As of 1 August 2022, the English and maths requirements for on-programme and new apprentices undertaking level 2 apprenticeships have changed and are detailed as part of the apprenticeship funding rules. These requirements supersede the current wording in this apprenticeship standard and EPA plan.

Summary / Overview

The Nuclear Operative standard follows a core and options approach. At the end of the apprenticeship you will be competent to be either a Nuclear Decommissioning Operative or Nuclear Process Operative

The nuclear industry requires a high level of confidence that nuclear operations and nuclear decommissioning activities are undertaken to the highest possible standards for the continued safe operation of nuclear facilities. The Nuclear Operative performs this vital role to ensure that nuclear facilities are operated and decommissioned within safe limits in this highly regulated industry to ensure the continued health and safety of personnel, the general public and the environment.

This Level 2 apprenticeship will typically take 2 years to complete and will provide a vital route to produce competent nuclear operatives possessing the required knowledge, skills and behaviours to carry out role, for the current and future UK nuclear civil programme (including operations, post-operative clean out, decommissioning, new build) and UK nuclear defence.

This End Point Assessment (EPA) plan has been developed by the Nuclear Employer Group specifically set up for the nuclear industry. The group comprises nuclear site licence holders, various companies (large and small) within Nuclear who directly have a responsibility for nuclear operations and nuclear decommissioning, and the Nuclear Institute (NI).

This EPA plan has been developed to provide a structured approach to enable the apprenticeship to be completed in accordance with the approved Apprenticeship Standard and for the apprentice to be successful in achieving a minimum of a ‘pass’ grade at completion. Successful apprentices will be eligible to progress towards the registration for Associate membership with the relevant Professional Institution. Associate membership will enable the apprentices to continue their professional development with mentoring and support provided by the institutions and their employers, to progress towards Engineering Technician (EngTech) in the future.

The End Point Assessment (EPA):

The responsibility for developing and delivering the EPA rests with the End-Point Assessment Organisation (EPAO) that are approved to offer their services to employers for the Nuclear Operative apprenticeship standard. Only EPAO that are approved by the Education and Skills Funding Agency (ESFA) can be used. EPAO's must appoint appropriately qualified and experienced assessors to conduct the EPA as defined in this plan.

The EPA will take place during the final 4 months to accommodate work scheduling and cost effective planning of resources:

Stage 1:

- A **multiple choice test**, to test the apprentice's knowledge and understanding of the Nuclear Operative role, as defined in the apprenticeship standard.

Stage 2:

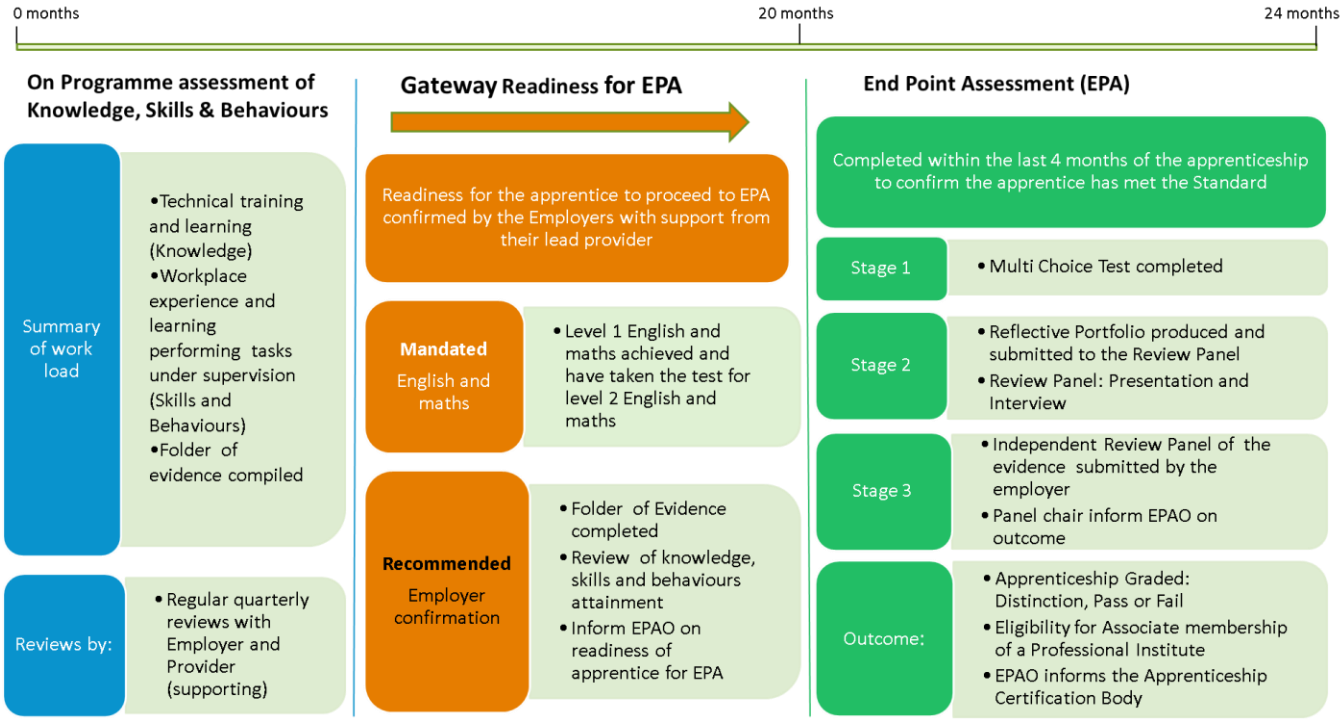
- A **reflective portfolio**, on work the apprentice has carried out, demonstrating the apprentice's ability to integrate the broad range of knowledge, skills and behaviours set out in the apprenticeship standard. The reflective portfolio will contain examples of work, where the apprentice considers the extent to which they have satisfactorily met the apprenticeship standard. The apprentice will submit the reflective portfolio prior to structured interview.
- An **interview**, consisting of:
    - A presentation on the reflective portfolio
    - A structured discussion supported by the reflective portfolio

