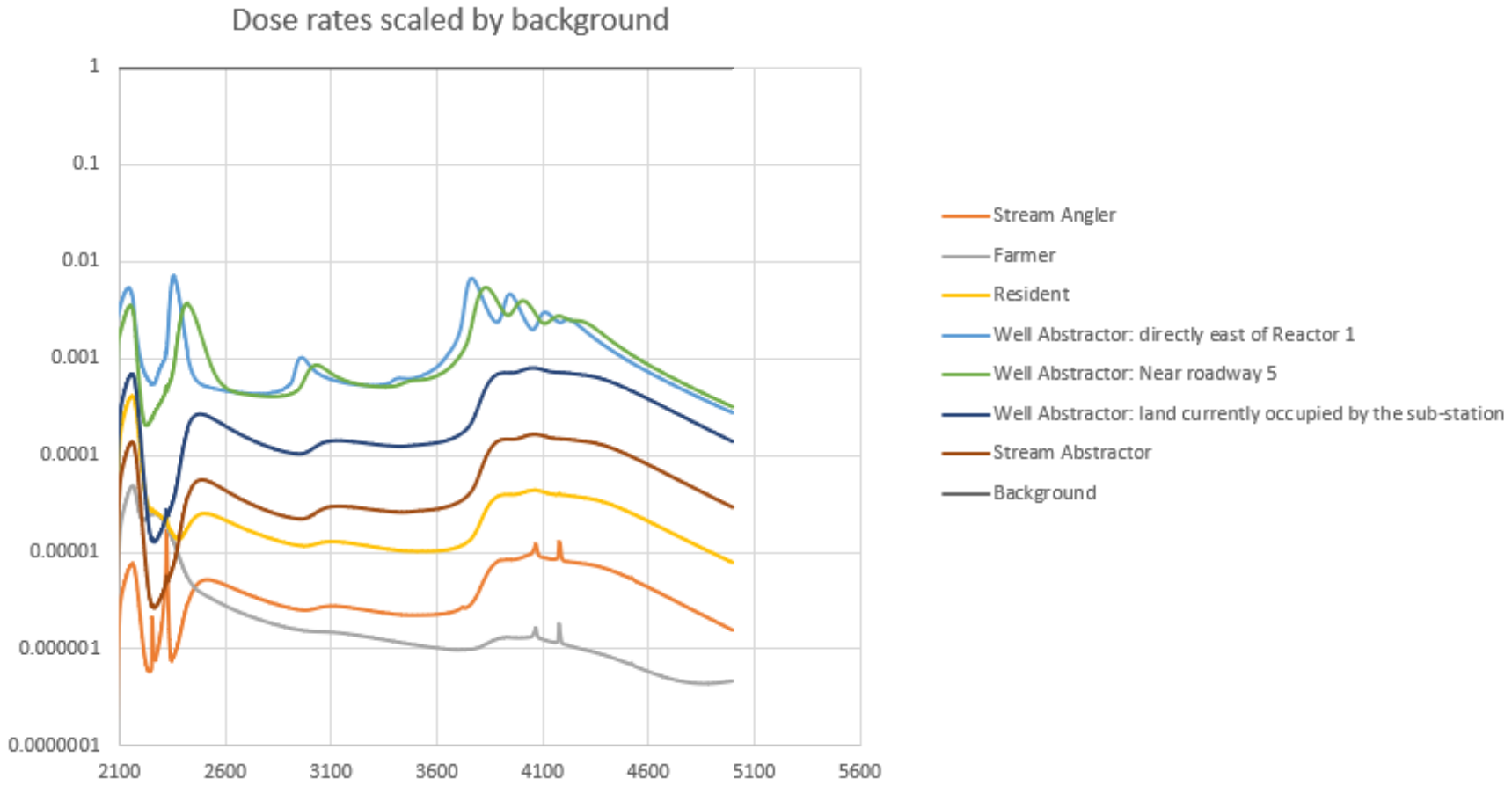
Human “receptors”:

