

ALL RESERVOIRS, NON IMPOUNDING AND SERVICE RESERVOIRS PANEL ENGINEERS:
REQUIRED ATTRIBUTES

Attribute Group	Attributes of All Reservoirs, Non Impounding and Service Reservoirs Panel Engineers
1. Dam and reservoirs engineering knowledge	<ul style="list-style-type: none"> A. Demonstrate a detailed knowledge of issues affecting the safety of dams and reservoirs. B. Demonstrate knowledge of geotechnics, hydrology¹, hydraulics¹ & structures in relation to the design and construction of dams and reservoirs. C. Demonstrate a detailed knowledge of the behaviour of dams and reservoirs and of the monitoring and surveillance practices that may be adopted to ensure ongoing safety of existing dams and reservoirs, and first filling of new/raised dams. D. Demonstrate a detailed knowledge of the nature and characteristics of the full range of water retaining structures to which the reservoirs legislation applies. E. Be able to provide appropriate technical guidance and make appropriate recommendations to Undertakers and Reservoir Managers. F. Demonstrate technical expertise and practical experience in design and construction in the UK. Recent experience must include dam or reservoir design and supervision of major reservoir construction works and monitoring / surveillance of dams and reservoirs.
2. Reservoirs legislation	<ul style="list-style-type: none"> A. Demonstrate appropriate knowledge of the primary legislation in all territories in which the applicant wishes to practice. B. Demonstrate appropriate knowledge of the subordinate legislation that supports the primary legislation in the territories.
3. Observational skills	<ul style="list-style-type: none"> A. Be able to recognise those features that may give advance warning of a developing structural problem within a dam and its associated works. B. Be able to specify effective monitoring and surveillance regimes. C. Be able to diagnose the condition of a dam or reservoir and to direct studies so as to investigate defects that affect reservoir safety and determine whether works are needed to ensure ongoing safety.
4. Independent judgment	<ul style="list-style-type: none"> A. Be able to identify and recognise the limits of personal knowledge and skills. B. Be able to identify critical indicators and assess risk in connection with the ongoing safe storage of water in a reservoir C. Be able to review information critically and to make independent decisions on those actions necessary to ensure ongoing safety. D. Be able to specify key design/ construction requirements for new dams and/or improvement works at existing dams, including the specification of appropriate supervision, quality management, etc.
5. Maturity of judgment	<ul style="list-style-type: none"> A. Be able to determine the frequency at which a reservoir should be visited by the Undertaker or Reservoir Manager or other persons, if any, responsible for monitoring and surveillance. B. Be able to decide when to escalate a safety issue, such as seeking advice from other specialists or declaring an incident or emergency. C. Demonstrate the ability to assess reservoir safety issues and to make appropriate recommendations in the interest of safety and/or maintenance.
6. Leadership & responsibility	<ul style="list-style-type: none"> A. Be able to direct the technical management of a reservoir safety incident until such time as control is passed over to the Emergency Services or other Agency/Department. B. Be able to direct the design and construction of physical works on dams.
7. Health & safety hazards & risk management	<ul style="list-style-type: none"> A. Demonstrate appropriate knowledge and application of legislation, hazards and safe systems of work relating to the design, alteration, new construction, operation and maintenance of reservoirs. B. Be able to produce appropriate risk assessments and method statements for all reservoir surveillance and monitoring activities.
8. Interpersonal skills & communication	<ul style="list-style-type: none"> A. Be able to communicate well with Undertakers, Managers and non-technical staff involved in the management of reservoir safety. B. Be able to discuss ideas and technical issues with other engineers and specialists relating to dam design, construction, monitoring and reservoir safety. C. Be able to prepare written documents in a concise and succinct manner such that technical issues may be communicated effectively. D. Be able to explain the technical purpose and reason why safety and/or maintenance measures have been recommended. E. Be able to explain the technical purpose of design features incorporated within new dams)

9. Professional standards	<ul style="list-style-type: none"> A. Be able to demonstrate that the applicant has kept up to date with advances in dam engineering and surveillance practice. B. Be able to demonstrate that the applicant has kept up to date with latest guidance in each region to which the application refers. C. Be able to demonstrate regular engagement in dams and reservoirs related CPD activities.
10. Generic	<ul style="list-style-type: none"> A. Chartered Engineer.

¹ Not required for Service Reservoir or Non Impounding Reservoir Panel applicants