The EPA will satisfy the requirements for the registration as an Associate Member of a relevant Professional Institution. The structured interview will be carried out by a review panel consisting of 2 members (one from the employer and one acting as the independent assessor appointed by the EPAO, who will make the final decision on competence). This will mean the assessment outcomes will be consistent, reliable and allow a fair and rigorous comparison between all apprentices employed across the UK in different types and sizes of organisations. Successful achievement of the EPA will lead to formal certification of the apprenticeship and demonstrate that the apprentice is a competent nuclear operative.

Note on confidentiality:
As apprentices will be undertaking work in the nuclear industry, it will be important that sensitive nuclear information and client information may have to be removed from any evidence submitted for EPA. Guidance on this should be given to the apprentice by their employer and the employer will be responsible for ensuring that evidence submitted or provided for third party independent review conforms with the employers commercial and regulatory requirements.

Diagrammatic representation of the Assessment requirements:

The EPA will be holistic and assess skills, knowledge and behaviours in an integrated way at the end of the programme to provide formal confirmation the apprentice is ready to undertake the occupational role.



Recommended On Programme Assessment

The Apprenticeship will typically take 2 years to complete and for EPA readiness it is anticipated that an apprentice without prior knowledge or experience should have completed typically 20 months of their apprenticeship before undertaking the EPA. Having a robust process of on-programme training and assessment will ensure that apprentices make good progress towards the final EPA.

Whilst not mandatory the following are recognised as good practice to help ensure the apprentices are ready for the EPA:

- Apprentices should maintain a folder of evidence against each of the competencies illustrating the application of knowledge, skills and behaviours. The process of collating a folder of evidence will encourage the apprentice to continuously reflect on their learning and development and help to identify gaps where they need to apply further development to achieve the Standard.
- The folder of evidence will be used by the employer (in conjunction with the lead provider) to determine readiness of the apprentice to undertake EPA. Evidence that has not previously been formally assessed can be used by the apprentice for the production of the mandated Reflective Portfolio (to be produced by the apprentice in Stage 2 of the EPA).
- Employers should review the progress of their apprentices every 3 months. This can be done in the form of a quarterly review where the apprentice speaks about what they have learned, how they are developing and how they are performing. The employer may act as a mentor in these instances, providing balanced strengths and development based feedback.

Assessment Gateway

Readiness for End Point Assessment (EPA)

Before going forward for the EPA, the apprentice must have:

- Achieved Level 1 maths and English and have taken the test for level 2 English and maths
- Satisfactory completed the on programme training plan agreed with their employer

Who decides if the apprentice is ready for EPA?

The EPA will typically start 20 months into the 2-year apprenticeship programme, once the apprentice has successfully completed appropriate on programme training and assessment.

The judgement on whether the apprentice is ready for the EPA will be made by their employer, on the basis of the knowledge, skills and behaviours attained by the apprentice and taking into consideration the apprentices' work experience, the views from the training provider where applicable and the apprentice, to inform this decision.

When satisfied that the apprentice is ready for EPA, the employer will directly (or via their lead provider) inform their selected EPAO for the EPA requirements to be planned and carried out.

Detailed explanation of the EPA

What will be assessed?

After successfully achieving the gateway requirements, the apprentice will complete a Multiple Choice Test to confirm their knowledge and understanding of the Nuclear Operative role. They will also be required to demonstrate through a Reflective Portfolio, presentation and structured interview that they have acquired the broad range of knowledge, skills and behaviours identified in the Standard and can, through their integration, competently undertake the role of a Nuclear Operative.

Annex 1 provides details on how the assessment methods will be used to assess the elements of knowledge, skills and behaviours in the Standard.

How will it be assessed?

The EPA will be in 2 stages and utilise **two** distinct assessment methods:

Stage 1 Multiple Choice Test

The purpose of the **Multiple Choice Test** is to show that Nuclear Operatives can demonstrate a clear understanding of their role that aligns with the higher level knowledge, skills and behaviours of the apprenticeship. The multiple choice test is synoptically devised with the EPAO responsible for the design and generation of the questions and answers for the test. A question bank comprising of a minimum of 150 questions will be maintained by the EPAO.

The question bank developed will allow for sufficient questions to be randomly selected providing coverage of the higher level knowledge, skills and behaviours. The multiple choice test will require 30 questions (with 4 response options) to be answered within 45 minutes and take place in a suitably controlled environment and administered as either an electronic on-line test or paper based test, including clear instructions for marking, reasonable adjustments, appeals and complaints. The EPAOs will take responsibility for invigilation, marking and secure handling of test papers, answer keys and associated control documentation. The test can be delivered at the employers premise or a test centre and must be invigilated. The result of the test will be graded and the apprentice will be provided with a record of the grade awarded:

- Fail = <70% multiple choice correct answers
- Pass = 70% multiple choice correct answers
- Distinction = 85%+ multiple choice correct answers

Stage 2 Interview

The purpose of the **Interview** is to enable the apprentice to showcase to the panel how they have carried out the role of a Nuclear Operative, integrating the knowledge, skills and behaviours expected, for the review panel to be assured the apprentice has achieved the requirements of the Standard. To help ensure that the interview is practicable and cost effective the interview can be carried out at the employer's site, an assessment centre or via video link as appropriate.