- Farmer
- Resident
- Stream abstractor
- Well abstractor

Current and Future Local Land Uses



Natural Evolution Radiological Impacts on People and the Environment: Results

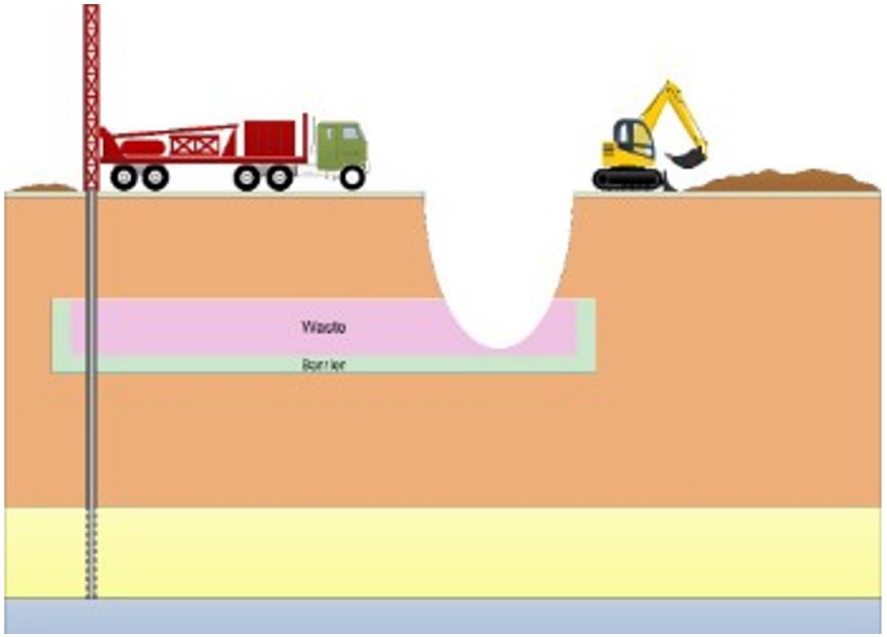


GRR: Requirement R11 – Dose Guidance Level

R11 Inadvertent human intrusion dose guidance level after release from radioactive substances regulation

The assessed effective dose to a representative person during and after intrusion should not exceed a dose guidance level of:

