



A BACKGROUND TO THE NRG WELL ASSURANCE SCHEME

- NRG's core business is the independent assessment of oil and gas well management throughout the well life-cycle. This service is provided in varying ways to a range of stakeholders including operators, regulators, lending agencies and insurers.
- NRG was initially established in the late 1980's in response to a new United Kingdom legislative framework arising from the Piper Alpha disaster. The framework required well operators to put in place mechanisms for assurance of best-practice well design, construction, operation and eventual abandonment by 'independent and competent' persons. NRG is currently the largest independent well examiner in the UK.
- Since its inception, NRG's business has grown internationally in relation to both Onshore and Offshore operations, as more well operators and stakeholders recognise the advantages of independent assurance, particularly where well-related risks are perceived to be high.
- NRG has developed a standard model for independent assurance based on quality management principles. This model can be applied across the whole of the well life-cycle; or it can be applied to specific parts of the well life-cycle where there are perceived to be particular risks.



KEY FEATURES OF THE NRG WELL ASSURANCE SCHEME

Regardless of which part of well-related activities the assurance scheme is to be applied to, there are 5 key features of how the assessment of compliance with legislation & good practice is achieved:

- **Independence** – The process for assessment of compliance with the requirement of 'good practice' is independent of the well operator. The approach used to demonstrate independence is similar to financial and quality-management auditing frameworks.
- **Competence** – Although all of NRG's assurance scheme assessors have significant experience of various aspects of well management, it is not realistic to expect that any one individual can cover all aspects of well design, construction & operation. NRG has consequently developed a competence management system that allows Lead Assessors (the primary link with a client) to easily access a pool of multi-disciplinary expertise.
- **Performance Standards** – Assurance must be based on objective requirements, consequently, the well operator must have clearly documented performance standards in relation to those aspects of well operations which are subject to independent assurance. These may range from casing & cement design standards during the drilling phase; to valve and well integrity test standards during the well production phase. As part of the assurance process, it is important to assess the degree to which these standards reflect industry good practice.
- **Management Systems** – Well-related management systems must be in place which will allow the assessor to access enough information to complete an objective assessment. For example, the content of a 'Basis of Well Design' document may be specified. Similarly, the content of 'Daily Drilling Reports' should contain sufficient information to allow the assessor to confirm that the well design is being adhered to.
- **Certificate of Assurance** – For a particular well activity, the eventual findings of the independent assurance process must be documented. This is typically achieved via a Certificate of Assurance which is issued by NRG. In some circumstances it may be appropriate for the well operator to sign-off their agreement with these findings.



NRG WELL ASSURANCE SCHEME 'MODULES'

This well assurance framework applies to both Onshore and Offshore operations. It can be applied across the whole of the well life-cycle or it can be applied to specific parts of the well life-cycle where there are perceived to be particular risks. In order to allow a well operator to choose which elements are relevant, over the 15 years of reviewing these types of operation, NRG has developed a number of stand-alone modules. For each module, the scheme provides objective guidance in relation to what information should be provided by the operator and how it should be assessed.

For example, the range of modules contained within the scheme may be as follows:

1. Operator Standards & Management Systems
 - i. Rig-based Well Operations Standards & Management Systems
 - ii. Production Well Integrity Standards & Management Systems
2. Well Construction
 - i. Well Drilling
 - ii. Well Completion
 - iii. Well Testing
 - iv. Well Suspension & Abandonment
3. Well Servicing (Workover and Intervention)
4. Production Well Integrity Management
5. Site-specific Module for Rig-based operations



CLIENT PERSPECTIVE PART 1: HOW WE WORK WITH A NEW CLIENT

There are 4 distinct steps to developing and operating a Well Assurance Scheme:

Step 1: Define the Scope of the Assurance Process – Decide with the Well Operator which modules should apply and in relation to which wells.

Step 2: Agree the Assurance Management Scheme – In order for the assurance process to work there will need to be a flow of information between the operator and the Lead Assessor. The basis for this flow of information needs to be agreed and documented within the Assurance Management Scheme.

Step 3: Assess the Operator Standards & Management Systems – Based on objective statements of good practice (eg, industry association standards, etc) review the operator standards & management systems and agree the basis for assurance – note that this only needs to be repeated when there are changes to the standards and systems.

Step 4: Assurance & Close-out - for each 'Activity' there is a need to carry out the Assurance Process and to submit an Assurance Certificate.

CLIENT PERSPECTIVE PART 2: EXAMPLES OF APPLICATION OF THE WELL ASSURANCE MODEL WITH DIFFERENT CLIENTS:

Case Study #1: An operator has started onshore production in a country with relatively few well-related regulatory controls. Moreover, these wells have potentially high production-related risks (sand control + corrosion) and are also close to population centres. A 'loss of well integrity' incident occurred which, though not having a major consequence, did highlight an exposure. The operator has decided to set up an independent assurance framework solely in relation to the operation & maintenance of these wells.

Case Study #2: An exploration and production company has expanded significantly due to a recent corporate acquisition. There is a need to ensure common standards across a range of operations, both geographically and across the well life-cycle. The operator has decided to adopt a full assurance framework across the well life-cycle in order to help drive the application of common standards.

Case Study #3: An Operator plans to drill an offshore well in an established oil & gas region where the local legislation is established but is prescriptive. The Operator adopts the NRG Well Assurance Scheme in order to demonstrate to stakeholders that all aspects of the operations are fully compliant with the law and the company's management system.

Case Study #4: A lender has funded a new project which involves a large number of development wells with potentially high risk of over-spend. The lender requests that the client adopt a transparent assurance process in relation to the drilling and completion of these wells.