Prior to Interview, the apprentice will submit a **Reflective Portfolio** setting out examples of work they have undertaken. The reflective portfolio will be used to inform the Interview discussion and presentation through which the apprentice will demonstrate competence of the broad range of knowledge, skills and behaviours set out in the standard. The Employer will be required to confirm that the reflective portfolio provides an accurate representation of work carried out by the apprentice and is not embellished. The portfolio will not be graded as part of the EPA.

Reflective Portfolio

The Reflective Portfolio developed during the EPA will contain short written pieces that summarise and reflect on the experiences of practical work undertaken by the apprentice:

- Samples of work carried out – include a minimum of 3 examples of best practice carried out that demonstrates the higher order knowledge, skills and behaviours of the standard. Where practicable this should include photographs, images, diagrams, together with on the job observations and witness evidence/testimony
- Journal Entries – for the work examples provided, reflect on the knowledge, skills and behaviours that have been developed. This should also include situations that have been difficult or challenging, and how these have been overcome. When writing about such situations, apprentices should reflect on the ways that this prompted new knowledge, skills and behavioural development.
- Evidence of Achievement – provide evidence of achievement gained. For example, certification for training and assessment completed for the nuclear operative role.

The reflective portfolio must be submitted to the EPAO at least 2 weeks prior to interview taking place (stage 2 of the EPA – referred to below). The submitted reflective portfolio will be reviewed by an Independent Assessor.

The **Interview** will consist of:

A Presentation – summarising the content of the reflective portfolio submitted, allowing the apprentice to further elaborate on their knowledge, skills and behaviours applied to carry out the work, how any challenges were overcome and reflecting on what they have learned. The presentation should typically be 20 minutes (and not more than 30 minutes) and can be delivered in a manner that the apprentice chooses. This will be followed by the structured discussion (as described below) with the review panel to enable the panel to ask further questions of clarification on the presentation.

A Structured Discussion – using a set of criteria and set of typical questions developed by the EPAO. The structured discussion should typically last 30 minutes (and not more than 40 minutes) and focus on the reflective portfolio and presentation and enable the review panel to explore areas they consider warrants further investigation in order to assure themselves that the apprentice has the competence to work as a Nuclear Operative.

The purpose of the presentation and structured discussion is to:

- Demonstrate the apprentice can apply the broad range of knowledge, skills and behaviours in the Standard, as indicated in Annex 1
- Clarify any questions the Independent Assessor has from their review of the reflective portfolio submitted,
- Clarify any questions the review panel has from the presentation
- Explore aspects of the apprentice's work, including how it was carried out, in more detail,
- Enable the review panel to draw a conclusion on the holistic EPA and the final grade to be awarded.

The following **Table 1** outlines the scoring criteria that will be applied for the Interview; detailed guidance will be developed by the EPAO. In order for a Distinction to be awarded for the Interview score, the apprentice must demonstrate a level of competence that builds on the competence demonstrated for a Pass. The Interview Panel will complete an Interview Record sheet provided by the EPAO to conduct the interview and confirm whether the higher order knowledge skills and behaviours have been demonstrated.

Table 1 Interview Guidance for the assessment of Knowledge, Skills and Behaviours required

NB. Everyone in the nuclear industry is expected to behave to recognised principles based on the 'Traits of a Healthy Nuclear Safety Culture', defined as the core values and behaviours to emphasise the importance of safety over competing goals to ensure protection of people and the environment. As such, everyone irrespective of grade, role or responsibilities is expected to behave in a manner that befits these principles and therefore awarding a Distinction for 'Behaviours' in the Standard is not applicable.

Higher Order Skills to be assessed	**Lower Order Skills**			
Skills to be assessed		**Fail**	**Pass**	**Distinction**
S1 Work safely in a nuclear environment under a Safe System of Work (SSOW) including Risk Assessment	**S5** Prepare work areas in radioactive and non-radioactive environments **S9** Operate effectively in Personal Protective Equipment, (PPE), such as respirators and pressurised suits **S12** Carryout the identified safe application of radiological monitoring equipment, process and assurance **S15** (Process Operative) Conduct plant and equipment decontamination activities **S20** Support and prepare alpha or beta/gamma radiation/contamination controlled work areas **S21** Effectively support and assist other work streams within their work environment **S24** (Decomm Operative) Decontaminate radioactive plant and materials	Insufficient evidence of demonstrating they have the ability to work safely in a nuclear environment and could potentially put self, colleagues, the environment or public at risk by their actions. Evidence including: • Failure to explain what a SSOW or Risk Assessment is for • Failure to explain the purpose and correct use of PPE • Shows a lack of understanding on the purpose of reassurance monitoring • Cannot explain how decontamination is safely performed • Shows a lack of understanding on the purpose of a controlled work area	Demonstrates their ability to work safely in a nuclear environment to approved procedures. Evidence including: • Can give a clear explanation of a SSOW or Risk Assessment and their involvement to maintain a safe working environment • Can give a clear explanation of how they have prepared work areas to maintain the safety of self or colleagues • Can give a clear explanation of have worked using PPE and its purpose if helping to maintain safety • Can give a clear explanation of how self-assurance monitoring is used to maintain a safe working environment • Can give a clear explanation of how plant, equipment or materials are decontaminated safely • Can give a clear explanation of the importance and purpose of preparing a controlled work area • Can give a clear explanation support they have provided to other work streams that has contributed to the safety	Has demonstrated they have the ability to take on additional safety responsibilities, over and above the expectation of a nuclear operative. Evidence including: • Safe System of Work Controller • Safety Advisor role • Member of a Safety Group or Forum • Taken on the role and responsibilities as a Safety Representative for Apprentices
S2 Apply and comply with Operating Rules and Instructions and applying correct reporting procedures	**S3** Monitor plant indications and conditions of plant and equipment closely and record data accordingly **S10**	Insufficient evidence of demonstrating they are working to operating instructions and applying correct procedures. Evidence including:	Demonstrates their ability to follow procedures and instructions. Evidence including: • Provides evidence of having worked to an Operating Instruction as part of their daily work commitments	Can demonstrate an understanding of why Operating Rules are in place and their function in terms of the Plant Safety Case, Licence Conditions and Nuclear Site Licence

