



RemSoc

Building on CLR11: A Practitioners Framework for Remediation

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RemSoc Treasurer

To Cover

1. RemSoc
2. An introduction to the framework
3. Next steps

About RemSoc

- A forum within which people can discuss and promote good practice in Remediation
- To encourage the participation of 'early career professionals'
- To facilitate the dissemination of knowledge
- To develop a framework for the design, implementation, optimisation and verification of works
- Promote remediation best practice – explore the good and the bad and share the learnings



Framework Guidance

.... A practitioner's guide to
remediation

Why do remediation projects fail?



Framework Guidance – Why?

Early discussions amongst RemSoc members identified:

- Limited practical guidance around the design and implementation of remediation works
- Limited hands on information to support the remediation practitioner
- Different practitioners focus on different areas
- A lot of “unknown unknowns”

We challenged ourselves to explore and progress the development of a framework to support and guide the activities that should be considered in the implementation of a remediation programme.

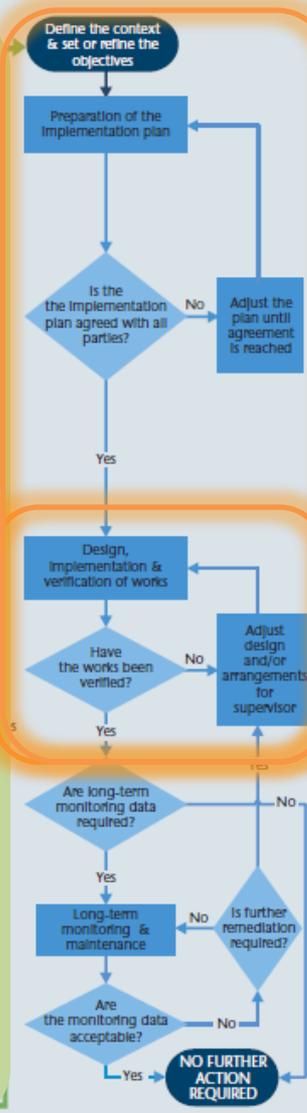
RISK ASSESSMENT

OPTIONS APPRAISAL

IMPLEMENT REMEDIATION

Bogged down here
“analysing and measuring”

- × Rush this
- × Generic
- × Limited practical input
- × Wrong mindset



Looking at CLR11.....

This is the area we are focused on

- Lots of detail leading up to and after remediation
- Remediation is a big and often complicated financial commitment
- But the design and delivery gets the smallest amount of attention in CLR11

Note: The process may apply to one or more pollutant linkages each of which may follow a different route. For some linkages, it may be possible to stop at an early stage – others will progress all the way through the process. The level of complexity of each stage may also vary and in some cases may be very simple.

- I. Protection of human health and the Environment
- II. Safe Working Practices
- III. Consistent, Clear & Reproducible Evidence Based Decision Making
- IV. Record Keeping & Transparent Reporting
- V. Good Governance and Stakeholder Involvement
- VI. Sound Science