- 3 mSv/year for prolonged exposures
- 20 mSv in total for transitory exposures



Inadvertent Intrusion Directly into the Disposals

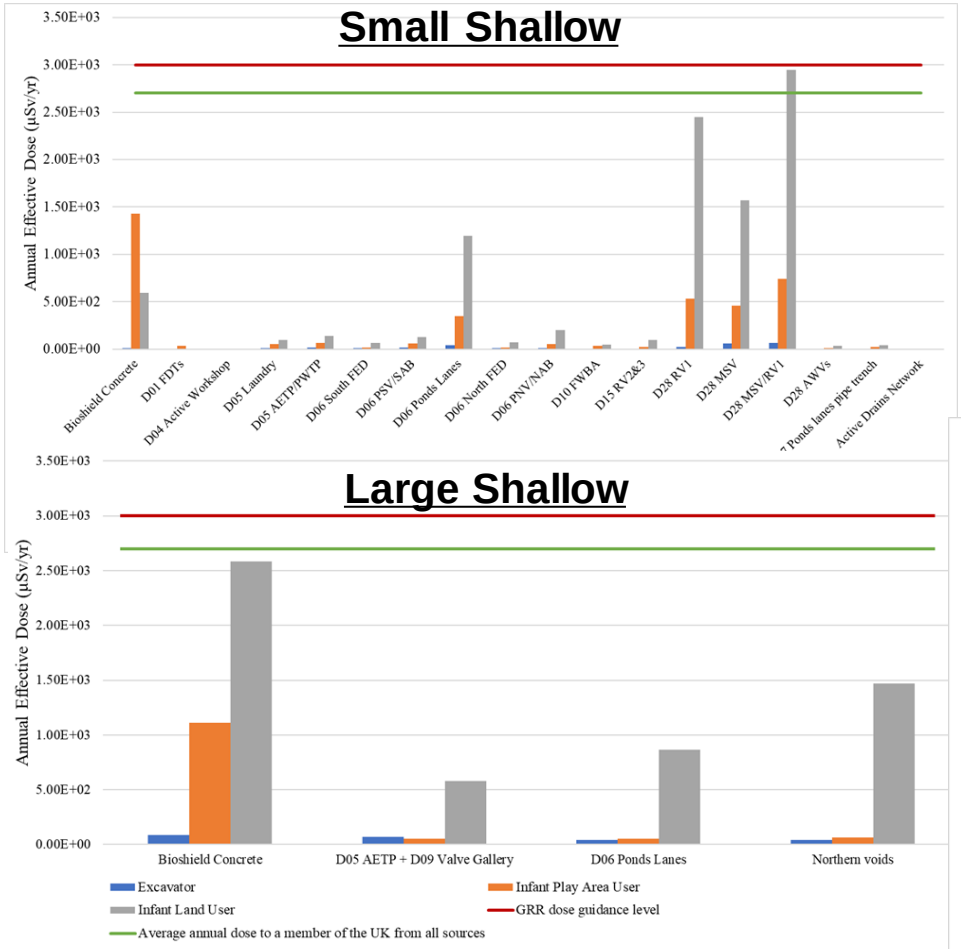
What would be the doses to “intruders” from:

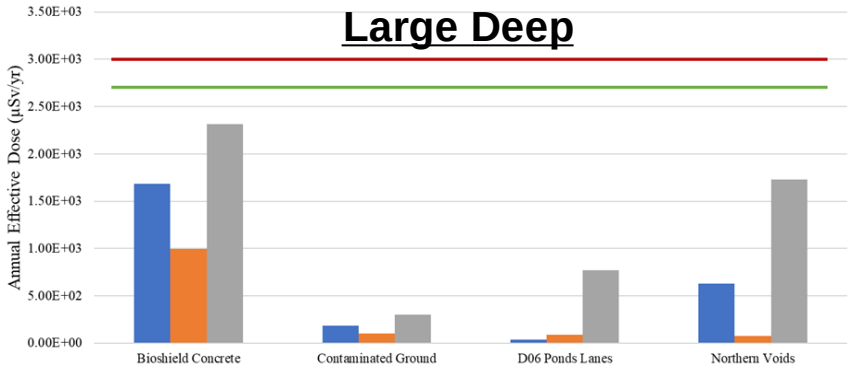
- Shallow excavations
- Deep excavations
- Boreholes

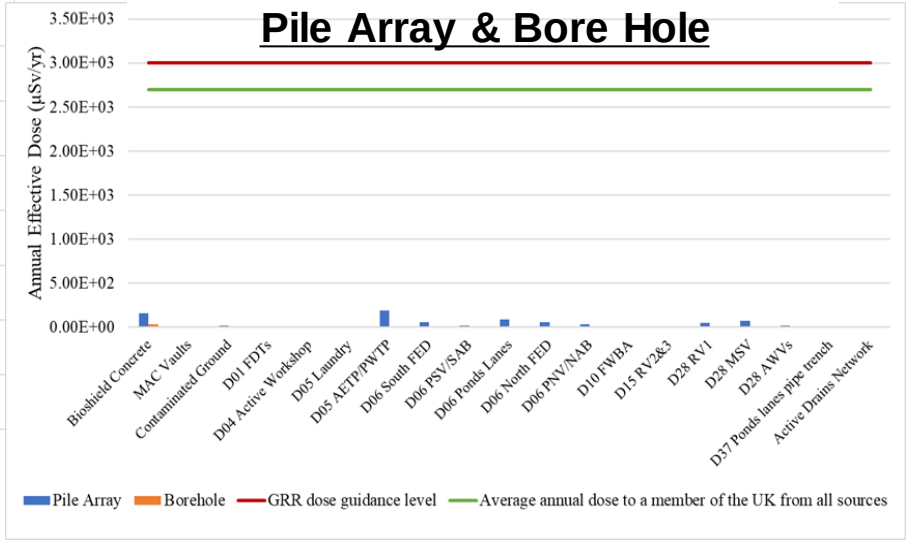
What would be the doses to people subsequently affected through use of excavated materials, e.g.:

