# ENV 504
# Project report

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# Report structure

1. **Introduction**

- Brief description of the site and the contaminants and any challenges specific to this site/contaminant(s)
- Short summary of the approach

2. **Remediation approach**

- Why use this approach?
- How the remediation approach will be applied to this site?
- Be as quantitative as you can . I want to see how many wells you place, how much reagent you add, how often you regenerate the activated carbon, etc…
- You will need to make assumptions about the site, the contaminants, state those assumptions and use them for your calculations.
- Highlight your major findings and recommendations

# Report structure

3. **Analysis**

- Advantages and disadvantages of the approach
- What would need to know to have a more accurate design
- Cost will need to be calculated based on the information provided the first day of class

(https://www.frtr.gov)

The report should be 15-20 pages (plus appendices, if relevant).

| | Soundness of design |
|---|---|
| Well done | 1. The design is clearly supported by data; sufficient detail to support the main points of the design.<br>2. The design takes into account the characteristics of the contaminants and their physical extent.<br>3. Limitations are clearly articulated and analyzed with associated contingency plans. |
| Acceptable | 1. Many details support design, but some are not fully elaborated or sufficiently specific; some evidence not relevant.<br>2. There are a few factual errors about either the contaminants or the design.<br>3. Limitations are articulated but contingency plans are limited. |
| Some weaknesses | 1. Some evidence is provided, but data is not fully explained, or relevant to the design; important pieces of evidence have not been included; some data inaccurate.<br>2. There are many factual errors about either the contaminants or the design.<br>3. Limitations are not fully articulated, and contingency plans are inadequate. |
| Problematic | 1. Little or no data to support the main ideas of the design; much of the data is inaccurate.<br>2. There is little in the way of factual information.<br>3. The limitations of the approach are not clearly articulated, and no contingency plans are presented. |

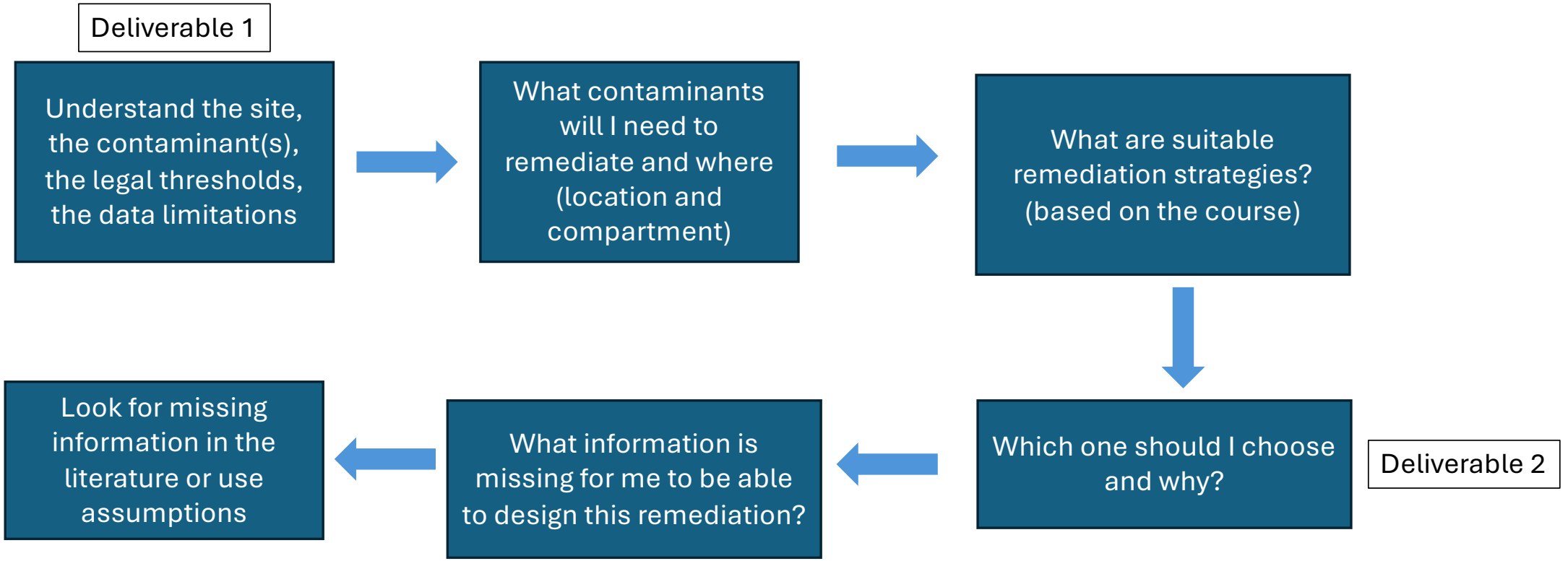
| | Clarity of content |
|---|---|
| Well done | 1. Objective of the document is easily identified; content supports objective.<br>2. Content, structure, and language of document geared to intended audience.<br>3. Subsections thematically coherent and accomplish their intended functions; document organized according to readers' needs; relationship between ideas is clear. |
| Acceptable | 1. Objective is not immediately clear; some additional content needed to support objective.<br>2. Document is missing some content required by audience; some language used inappropriately (e.g., unfamiliar jargon, too much jargon).<br>3. Coherence or function of subsections weaker; organization is evident but may be undermined by weak transitions or occasional digressions. |
| Some weaknesses | 1. Objective is difficult to determine; additional content needed to support objective.<br>2. Document is missing a substantial portion of content required by audience; uses some inappropriate or ineffective language.<br>3. Subsections are not logical or do not accomplish their intended function; organization is confusing or unclear. |
| Problematic | 1. Objective cannot be determined.<br>2. No organization apparent; content of document reflects interests of writer but not of audience; inappropriate use of language.<br>3. No discernible organization; thoughts in random order without connections between them |