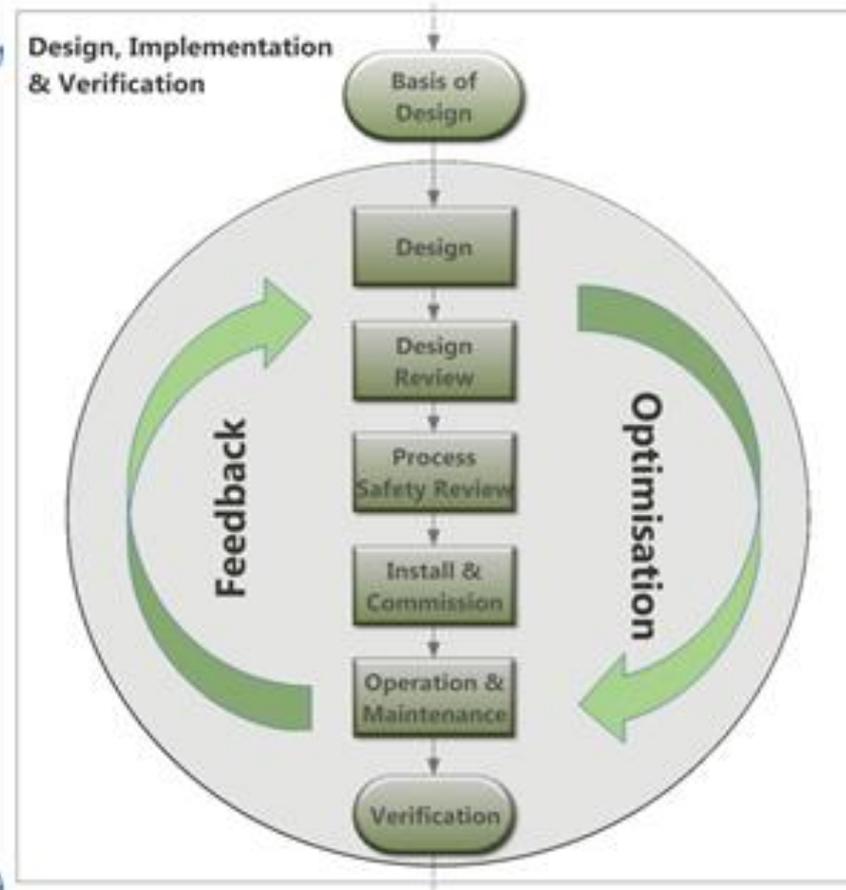
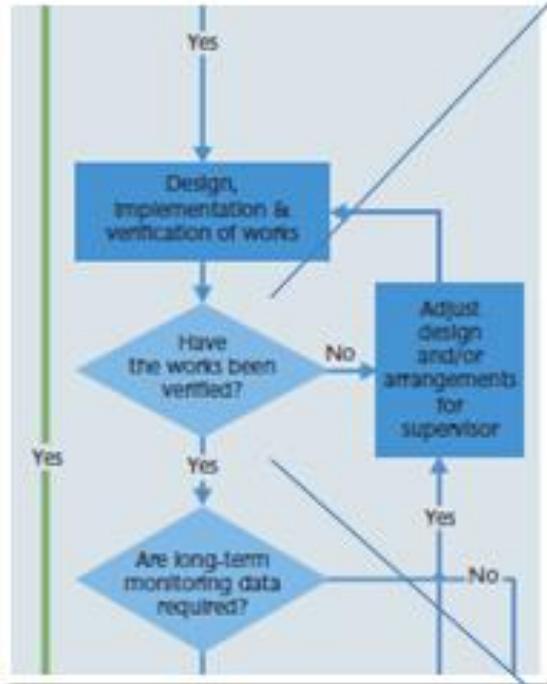
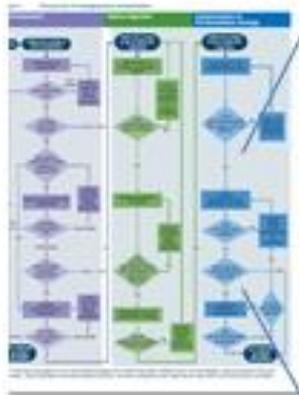
A Word on Surf UK Guiding Principles