- Infant land user (consuming food grown on land on which excavated materials have been place, and spending time on that land).

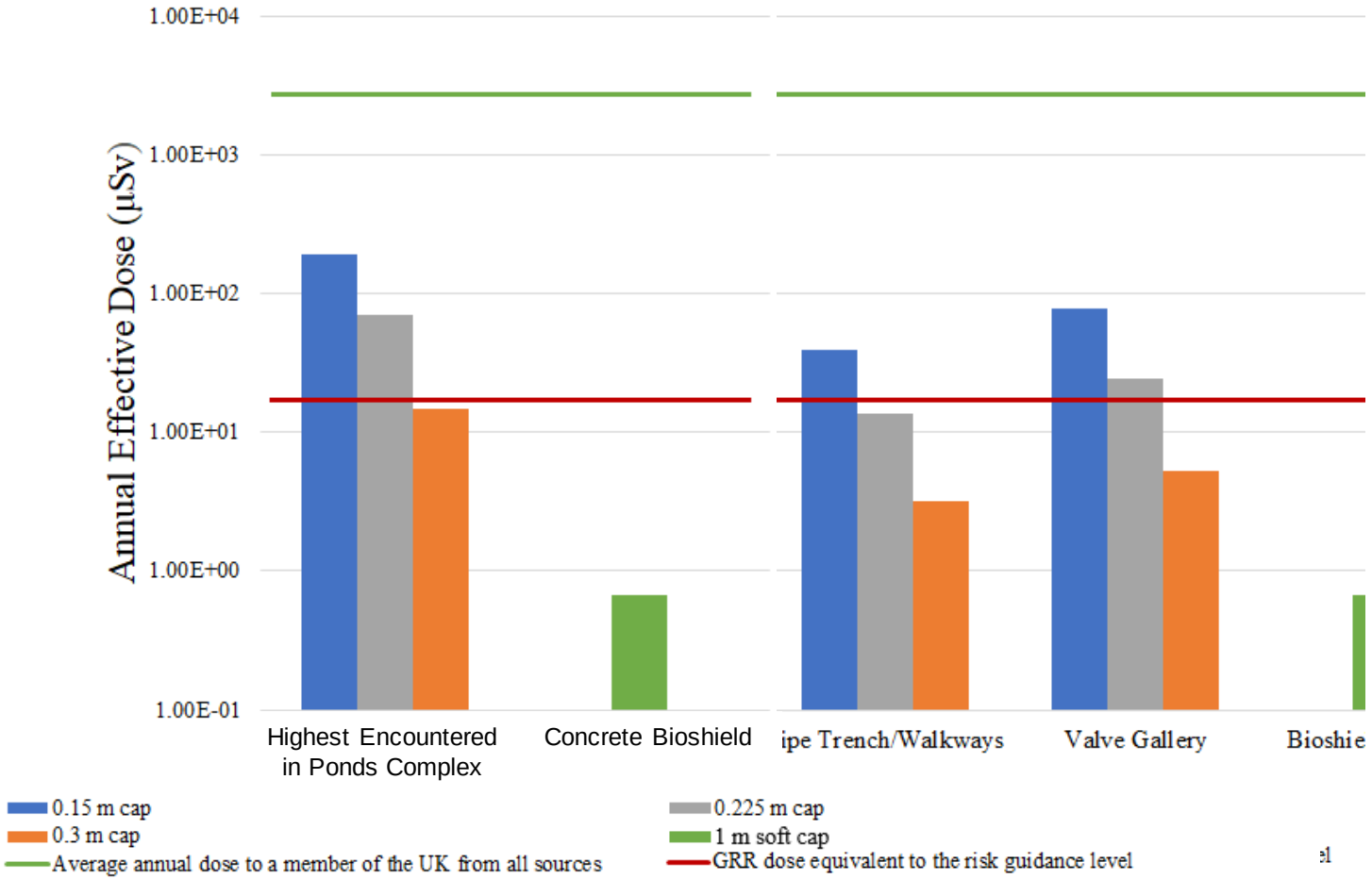
Inadvertent Intrusion Directly into the Disposals: Results