	Conduct surveillance of plant equipment and processes to ensure correct operation	• Failure to explain what Operating Rules and Instructions are • Cannot explain how monitoring of plant is carried out and the purpose of recording • Cannot explain the purpose of surveillance	and shows an understanding of any Operating Rules in place within the instruction • Can give a clear explanation of the purpose of monitoring activities and what type of plant conditions they have recorded and why • Can give a clear explanation of the purpose of surveillance and what surveillance activities they have carried out and why	
S8 Carry out Waste management to sort, segregate, transfer & minimise waste arisings	N/A	Cannot give an example of carrying out waste management to sort, segregate, transfer or minimise waste arisings	Demonstrates through a suitable example, where they have performed operations to sort, segregate and minimise waste and explain the purpose of why this is done	Can demonstrate a detailed an understanding of the role of the Environmental Agency and the EA's regulatory powers
S17 Safely operate plant process and systems	**S6** Carry out Sampling Operations **S7** Assemble and dismantle equipment and plant items **S13** Effectively communicate and handover tasks and work areas **S14** Configure, isolate and reinstate plant and equipment **S16** Interpret technical drawings and documentation **S18** Operate ancillary equipment, e.g. cranes, fork lift trucks, access platforms, remote handling equipment **S22** Carryout the safe delivery of identified minor maintenance activities	Insufficient evidence of demonstrating they are operating processes or systems safely. Evidence including: • Cannot give an example of a sampling operation carried • Cannot provide an example of having assembled or dismantled equipment/plant items • Cannot provide an example of demonstrating effective communication and handover of a task or work area • Cannot provide an example of having configured, isolated or reinstated equipment/plant items • Failure to explain how to interpret technical drawing or documents • Cannot give an example of operating any Ancillary equipment • Cannot give an example of having carried out minor maintenance activities	Demonstrates their ability to operate processes or systems safely. Evidence including: • Provides evidence of Sampling operations and can explain why carried out • Provides evidence of having Assembled / Dismantled equipment/plant items and why this was done • Can provide an example of using effective communication to handover a task or work area • Can demonstrate an example of having configured, isolated or reinstated equipment/plant items • Shows an understanding of how to interpret technical drawing or documents • Can provide evidence of Ancillary equipment they have operated safely and its intend use • Can give an example of where they have carried out minor maintenance activities and why these were performed	N/A
S19 Apply routine problem solving techniques **or** **S25**	N/A	Cannot give an example of a problem solving technique they have used and the outcome achieved. **or** Cannot give an example of solving a routine decommissioning problem	Can give an example of applying a problem solving technique and the outcome achieved **or** Can give an example of solving a decommissioning problem and the outcome achieved	Can demonstrate they have acted as the lead person to solve an operational or decommissioning problem, describe the technique used, challenges overcome and the outcome achieved

Solve routine decommissioning problems				
Decommissioning Pathway: Additional Skills to be assessed		**Fail**	**Pass**	**Distinction**
S23 Dismantle contaminated plant, structures and equipment	**S26** Operate standard, purpose built or designed equipment for decommissioning purposes **S27** Remove and transfer hazardous materials etc. to designated storage locations	Insufficient evidence of demonstrating dismantling skills. Evidence including: • Cannot provide an example of operating decommissioning equipment and its intended purpose • Cannot provide an example of having removed and transferred hazardous materials	Demonstrates they have dismantled contaminated plant equipment or structures Evidence including: • Can provide evidence of having operated standard, purpose built or designed decommissioning equipment and explain its intended purpose • Can give an example of how they have removed / transferred hazardous material	N/A
Process Pathway: Additional Skills to be assessed		**Fail**	**Pass**	**Distinction**
S28 The process practices and supporting activities required to safely operate plant and equipment being used to process nuclear material	N/A	Insufficient evidence of demonstrating they have carried out process activities for nuclear material. Evidence including: • Cannot provide an example of having undertaken a supporting activity for the safe processing of nuclear material	Demonstrates they have carried out process activities to safely operate plant and equipment for nuclear material. Evidence including: • Can give an example of a supporting activity undertaken for the safe processing of nuclear material	N/A

Higher Order Knowledge to be assessed	**Lower Order Knowledge**	**Fail**	**Pass**	**Distinction**
K1 The practice involved with the minimisation, packaging and removal of hazardous materials and transfer of materials to designated storage area	N/A	Insufficient knowledge of the waste minimisation of hazardous materials • Cannot describe the processes used to manage hazardous waste/materials	Demonstrates their understanding of waste minimisation and processing of hazardous materials • Able to describe the main processes used to manage hazardous waste/ materials (i.e. Pre-treatment/Treatment, Conditioning, Storage, Retrieval, Disposal)	N/A
K2 A variety of continuous improvement techniques	N/A	Insufficient knowledge of improvement techniques • Cannot provide examples of improvement techniques they have used	Demonstrates their understanding of improvement techniques. • Able to provide examples of 2 different improvement techniques and where they have been used to produce favourable outcomes	Trained in Continuous Improvement Techniques and have led an improvement task