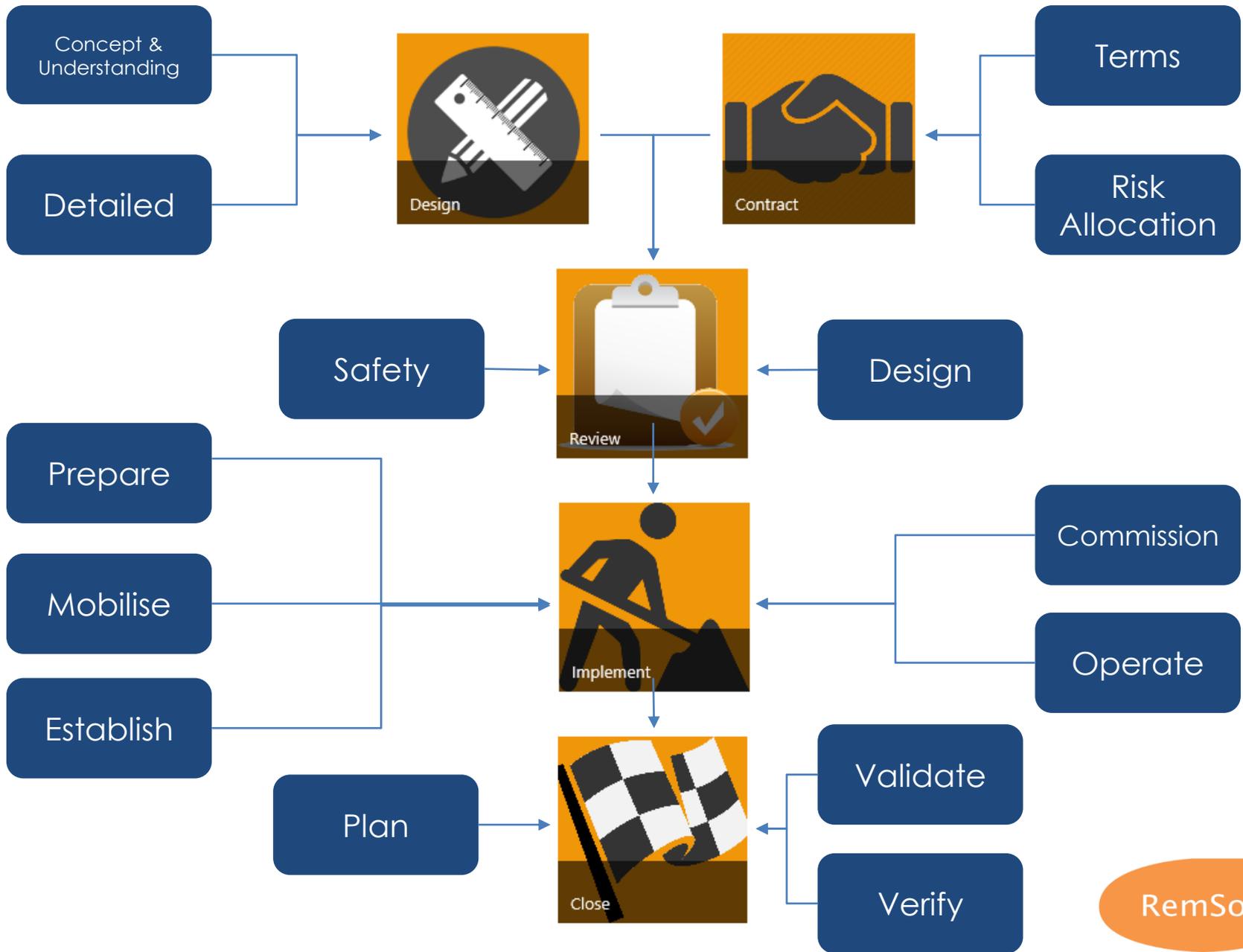
Framework Guidance – Objective

To develop a framework which

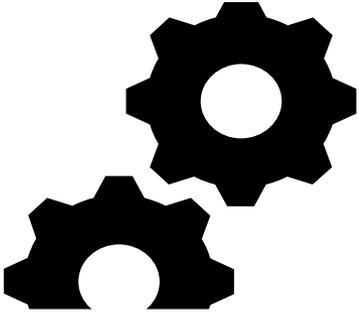
- Is applicable to a wide variety of remediation activities and scenarios
- Is flexible, and can be added to or adapted in response to the needs of practitioners and as our industry develops further
- Provides a useful point of reference and guidance for remediation practitioners at all levels
- Can be used as ‘tool’ in the implementation process

