

Nuclear Industry Group for Land Quality (NIGLQ):

Development of a nuclear industry code of practice (NICoP) for routine water quality monitoring

Hugh Richards (Magnox Ltd)
Project technical lead on behalf of NDA, NWRF and NIGLQ

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'Long-term groundwater monitoring', London, 10 July 2013

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Governance

- **Sponsor:** Nuclear Industry Group for Land Quality (NIGLQ)
- **Funding:** NDA Direct Research Portfolio
- **Technical oversight:** Nuclear Waste Research Forum (NWRF) Land Quality Working Group
- **Other NICoPs (for comparison):**
 - Clearance & Exemption (Clearance & Exemption Working Group)
 - Best Available Techniques (Nuclear Industry Safety Directors Forum)
- **Other related nuclear industry guidance:**
 - Qualitative Risk Assessment of Land Contamination (NIGLQ)



Why a NICO P for routine WQ monitoring? (1)

- **“Organic” growth of water quality monitoring on nuclear sites over many years - not uncommon**
- **Often multiple objectives**
- **Changing priorities of objectives over time**
- **Mix of operator objectives and regulator objectives**
 - Much/most groundwater monitoring is specified by operator
- **Tendency to continue with out-dated techniques**
 - or have modern and old techniques in parallel
- **High costs of monitoring groundwater on nuclear sites**
 - Capital costs of monitoring installations
 - Costs of sampling and purge water management
 - Costs of specialist analysis (e.g. Sr-90)

Why a NICO P for routine WQ monitoring? (2)

- **Specific technical issues for nuclear industry, e.g.:**
 - Applicability of gross alpha/beta as ‘indicator parameters’ of contamination against various natural background levels
 - Potential issues associated with radionuclide analysis (including sample filtration, preservation, etc)
- **Specific practical issues for nuclear industry, e.g.:**
 - Timely clearance of potentially radioactive samples for transfer to off-site labs
 - Management of potentially radioactive purge water from boreholes
- **Diverse levels of knowledge/experience of site-based staff overseeing acquisition and assessment of monitoring data**
- **Near-term advent of de-manned sites where monitoring will continue for many years (e.g. Bradwell in 2015)**

Procurement of NiCoP

- **Business case for NiCoP developed by NWRFLQ Working Group, supported by NIGLQ**
- **Specification drafted by members of NWRFLQ WG**
- **Mini-tender between holders of NDA Direct Research Portfolio 'Lot 3' framework contracts**
- **Contract awarded to AMEC, October 2012**

Scope of NiCoP

- **In scope**
 - Groundwaters
 - Terrestrial surface waters and associated suspended solids
 - Inter-tidal surface waters
- **Not in scope**
 - In-pipe or end-of-pipe effluents
 - Offshore marine waters
 - Deep lacustrine waters

Approach to content of NICoP

- **Focus on aspects specific to nuclear sites and radioactive contaminants**
- **Signpost other guidance/standards/CoPs**
 - Non-radioactive contaminants
 - Hydrochemistry
 - Relevant hydrometric parameters
- **Focus on development of routine monitoring regimes**
 - Not a guide to contaminant hydrogeology characterisation
 - Not a detailed guide to conceptual model development

Topics covered (1)

- **Setting objectives (with reference to drivers for monitoring)**
- **Designing a monitoring network**
- **Design, maintenance and decommissioning of water quality monitoring points**
- **Choosing analytical suites, including indicator parameters**
- **Justifying frequency and duration of monitoring**

Topics covered (2)

- **Methods for collecting water samples**
- **Sample preparation, storage, dispatch and transport**
- **Field measurements**
- **Reporting, data management and record-keeping**
 - Including data validation and screening out erroneous data
- **Assessment of routine monitoring results**
 - Dealing with background levels
 - Applicable generic assessment criteria
 - Identifying outliers
 - Identifying significant trends

Progress to date

- **Contract awarded October 2012**
- **Opening-up meeting November 2012**
- **Consultation with NIGLQ interested members based on draft skeleton document**
- **Regulators informed of project via Nuclear Site Restoration Theme Overview Group (SR-TOG)**
- **Reviews of draft skeleton document by Environment Agency and independent reviewer, January 2013**
- **Revised extended skeleton document March 2013**
- **Draft 1 of NCoP May 2013**
- **Collated NIGLQ reviewers' comments on Draft 1 of NCoP sent to authors early July 2013**

Next Steps

- Revised draft NICO P expected August 2013
- NIGLQ to agree process for acceptance and ratification of NICO P
- “Public” draft NICO P for wider consultation/ review by regulators and other interested parties expected August/September 2013
 - analogy with consultation on NIGLQ Q_LRA guidance

A question for SAFESPUR+

- Which professional network(s) would be appropriate for reviewing this NICO P?
 - Respond to hugh.richards@magnoxsites.com
 - Or tell me now!