| | Clarity of delivery |
|---|---|
| Well done | 1. Paragraphs are internally consistent (i.e., one idea/theme runs through paragraph); transitions between paragraphs allow reader to easily follow thread of argument.<br>2. Sentences flow smoothly, are structurally correct, and convey the intended meaning; no wordiness.<br>3. Formatting elements organize and highlight ideas as needed; formatting elements are used consistently throughout the document. |
| Acceptable | 1. A few paragraph lack internally consistency; a few weak or unclear transitions;<br>2. Five percent or less of sentences are awkward, incorrectly constructed, or wordy;<br>3. Formatting elements do not always support main points; elements are used consistently throughout |
| Some weaknesses | 1. Many paragraphs lack internally consistency; many transitions are weak or used inappropriately.<br>2. Six to ten percent of sentences are awkward, incorrectly constructed, or wordy.<br>3. Formatting elements often do not support main points; elements are not always used consistently |
| Problematic | 1. Main idea in most paragraphs cannot be identified; paragraphs have little or no discernible relationship to one another;<br>2. More than 10 percent of sentences are awkward, incorrectly constructed, or wordy; Formatting elements are confusing or inconsistent; lack of any formatting |

# Presentation

- A 30-minute presentation
- 15 minutes for questions
- Will be graded on the clarity of its content and the quality of the delivery.
- An evaluation matrix is available on the website.
- All presentations are scheduled during the exam hours.

# Preparation



# Design and calculations

Calculate the contaminant distribution

Calculate the parameters that characterize the remediation

Examples

SVE: where pump, flow rate,radius of influence, concentration in the gas phase, duration of the remediation, size the GAC and exchange time

Soil washing: where excavate, what soil characteristics, flow rate of soil and water, number of reactors, need for amendment,

In situ bioremediation: where inject, inject what, what concentration; what is the principle of the remediation; layout of the system, how long will it take?

Graded

Report

Summarize the site, the goals, the design calculations;
Identify strengths and weaknesses of the design

Presentation

Present the design -
Be ready to answer questions about every detail