Framework Guidance – Where we were in 2016





Framework Guidance Structure



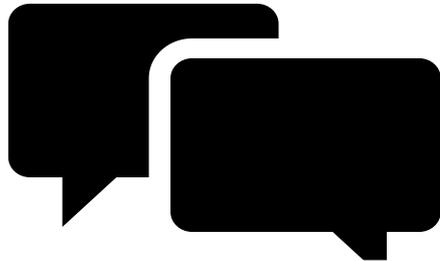
Remediation Stage



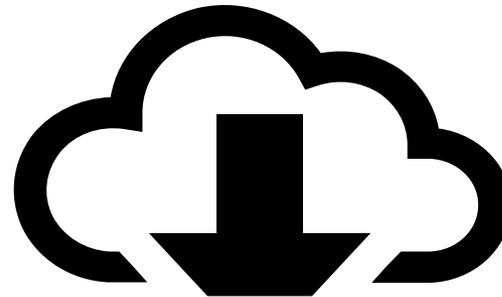
Aspect to Consider



Relevant Questions



Comments & Prompts



Guidance or
References

For Example

Feature	Example
	Review
	Design Review
	Compliance with regulations
	What acts and regulations need to be complied with? What permits are needed to complete the works? Can they be obtained within the project timescales?
	These could include Environmental permit/Mobile Plant Licence; Abstraction licence; Discharge consent; Materials Management Plan; Asbestos Management Plan; Streetworks license; Machinery Directive (CE); DSEAR / ATEX; PUWER; CDM; Pressure systems regulations; Party Wall Act; Planning Regulations; Waste Licensing Regulations; Archaeological and Ecological aspects; Petroleum Regulations and Storage of Flammable Liquids
	http://www.hse.gov.uk/fireandexplosion/atex.htm (Link to ATEX Regulations as an example)

Framework Guidance

Design **Contract** **Review** **Implement** **Close**

Introduction

We have put this *Framework* together to assist remediation practitioners in the planning and execution of a remediation project; from design through to review, implementation and verification. It is structured around the stages of a typical remediation project and takes the form of a series of prompts. These prompts are presented as questions which are intended as reminders or triggers to the remediation team to consider relevant individual competencies required and matters of compliance whilst simultaneously helping promote the optimisation of outcomes and safety at each of the project stages. Where applicable, relevant links to external information sources are provided.

The *Framework* should not be considered exhaustive, nor should the external links be considered necessarily to form the only applicable information source. The *Framework* is "live" and will be updated through addition or deletion over time by the membership of the society. As such, the *Framework* can never be considered "complete" or to form a prescriptive guide, nor can it in any way replace the expertise or experience of a remediation practitioner(s).

For a video demonstration of how to use the Framework please click here: [Video Overview](#)

RemSoc Discussion Board

[+ new discussion](#)

Recent My discussions Unanswered questions ...