K3 The safety (nuclear, radiological, conventional and environmental), security and behavioural expectations of those working on nuclear sites	N/A	Insufficient safety knowledge of the expectations for working on nuclear sites • Cannot describe what the key expectations are for compliance and maintaining safe operations	Demonstrates their understanding of safety, security and behavioural expectations for working on a nuclear site • Able to describe what are the key expectations for compliance and maintaining safe operations	Can demonstrate their knowledge of the Nuclear Safety and Environmental Regulation in place across Great Britain
K10 How plant equipment and systems such as ventilation, steam and cooling water operate and support safe operations	N/A	Insufficient knowledge of plant support systems • Cannot describe a plant system and its use to support safe operations	Demonstrates their understanding of a plant support system. Evidence including: • Emergency Generators • Ventilation Systems (e.g. Plant or Glovebox) • Cooling Water for a Reactor • Steam Generator/Turbines • Criticality System • Radiological Monitoring Equipment	N/A
Decommissioning Pathway: Additional Knowledge to be assessed		**Fail**	**Pass**	**Distinction**
K11 The decommissioning practices and supporting activities required to enable the safe dismantling, size reduction, waste processing and decontamination of plant and equipment on a nuclear facility	N/A	Insufficient knowledge of the decommissioning processes and practices. Cannot describe the process for either: • Safe dismantling and size reduction • Safe waste processing and decontamination	Demonstrates their understanding gained in decommissioning processes and practices. Able to describe the process for either: • Safe dismantling and size reduction • Safe waste processing and decontamination	N/A
Process Pathway: Additional Knowledge to be assessed		**Fail**	**Pass**	**Distinction**
K12 The process practices and supporting activities required to safely operate plant and equipment being used to process nuclear material	N/A	Insufficient knowledge of the process practices and supporting activities to safely operate plant and equipment. • Cannot describe the process practices and supporting activities for a plant worked in or equipment they have used	Demonstrates their understanding of how to safely operate plant and equipment for nuclear material • Able to describe the process practices and supporting activities for a plant they work in or plant equipment they use	N/A

Behaviours to be assessed	Fail	Pass	Distinction
B1 Safety: They always demonstrate a strong commitment to personal safety behaviours as set out in nuclear industry requirements. They actively challenge unsafe practices. They understand the relationship between nuclear and radiological safety and ensure this is reinforced in the workplace	Cannot demonstrate safe working practices	Have demonstrated a strong commitment to safety. Evidence including: • Challenging others unsafe behaviours and practices • Reinforcing the importance of radiological safety • Helping others to work safely	N/A

B2 Integrity: They ensure openness in relations with workers, customers and other stakeholders. They promote and model the highest standards of professional conduct, ethics and integrity	Cannot demonstrate integrity in the workplace.	Have demonstrated integrity. Evidence including: • Provide an example where they have acted in a professional manner to maintain openness in relations with co-workers, customers or other stakeholder	N/A
B3 Resilience: They work well under pressure, continuously strive for excellence in all they do and have sufficient maturity to challenge poor performance or non-conformance in a tactful and diplomatic manner	Cannot demonstrate where they worked resiliently.	Have demonstrated resilience. Evidence including: • Tactfully challenging poor performance • Tactfully challenging non conformance • Working under pressure to complete a task safely and correctly	N/A
B4 Quality: They follow rules, procedures and principles to ensure work completed is fit for purpose and pay attention to detail and carry out appropriate risk assessment and error checks throughout work activities	Cannot demonstrate quality compliance.	Have demonstrated quality compliance. Evidence including: • Following operating instruction • Carrying out quality checks • Being appropriately trained for any tasks undertaken • Carrying out appropriate risk assessment prior to starting a task and post job reviews • Work to a Method Statement, without deviation and stopping where the instruction is incorrect • Stopping tasks where there could be a serious consequence of they continued and seeking advice / reporting issues • Using STAR, Stop, Think, Act and Review	N/A
B5 Personal Responsibility: They take responsibility for completing tasks and procedures, correctly and safely	Cannot demonstrate where they have taken personal responsibility.	Have demonstrated taking personal responsibility. Evidence including: • Reporting serious concerns • Challenging others • Using STAR, Stop, Think, Act and Review • Stopping tasks where there could be a serious consequence of they continued and seeking advice / reporting issues	N/A
B6 Team Working: They contribute towards the improvement of collaborative working and coaching others where appropriate	Cannot demonstrate team working.	Have demonstrated team working Evidence including: • Supporting a colleague to understand a task to be able to carry out correctly and safely. • Taking on a specific role within a team, so that the team can function correctly and perform • Mentoring a colleague • Participating in team meetings to share your views that may help the outcome of the meeting, help others to understand the purpose or goals	N/A

		• Taking responsibility for activities or tasks	
B7 Communication: They always demonstrate effective and appropriate communication, using oral, written and electronic methods; working effectively with others, with regard for diversity and equality	Cannot demonstrate effective communication.	Have demonstrated where they have used effective communication. Evidence including: • During job/task handovers to a colleague • During a meeting to explain your point of view / input to the meeting • Presenting to a group of people • Reporting on the outcome of a job/task. Written, oral. • Using clear language to communicate instruction • Making use of the phonetic alphabet to ensure instruction are relayed correctly and not misunderstood	N/A
B8 Conservative Bias: Establish a conservative approach to plant operations to maintain a safe operating environment	Cannot demonstrate where they have used a conservative approach.	Have demonstrated applying a conservative bias approach Evidence including: • Provide an example of a safety significant task undertaken where a conservative approach has been necessary to maintain the safe operation of plant.	N/A

The two stages of the EPA utilising two distinct methods of assessment, will allow the apprentice to demonstrate the knowledge, skills and behaviours acquired and enable the independent assessor to make a judgement on the overall final grade the apprentice has achieved for the standard.

