

Verification: The Poor Relation

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Verification v Validation

Verification is the means by which the effectiveness of the technique in its particular individual application is demonstrated

Validation is the means by which the technique is shown to be sound and effective, in a generic sense.



Remediation Strategy v Remediation Scheme

Remediation strategy

High level overview for the optimised remediation approach required to break identified significant pollutant linkages for the proposed development.

Remediation scheme

Actions taken to prevent, minimise, remedy or mitigate the effects of any identified unacceptable risks. This should also include measures to achieve quality assurance and verification.



Why Verification?

- Remediation Scheme's only details what should be done
 - Verification has three purposes:
 - Confirms what was done
 - Confirms if it was done properly
 - Confirms if it worked
- No Verification = No evidence



Regulation in Theory

- Planning conditions
 - Enforcement action if fail to submit
- Building Warrant
 - Occupancy Certificate not issued prior to verification being approved
- Requires joint working
- Reality!!



In Practice

- Delayed Submissions
- Sub-standard reporting
- Unrealistic Expectations
- Political/Financial Pressure
- Lack of understanding
- Verification often seen as an inconvenience



Media

Bowling land

By **Tristan Ste**
Chief Reporter



ASE

ONE ASE

Bowling land contaminated



Teachers at school built on 'toxic site' have **EXPERT** rare cancer



TRANSPARENCY

HAZARDOUS SUBSTANCES

Picture: Thomas Nugent/Geograph.org.uk



Independent Review

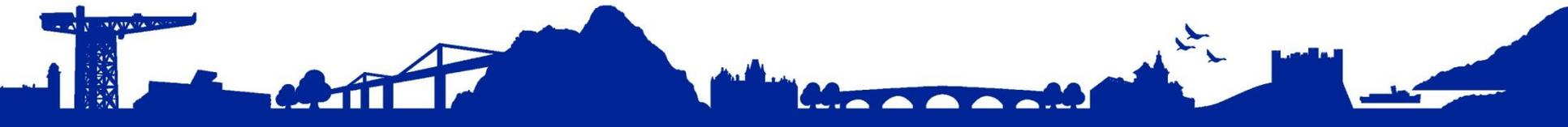
Objective:

*Reviewing the risk assessment made and **validation of works** undertaken across the site to assess whether all activity was carried out in accordance with appropriate Regulations and best practice to mitigate against any risk to public health. This review would be carried out by a party independent of the original works and with input from all other agencies involved.*



Case Study 1 – New High School

- 2004 - Site designated as Contaminated Land – risk to the Groundwater
- 2007 - Planning application submitted for new school
- Outcome - Water Treatment Centre put in place which has been in operation now for over 10 years.
- EH rejected verification report as the developer was reluctant to confirm what had been done
- Final verification report not received until 2017 (7 years after school opened)



Case Study 2 – New Offices

- Office car park on former Gas Works
- Remediation Strategy included removal of cyanide impacted soils in landscaped area
- Verification report submitted 1 week prior to occupation
- Cyanide Impacted soils only removed to formation level
- Capped with 300mm soil
- EH rejected verification report
- Legal implications



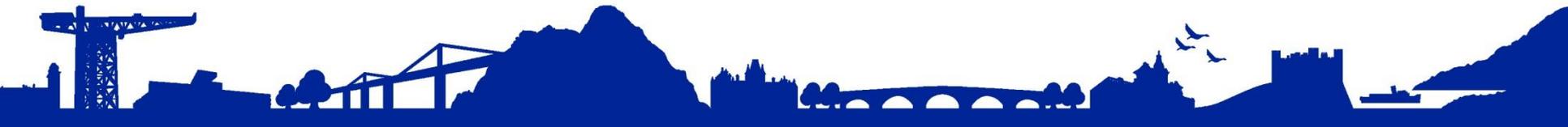
Case Study 3 – New Care Home

- Informed of additional issues identified during site visit
- Verification report submitted – no mention of additional findings
- EH rejected report
- Updated report issued – not suitable for intended use
- Further extensive remedial works required
- Revised verification submitted 8 months later
- Vapour barrier to be installed in building



Case Study 4 – Flatted Residential

- Flatted development requiring gas measures
- Remediation strategy detailed gas measures and verification checks
- Verification report submitted after occupation
- Gas measures weren't complete when verifier visited the site
- EH rejected the report
- Consultant unable to provide evidence to verify the works
- Allocated points for membrane not achieved
- Reliance on evidence for venting layer and floor slab only



Gas Measures contd

- Verification of the gas measures should include all elements of the gas design system:
 - Membrane
 - Venting Layer
 - Floor Slab
- Verifiers should be qualified and experienced in verifying all three elements.
- Verifiers are responsible for questioning the design/installation if it is different to the remediation strategy and/or not in accordance with the guidance.
- Qualifications can be gained in Verification



Case Study 5 – Residential Development

- Housing development on former school
- SI identified that a site wide 600mm cap required
- Remediation strategy detailed criteria for imported material
- Verification reports submitted 3 days prior to occupation of first houses
- Site won material used to cap site
- Not in accordance with Remediation Strategy
- EH rejected report – occupation delayed



Management of Materials

- Developers looking at ways to reuse/import 'unsuitable' material on site so to avoid costs of disposing to landfill.
 - Digging out clean to 'find a use' for dirty.
 - Unnecessary raising of site levels.
 - Provision of 'Landscape Bunds'
 - Importation of unsuitable soils
- It could be argued that they all comply with SEPA's Land Remediation and Waste Management Guidelines but is it always being applied as intended?
- Rules are being bent/stretched in order to meet tight landfill tax/policy.
- Human Health/Water Environment may be compromised.



Material Management Plan

- Attach a condition for Re-use/Import

If there is a requirement to either re-use site won material or to import material then the assessment criteria and sampling frequency that would adequately demonstrate its suitability for use shall be submitted to and approved by the Planning Authority prior to any material being used. In addition to this and in accordance with BS3882:2015 and BS8601:2013, material to be used in the top 300mm shall also be free from metals, plastic, wood, glass, tarmac, paper and odours.

On completion of the works and at a time and or phasing agreed by the Planning Authority, the developer shall submit a verification report containing details of the source of the material and appropriate test results to demonstrate its suitability for use.



Collaboration

- Important for all parties to work together
- Regulators perceived to be barrier/obstacle to development
- Communication throughout project is key
- Consider progress meetings for large scale projects
- Be transparent – when necessary changes can be made to a remediation strategy
- Phased approach to verification is often best option



Conclusions

- Verification is an essential part of all development
 - Basic capping
 - Gas Measures
 - Complex remediation techniques
- Reasons to reject it:
 - If not in accordance with Remediation Scheme
 - If incomplete
 - If for any reason you are not satisfied
- At any point LA's could be questioned over their decision
 - As a regulator we need to be confident that all that was required has been done



Key Guidance Documents:

- Land Contamination and Development Guidance, Environmental Protection Scotland
<https://www.ep-scotland.org.uk/guidance/>
- Land Remediation And Waste Management Guidelines, SEPA
<https://www.sepa.org.uk/regulations/waste/guidance/>
- BS 8485: Code of Practice for the design of protective measures for methane and CO2 ground gases for new buildings
- CIRIA C735 :Testing & Verification of Gas Measures





Thank you for Listening

All donations to Erskine Hospital welcomed

Any questions please contact me at:

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