There are no items to show in this view of the "RemSoc Discussion Board" discussion board.

```
graph TD; Design[Design] --- DesignSub[Design Review]; Design --- Detail[Detail]; Design --- Risk[Risk]; Design --- Contract[Contract]; Contract --- Terms[Terms]; Review[Review] --- DesignSub; Review --- SafetyReview[Safety Review]; Implement[Implement] --- Preparation[Preparation]; Implement --- Mobilisation[Mobilisation]; Implement --- Plan[Plan]; Implement --- Validate[Validate]; Implement --- Operate[Operate]; Implement --- Commission[Commission]; Implement --- Establish[Establish]; Close[Close] --- Operate; Close --- Verify[Verify];
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Design Contract Review Implement Close



A Practitioners Framework for Remediation

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All Items

Review

ID	Aspects to Consider	Sub Stage	Relevant Questions	Comments and Prompts	Guidance
1	Review proposed solution in context ...	Design Review	Does the Solution Fit the Objective? Will the solution meet the remediation target? Can performance be measured? Is there a contingency / corrective action plan? How flexible is the approach?	Assumptions relating to remedial approach may include extent of contamination, migration pathways, volumes, waste classification, permitting, availability of site services/utilities, time availability, contracting	
2	Confirm Assumptions	Design Review	What are the key assumptions upon which design (and associated costs) are based? Has the right person (or people) reviewed assumptions?	Different expertise may be required to assess different aspects. For examples soil and groundwater experts, planning advisers, highways planners. Commercial team on both sides, technology experts,	
3	Document residual risks	Design Review			
4	Confirm compliance with regulation	Design Review	What acts and regulations need to be complied with? What permits are needed to complete the works? Can they be obtained within the project timescales?	Environmental permit/Mobile Plant Licence, Astraction licence Discharge consent (to ground) Material Management Plan HSE for Asbestos	
5	Confirm calculations are complete an...	Design Review	What calculations are needed? What do the calculations predict? How relevant are the calculations to the objectives and the design?	Pressure loss calculations, Excavation support Power requirements Hazardous areas	



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3	Document residual risks	Design Review
<input checked="" type="checkbox"/>	4 Confirm compliance with regulation	Design Review
5	Confirm calculations are complete an...	Design Review
6	Drawings and Design Documents	Design Review
7	Programme	Design Review
8	Type of Safety Review	Safety Review

Aspects to Consider

[Confirm compliance with regulation](#)

Sub Stage

Design Review

Relevant Questions

What acts and regulations need to be complied with? What permits are needed to complete the works?
Can they be obtained within the project timescales?

Comments and Prompts

- Environmental permit/Mobile Plant Licence,
- Astraction licence
- Discharge consent (to ground)
- Material Management Plan
- HSE for Asbestos
- Streetworks license
- Machinery Directive (CE)
- DSEAR / ATEX
- PUWER
- CDM
- Pressure systems regs.
- Party Wall
- Planning
- Waste
- Archaeological aspects
- Petroleum Regulations
- Storage of Flammable Liquids

[See less](#)

Guidance

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Design Contract Review Implement Close

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All Items Filter Info

Compliance References

Title	Link	Modified	Modified By	
Abstraction Licence	Abstraction Licence	January 16	Quentin Hulm	
Archaeological aspects	Archaeological aspects	January 16	Quentin Hulm	
Asbestos	Asbestos	January 16	Quentin Hulm	
ATEX	ATEX	January 16	Quentin Hulm	
CDM - Construction Design Manage...	CDM	January 16	Quentin Hulm	
CDM - Construction Phase Plan	Construction Phase Plan	January 16	Quentin Hulm	
CDM - Construction Quality Assuranc...	CQA	January 16	Quentin Hulm	
COSHH - What is it?	ROSPA COSHH Guide	January 16	Quentin Hulm	
Dangerous Substances and Explosive ...	DSEAR Regulations	January 16	Quentin Hulm	
Discharge consent (to ground)	Discharge consent (to ...	January 16	Quentin Hulm	

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ATEX and explosive atmospheres

Explosive atmospheres in the workplace can be caused by flammable gases, mists or vapours or by combustible dusts. Explosions can cause loss of life and serious injuries as well as significant damage.

These pages will tell you more about explosive atmospheres and ATEX:

- [Background](#)
- [What is an explosive atmosphere?](#)
- [Where can explosive atmospheres be found?](#)
- [What is ATEX?](#)
- [Explosive atmospheres in the workplace](#)
- [Equipment and protective systems intended for use in explosive atmospheres](#)
- [Where can I find further information?](#)
- [BIS information on equipment and protective systems intended for use in explosive atmospheres](#)
- [Publications](#)
- [ATEX and DSEAR Frequently asked questions](#)

Background

Explosive atmospheres can be caused by flammable gases, mists or vapours or by combustible dusts. If there is enough of the substance, mixed with air, then

Related content

- [REACH](#)
- Exemption certificates
- [COMAH](#)
- Chemicals
- Risk

Resources

-  [Dangerous substances and explosive atmospheres L138 \(Second Edition\)](#)
-  [Controlling fire and explosion risk in the workplace](#)

[More resources](#)

See also

- ▶ [Dept for Business, Innovation and Skills](#)
- ▶ [Energy Institute](#)
- ▶ [Association for Petroleum and Explosives Administration \(APEA\)](#)
- ▶ [Petroleum Enforcement](#)

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8	Type of Safety Review	Safety Review	Wh
9	Safety Review Attendees	Safety Review	Wh
10	Safety Review Location	Safety Review	Wh
11	Safety Review Duration	Safety Review	Ho rev
12	Safety Review Output(s)	Safety Review	Ho inc
13	Process Safety Considerations	Safety Review	Too

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Type of Safety Review