Future Occupancy of the Disposal Area: Results



Environmental Monitoring

- Long-term environmental monitoring will be required by the new environmental permit.
- This will involve radiological and non-radiological (e.g. pH) monitoring of boreholes and man-holes/culverts on site, and surface waters near the site.
- Results will be examined for “trigger” levels and adverse trends.
- Results will be provided to NRW.
- The monitoring will be adapted as changes are made to the site in coming years.
- Even when demolition and disposal monitoring ends, the site will continue to monitor various locations as it always has, to monitor for any unexpected trends, until the site is released from regulation.

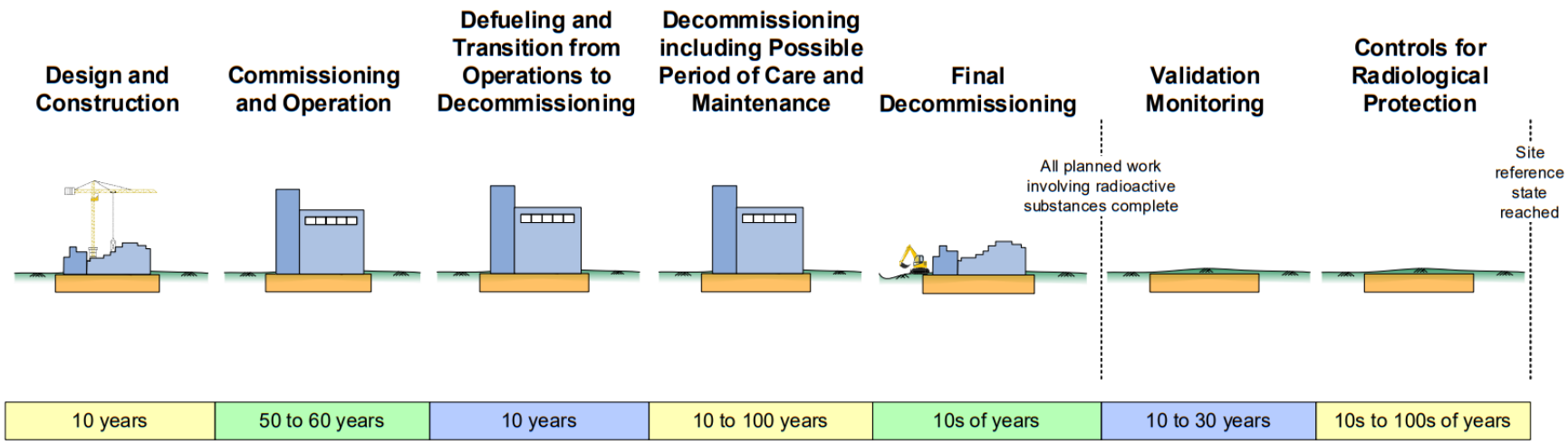
Response in the event of unexpected adverse trends

- Investigation of cause.

- Identification if remedial work if necessary, which could involve:
  - Refurbishment of engineered structures (e.g. concrete cap)
  - Injecting grout below ground voids
  - Pumping and treating water
  - Removal of waste

- Further monitoring to evaluate effectiveness of remedial work.

Surrender of Permit at Site Reference State



Any Questions?