- The multiple choice test will confirm the apprentices understanding of the knowledge. skills and behavioural requirements of the role.
- The structured interview / presentation, supported by the reflective portfolio will enable the panel to confirm the apprentice's ability to communicate effectively (verbal and written) whilst demonstrating how they have met the standard.
- The structured interview will enable the panel to assess any knowledge, skills or behaviours that were not demonstrated by the apprentice's reflective portfolio or presentation or that require further exploration.

Who will carry out the assessment?

Stage 1 Multiple Choice Test

The test will be invigilated to ensure it is carried out under controlled, consistent and fair conditions. The invigilation process will be approved by the EPAO. Where a paper based test is use, the marking of the test will be carried out an independent assessor, approved by the EPAO.
Note: If an electronic on-line test is used, the test result will be generated from the system used.

Stage 2 Interview

Reflective Portfolio
The reflective portfolio will be reviewed by an Independent Assessor, approved by the EPAO.

Review Panel for the Interview
The panel will consist of 2 members; an employer Discipline Expert and an Independent Assessor (acting as Chair) appointed by the EPAO.

The Discipline Expert must be currently working in the nuclear industry and occupationally competent at a minimum of level 3 or equivalent, with a minimum of 3 years' experience in a nuclear operations role. The Discipline Expert may be sourced from the apprentice's own employer and they must not have been directly involved in the training or direct supervision of the apprentice being assessed.

The Independent Assessor (IA), be qualified in assessment practice and registered as a professional member with an Engineering or Science Institution, licensed by the Engineering Council or Science Council, the UK regulatory bodies for these professions. The EPAO will coordinate the independent assessors across the regions and ensure their independence.

The panel members will review the submitted documents and use the Interview Record sheet provided by the EPAO to conduct the interview and questioning to confirm the broad range of knowledge, skills and behaviours have been achieved. The role of the Discipline Expert is to provide context and clarity for the IA regarding the requirements and understanding of the nuclear operative occupational role being undertaken by the apprentice. The Discipline Expert must not lead the apprentice, nor influence the overall grading decision. At the end of the interview, the Independent Assessor (acting as Chair) will make the judgement on Distinction, Pass, or Fail.

Final judgement

The final decision about whether the apprentice has passed is made by the EPAO based on the overall grading to be awarded.

Independence

The EPAO will coordinate the entire EPA process completely and independently of the employer and any training providers. The independent assessor appointed to carry out the EPA will not be from the apprentice's employer or related to the apprentice in any other way.

The regional arrangement will ensure that all apprentices are within reasonable travelling distance of the venue for the structured interview. Where practicable the interview will be arranged at the employers or their providers' premises, or via video link as appropriate to minimise additional expenditure, travel and time away from the work place

EPA – Summary of review panel responsibilities

There will be 2 members involved; the Independent Assessor (Chair) and the Discipline Expert.

Assessor	Role responsibilities
Employer	Brings a view of the apprentice from the perspective of: • Supporting and mentoring during the apprenticeship • Helping the apprentice to reflect on their performance and achieve appropriate milestones during on programme assessment • Providing the interface with the Professional Institution for Associate Membership and continued professional development • Assessing the readiness of the apprentice for EPA • Formally putting forward the apprentice for EPA and submitting the appropriate information • Ensuring the apprentice has gained sufficient underpinning knowledge to undertake the multiple choice test • Ensuring the apprentice is responsible for collating their reflective portfolio and presentation for EPA • Provide the apprentice with the appropriate preparation for the interview • Providing a Discipline Expert for the EPA interview panel
Independent Assessor (Chair)	The independent assessor will have no prior engagement with the apprentice and will: • Review the reflective portfolio in accordance with the set criteria • Chair and conduct the interview • Make the final judgement on the outcome of the interview • Provides the outcome of the EPA interview to the EPAO
End Point Assessment Organisation	The EPAO on the ESFA Register will: • Appoint and ensure independent assessors are competent for the role • Sets and administer the arrangements for EPA of apprentices with independent assessors • Demonstrate effective quality assurance processes are in place (including that the EPA is fair, reliable and consistently carried out across organisations and over time) • Develop and makes available the multiple choice test and marking criteria. • Develop and makes available detailed guidance on the criteria for the marking of the EPA • Inform the outcomes of apprentice EPA's to the Apprenticeship Certification Body

Quality Assurance

Internal QA

The EPAO for the Nuclear Operative EPA will be responsible for the internal quality assurance and will have suitable and appropriate quality assurance processes in place so that all aspects of the EPA are carried out in a consistent and fair manner for all Apprentices. The QA arrangements will typically include:

- The management of risk and malpractice/maladministration, appeals and complaints
- Communication processes for apprentices, employers, providers, and external bodies in relation to the EPA
- Third parties - the management of third parties, including independent review panel members, examiners, assessors
- Setting and delivering panel assessment - need for confidentiality, reasonable adjustments and special consideration
- Marking and issuing results - marking and moderation, results determination and issuing
- Standardisation meetings to support and develop independent assessors; monitor and improve the quality of assessment practice; and remove / minimise process inconsistencies. The frequency and timing of internal standardisation activity is decided by the EPAO but must be undertaken at least once a year.