Aspects to Consider

Type of Safety Review

Sub Stage

Safety Review

Relevant Questions

What form should safety review take?

Comments and Prompts

Procedure should be proportionate to the proposed activity. For complex process system otr system with multiple tie in points to site process infrastructure, formal HAZOP procedure may be appropriate. A HAZID type procedure is typically adequate for process remediation systems.

Systematic safety reviews may also be appropriate for other types of remedial work programmes (including injection programmes, excavation programmes, on site treatment plant.

[See less](#)

Guidance

Examples of HAZID templates can be found in HAZOP : Guide to Best Practice, 2nd Edition. Author(s): Brian Tyler, Frank Crawley and Malcolm Preston. Publisher: IChemE. Clients may often have similar processes and procedures.

Guidance on appropriate types of review can be found in IChemE guidance.

[See less](#)

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1 selected

8	Type of Safety Review	Safety Review	What form should safety review take?	Procedure should be proportionate to the proposed activity. For complex process system or system with multiple tie in points to site process infrastructure, formal HAZOP procedure may be appropriate. A HAZID type	Examples of HAZID to HAZOP : Guide to Be Author(s): Brian Tyler, Malcolm Preston. Put may often have simil
9	Safety Review Attendees	Safety Review	Who should participate in safety review?	Design engineer, health and safety representative, project manager, other specialists, chairperson, someone to record process. It may also be useful to include personnel who are not part of the main project	
10	Safety Review Location	Safety Review	Where should safety review be undertaken?	Is it necessary to go to the site? - In some instances in order to gain an adequate appreciation of site conditions features and constraints, it may be appropriate for the review team to visit the site	
11	Safety Review Duration	Safety Review	How much time should be allowed for safety review?	This depends. It may a couple of hours (rarely less), or it may be multiple days. Whoever is chairing the review should consider how long is required and schedule participants and manage process accordingly	
12	Safety Review Output(s)	Safety Review	How are outputs from safety review to be incorporated into design?	Proceedings of safety review should be recorded. This is likely to include a series of actions. Actions could take many alternative forms ranging from a requirement for further study or review to implementation of specific	
13	Process Safety Considerations	Safety Review	Too much contaminant? Unexpected	Too much contaminant may lead to an	

Feedback

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Using the framework – Free Tool

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Clayton, Richard

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do

Clipboard Font Alignment Number Styles Cells Editing

D4

Check Point	Key Considerations	Prompt	Guidance / Reference Documents	Applicability				Review Record	Action	Owner	Date	Residual Risk Rating
				P	I	C	Es					
Review proposed solution in context of objective	Does the Solution FIT the Objective Will the solution meet the remediation target? Can performance be measured? Is there a contingency / corrective action plan? How flexible is the approach? How does this align with the client and contractual expectations?	Assumptions relating to remedial approach may include extent of contamination, migration pathways, volumes, waste classification, permitting, availability of site services/utilities, time availability, contracting strategy, planning requirements/constraints, local sensitive factors. What aspects could change the selection of approach, interaction with other site operations (health and safety and utility tie in)		x	x	x	x					Medium
Confirm Assumptions	What are the key assumptions upon which design (and associated costs) are based? How will unexpected conditions be dealt with? Who owns the risk for unexpected conditions? Are assumptions valid?	Has the right person (or people) reviewed assumptions. Different expertise may be required to assess different aspects. For examples soil and groundwater experts, planning advisers, highways planners. Commercial team on both sides, technology experts.										
Document residual risks												
Confirm calculations are complete and checked	What calculations are needed? What do the calculations predict? How relevant are the calculations to the objectives and the design?	These might include pressure loss calculations, evacuation support, power requirements, hazardous areas, dewatering rates, energy consumption, activated carbon consumption,										

Ready

Cover Sheet Division of labour Design Contract Design Review Safety Review Mobili ...

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17/09/2018



Using the framework – Free Tool

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Clayton, Richard

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do

Cut Copy Paste Format Painter

Century Gothic 11

Wrap Text

General

B I U Merge & Center

Clipboard Font

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E F G H I J K L M

1
2
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P = Process
I = Injection
C = Civils
Ex = Ex situ treatment

					Applicability	Review Record	Action	Owner	Date	Residual Risk Rating	
					P	I	C	Ex			
Guidance / Reference Documents					x	x	x	x	Medium		

Design Review

Safety Review

Mobili ...

10:47
17/09/2018

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Cover Sheet

Division of labour

Design

Contract

Framework Guidance – Next Steps

1. Promotion through conferences and engaging with regulators and clients
2. If there is enthusiasm – develop the free tool
3. Keep the sharepoint resource for the membership
4. Develop case studies
5. Continue to populate, streamline and improve useability

RemSoc



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new discussion Unanswered questions ...

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Thank you for listening....