

# ISO 18504:2017 SUSTAINABLE REMEDIATION

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# MY OLD CAR



# MY NEW CAR

## Essential

- Automatic gearbox
- Petrol engine
- Cruise control
- 5 adult passengers
- Boot space

## Desirable

- USB charger
  - Bluetooth phone connection
  - Sat Nav
  - Heated windscreen
  - Folding mirrors
  - [4WD]
-

# MY CAR



# JOB ADVERT

## Essential

- Be able to do the job
- Be able to get on with colleagues and customers

## Desirable

- Make good coffee

# REMEDIATION

## Essential

- Breaks the linkage
- On time
- On budget
- Bells
- whistles

## Desirable

# SUSTAINABLE REMEDIATION

## Essential

- Breaks the linkage
- On time
- On budget
- Bells
- whistles

## Desirable

- Cheaper
- Green
- Popular

# SUSTAINABLE REMEDIATION

## Essential

- Breaks the linkage
- On time
- On budget
- Bells
- whistles

## Desirable

- As (cheap, green, popular) as possible



# SUSTAINABLE REMEDIATION



# WHY BOTHER?

- That which I can not understand, I can not manage
- 
-

# WHY BOTHER?

- That which I can not understand, I can not manage
- That which I can ~~not~~-understand [better], I can ~~not~~-manage [better]
-

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# ISO 18504:2017 SUSTAINABLE REMEDIATION

- Published in July 2017
- Since also adopted as a British Standard BS ISO 18504: 2017
- SURF-ANZ's Garry Smith was a key member of the working group
- Paper describing the process of developing the Standard is in press, Journal of Remediation (Nathanail et al. 2017)

# ISO (THE INTERNATIONAL ORGANIZATION FOR STANDARDIZATION)

- worldwide federation of National Standards bodies (ISO member bodies).
  - preparing International Standards normally carried out through ISO technical committees. (TC)
  - National Standards bodies have right to be represented on TCs.
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# SUSTAINABLE REMEDIATION

elimination and/or control of unacceptable risks  
in a safe and timely manner

**whilst optimising the environmental, social and  
economic value of the work**

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# SUSTAINABLE REMEDIATION

## Essential

elimination and/or control of unacceptable risks  
in a safe and timely manner

## Desirable

- **whilst optimising the environmental, social and economic value of the work**

# UNSUSTAINABLE REMEDIATION

- Costs too much
- Upsets people
- Damages the environment



## FAILED REMEDIATION

- Doesn't 'do the job'
- Residual uncertainty

# PROGRESS ON ISO 18504:2016(E)

## THE ISO WAY...

### ISO standards...

- 1. respond to a need in the market
- 2. are based on global expert opinion
- 3. are developed through a multi-stakeholder process
- 4. are based on a consensus

Dec 2012

Oct 2014

Nov 2015

2016

Need 75% yes

July 2017



# ISO 18504:2017: HISTORY OF DEVELOPMENT

- Conceived at SuRF 19 in La Jolla CA, January 2012
- Proposal submitted by BSI EH4 voted and accepted by members of TC190
- Draft text by members of SuRF, SuRF-UK, SuRF ANZ, NICOLE, CABERNET,
- Working group of National Standards Bodies nominees finalised **Committee Draft (CD)** text
  - P Nathanail (UK, chair), G Goetsche (DIN secretary)
  - Regular participants at online meetings: L Bakker (NL), Y Furukawa (J), A Nardello (I), G Smith (AUS), J Smith (UK), M Smith (UK),
- Definition of sustainable remediation confirmed by TC190, Berlin October 2014
- NSB of TC190 voted on CD to progress to Draft International Standard (DIS)
- DIS revised to reflect comments from NSB
- DIS approved unanimously with only minor technical comments
- DIS amended following change of ISO rules
- ISO 18504:2017 published

# ISO 18504:2017

24  
pages!

- 1 Scope
  - 2 Normative references
  - 3 Terms and definitions
  - 4 Abbreviations used in this document
  - 5 Sustainable remediation, (re)development and regeneration
  - 6 Risk based contaminated land management
  - 7 Integrated assessments, metrics and evaluations
  - 8 Decision making
  - 9 Economic dimension
  - 10 Social dimension
  - 11 Environmental dimension
  - 12 Indicators and metrics
  - 13 The role of sustainable remediation assessment tools
  - 14 Communication
  - 15 Promoting sustainable remediation
  - 16 The role of governance and institutional structures
- Bibliography

# SCOPE

This document provides procedures on sustainable remediation.

In particular, it provides:

- **standard methodology**, terminology and information about the key components and aspects of sustainable remediation assessment;
- informative advice on the assessment of the relative sustainability of alternative remediation strategies.

# *RELATIVE SUSTAINABILITY OF ALTERNATIVE REMEDATION STRATEGIES*

GIVEN that remediation is needed, what is the most sustainable way of carrying out that remediation? Can it be done more cheaply? Can that way be made greener?

- Risk assessment: there is a need to remediate
- Options appraisal: short list of remediation strategies
- Compare net social, environmental and economic impacts of each short listed strategy
- [value engineering of chosen remediation strategy]
- [green chosen remediation strategy]
- **DO IT!**
- Verify it worked – and produce a report

# SOME [VERY IMPORTANT] DEFINITIONS

## INDICATORS

- single characteristic that represents a sustainability effect, whether benefit or negative impact, which **may be compared across alternative remediation strategies**, comprising one or more remediation techniques and/ or institutional controls, **to evaluate their relative performance**

## METRICS

- measurement of an indicator



# GOVERNANCE MATTERS

Principle	Comment
Legal context is primary	National or local laws shall be complied with
Institutional missions drive institutional actions	An organisation is bound by its mandate
Local solutions are key	Site and local circumstances drive which remediation strategy is sustainable even where the conceptual model of source-pathway-receptor is identical
Decisions needs to be accepted; decision makers need to be trustworthy	Generally public authorities are more trusted and better represent public than responsible parties

# PARSIMONY [KEEP IT SIMPLE] RULES, OK!

Qualitative (simple but comprehensive)	Semi-quantitative	Quantitative (complex but partial)
Narrative analysis	Pair-wise comparison	Cost Benefit Analysis (CBA)
Non-parametric ranking	Multi-Criteria Analysis (MCA)	Life Cycle Assessment (LCA)
		[Environmental] Footprint Analysis
		Cost Effectiveness Analysis

Start simple



Go as complicated as you NEED to

# INTERNATIONAL STANDARD: NEXT STEPS

- ISO Standard Published (summer 2017)
- ?? Daughter standards
- ??? Update in 3-5 years
- An invitation to get involved...

# REMEDICATION IS NOT ENOUGH

- Remediation
- Reclamation
- Recycle
- Redevelopment
- Refurbishment
- Reuse
- Redeploy
- Regenerate
- Revitalise
- **RENEW**

The sum must be greater than the parts

# A CHECKLIST

Has there been consideration on how to make the remediation:

- ✓ Cheaper
- ✓ Greener
- ✓ More Popular

# A WARNING LIST

- It uses renewable energy
  - We saved some money
  - We drove to the site less frequently
  - Less waste was produced
  - We had a family open day during the remediation works
  - It's bioremediation
-

# ALERT ALERT ALERT



- Our technology is sustainable
- Your technology is not sustainable
- We just added 'sustainable' to make our work look better... and justify higher fees
- We are engineers/ scientists so no we didn't consider local people's views, but we did get environmental permits

**ISO TC190/SC7/WG12**

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GUIDANCE ON SUSTAINABLE REMEDIATION**

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