The EPAO will set the assessment and marking criteria for the Multiple Choice Test, and Interview (Presentation and Structured Discussion), to ensure alignment and eligibility for Associate Membership on successful completion of the apprenticeship requirements.

Independent Assessors selected by the EPAO must have worked in the nuclear sector and have undertaken a recognised training in an appropriate assessment methodology for marking, interviewing or assessment of competence.

- Independent Assessors selected as Markers will receive guidance and training from the EPAO for marking the multiple choice test (where this is paper based, rather than delivered as an on-line test)
- Independent Assessors selected as Panel Interviewers will be Science Council / Engineering Council Assessors or have undertaken Level 3 Training, Assessment, Quality Assurance (TAQA) or equivalent

External QA

External quality assurance of the EPA for this apprenticeship standard will be managed by the Institute for Apprenticeships (IfA).

Grading

The apprenticeship will be graded ‘Distinction’, ‘Pass’ or ‘Fail’. The final grade will be determined by the collective performance of the Multiple Choice test and the Interview assessment methods in the EPA.

The Table below provides the possible scenarios of combination where the Apprenticeship will be graded as a Pass or Distinction.

- An apprentice must achieve at least a ‘Pass’ in both methods to be deemed competent as a Nuclear Operative and to pass the EPA.
- To achieve a Distinction overall, the apprentice must achieve a Distinction in both assessment methods

EPA method	**Assessment Grade**	**Assessment Grade**	**Assessment Grade**	**Assessment Grade**
Multiple Choice Test	Pass	Pass	Distinction	Distinction
Interview	Pass	Distinction	Pass	Distinction
Apprenticeship Grade Awarded	**Pass**	**Pass**	**Pass**	**Distinction**

Re-takes/re-sits

The employer should have a remediation process in place to support any apprentice who fails to meet the conditions of EPA.

Where an apprentice does not achieve a minimum of a Pass grade for either assessment method, the EPAO will notify the apprentice and their employer on the shortcomings identified. Re-takes/re-sits will only be available to apprentices who fail an EPA method, i.e. they are not offered to apprentices wishing to move from Pass to Distinction. Typically, re-takes/re-sits should be carried out within 6 months of having been notified by the EPAO. Further re-take/re-sit would be at the discretion of the employer following a 1:1 discussion with the apprentice to determine suitability for further re-take/re-sit to complete the apprenticeship.

End Point Assessment Organisations (EPAO)

The Nuclear Employer Group expects apprentices to be assessed in a fair and consistent way without any doubt as to credibility of achievement that must be recognisable across UK and indeed the world. EPAO wishing to operate in the nuclear sector must apply to and be approved under the Education and Skills Funding Agency (ESFA). Prospective EPAO wishing to be approved to operate nuclear end-point assessments must as a minimum:

- have experience of development and design of assessments
- show experience of developing assessment support materials for the nuclear industry stakeholders
- provide evidence of staff background experience of working in the nuclear sector
- show experience of working with specialist employers and providers of nuclear industry training, especially those with modern facilities where learning and skills can be assessed
- have experience of working collaboratively with Profession Institutes working in the nuclear sector, for the appointment of independent assessors
- can provide on-line or assessment centre facilities for the completion of the EPA requirements
- can provide IT infrastructure and/or on-line facilities that could be used for the secure collection of learner data for the purpose of registration and the process for applying for end assessment appointments

EPAO must be able to develop and offer a range of adapted assessment/tests for the nuclear standards.

EPAO must ensure sufficient geographical assessment centres are available across England with one per nuclear region a minimum. Large nuclear employers may be approved by EPAO to host the EPA on their own premises, where this is beneficial to all parties concerned, on the basis independence of the EPA is maintained at all times. The EPAO will take responsibility for ensuring the EPA is managed independently and the environment for testing is controlled.

EPAO will be working with an approved network of assessment centres that are responsible for providing the controlled environment and safe handling of the test papers, answer keys and associated control documentation.

The EPAO will also offer a range of support materials to apprentices and their employers to help with the preparation for EPA.

Implementation

Affordability

The Holistic EPA, including

- General administration of the process, including applications, registrations and certification
- Appointment and registration of appropriate independent assessors
- Carrying out assessment and marking
- Invigilation for the multiple choice test
- The review panel for the interview
- Venue costs for the multiple choice test and interview to be carried out
- Assessor costs (assessing written submissions, carrying out interview and writing up report)
- The quality assurance of all the processes involved, to ensure rigour and consistency
- External quality assurance payment

The funding band for the Nuclear Operative apprenticeship standard is band 11 (upper limit £15,000), with the total cost for EPA not exceeding 20%.

Professional Body recognition

The Interview of the EPA will be chaired by an independent assessor appointed by the EPAO. The independent assessor will be professionally qualified and registered with the Professional Engineering or Science Institution. Part of the outcome of the EPA will be that the apprentice will have satisfied the requirements to be registered as an Associate Member of a Professional Institution (PI). Apprentices that choose to become an Associate Member will be entitled to receive the support of the PI for their continued development and future progression and eligibility towards Professional Membership.

Consistent

The Nuclear Employer Group recognises that the EPA is open to EPAO approved and registered by ESFA. The EPAO will be responsible for final grading of the EPA. The internal and external quality assurance processes mean that the EPA outcomes will be consistent and reliable, allowing a fair and proper comparison of apprentices employed in different types and sizes of organisations.

Volumes

The employer group estimates that the initial yearly volumes will be the order of 20 and may increase to 60 in future years.

Annex 1

Assessment Method by element of the Standard – Nuclear Operative

The EPA should assess across the Standard to ensure competence in the occupational role.

	Apprenticeship Standard competencies	Designated method of assessment	
Ref	**Skills to be assessed**	**M = Multi-choice Test**	**I = Interview (includes Reflective Portfolio, Presentation & Discussion)**
S1	Work safely in a nuclear environment under a Safe System of Work (SSOW) including Risk Assessment	**M**	**I**
S2	Apply and comply with Operating Rules and Instructions and applying correct reporting procedures	**M**	**I**
S3	Monitor plant indications and conditions of plant and equipment closely and record data accordingly		**I**
S4	Identify, respond and implement relevant actions in the event of abnormal or emergency situations	**M**	
S5	Prepare work areas in radioactive and non-radioactive environments		**I**
S6	Carry out Sampling Operations		**I**
S7	Assemble and dismantle equipment and plant items		**I**
S8	Carry out Waste management to sort, segregate, transfer & minimise waste arisings		**I**
S9	Operate effectively in Personal Protective Equipment, (PPE), such as respirators and pressurised suits		**I**
S10	Conduct surveillance of plant equipment and processes to ensure correct operation		**I**
S11	Respond correctly to equipment, facility and site alarms	**M**	
S12	Carryout the identified safe application of radiological monitoring equipment, process and assurance		**I**
S13	Effectively communicate and handover tasks and work areas		**I**
S14	Configure, isolate and reinstate plant and equipment		**I**
S15	Conduct plant and equipment decontamination activities		**I**
S16	Interpret technical drawings and documentation		**I**
S17	Safely operate plant process and systems		**I**
S18	Operate ancillary equipment, e.g. cranes, fork lift trucks, access platforms, remote handling equipment		**I**
S19	Apply routine problem solving techniques		**I**
S20	Support and prepare alpha or beta/gamma radiation/contamination controlled work areas		**I**
S21	Effectively support and assist other work streams within their work environment		**I**
S22	Carryout the safe delivery of identified minor maintenance activities		**I**
	Decommissioning Pathway: Additional Skills to be assessed		
S23	Dismantle contaminated plant, structures and equipment		**I**
S24	Decontaminate radioactive plant and materials		**I**
S25	Solve routine decommissioning problems		**I**
S26	Operate standard, purpose built or designed equipment for decommissioning purposes.		**I**
S27	Remove and transfer hazardous materials etc. to designated storage locations		**I**
	Process Pathway: Additional Skills to be assessed		
S28	The process practices and supporting activities required to safely operate plant and equipment being used to process nuclear material		**I**
Ref	**Knowledge to be assessed**	**M = Multi-choice Test**	**I = Interview (includes Reflective Portfolio, Presentation & Discussion)**
K1	The practice involved with the minimisation, packaging and removal of hazardous materials and transfer of materials to designated storage area.	**M**	**I**
K2	A variety of continuous improvement techniques.	**M**	**I**
K3	The safety (nuclear, radiological, conventional and environmental), security and behavioural expectations of those working on nuclear sites.	**M**	**I**
K4	The fundamental principles and implications of radiation hazards.	**M**	
K5	The procedures for dealing with radioactive discharges, waste, environmental control and emergencies.	**M**	
K6	The reasons for and application of a variety of safety management systems such as Permit to Work, Standard Operating Procedures and Risk Assessment.	**M**	
K7	The implications and relevance of company policy, external legislation and regulation on working practices (including environmental control).	**M**	
K8	How Human Performance and Human Factors affect nuclear safety culture	**M**	
K9	How to respond correctly to Emergency Arrangements	**M**	
K10	How plant equipment and systems such as ventilation, steam and cooling water operate and support safe operations.	**M**	**I**
	Decommissioning Pathway: Additional Knowledge to be assessed		

K11	The decommissioning practices and supporting activities required to enable the safe dismantling, size reduction, waste processing and decontamination of plant and equipment on a nuclear facility		**I**
	Process Pathway: Additional Knowledge to be assessed		
K12	The process practices and supporting activities required to safely operate plant and equipment being used to process nuclear material		**I**
	Behaviours to be assessed	**M = Multi-choice Test**	**I = Interview (includes Reflective Portfolio, Presentation & Discussion)**
B1	**Safety:** They always demonstrate a strong commitment to personal safety behaviours as set out in nuclear industry requirements. They actively challenge unsafe practices. They understand the relationship between nuclear and radiological safety and ensure this is reinforced in the workplace;	**M**	**I**
B2	**Integrity:** They ensure openness in relations with workers, customers and other stakeholders. They promote and model the highest standards of professional conduct, ethics and integrity;		**I**
B3	**Resilience:** They work well under pressure, continuously strive for excellence in all they do and have sufficient maturity to challenge poor performance or non-conformance in a tactful and diplomatic manner;		**I**
B4	**Quality:** They follow rules, procedures and principles to ensure work completed is fit for purpose and pay attention to detail and carry out appropriate risk assessment and error checks throughout work activities;	**M**	**I**
B5	**Personal Responsibility:** They take responsibility for completing tasks and procedures, correctly and safely;	**M**	**I**
B6	**Team Working:** They contribute towards the improvement of collaborative working and coaching others where appropriate;		**I**
B7	**Communication:** They always demonstrate effective and appropriate communication, using oral, written and electronic methods; working effectively with others, with regard for diversity and equality;		**I**
B8	**Conservative Bias:** Establish a conservative approach to plant operations to maintain a safe operating environment;	**M**	**I**
B9	**Security:** They always work in a manner that ensures security is maintained in the nuclear workplace.	**M**	