Team Risk Assessment: (60pts)

The Project:

You have been selected to perform a project to study, conceptualize, and design a groundwater treatment system to clean up a small, localized solvent spill for an aircraft manufacturer. Based on your discussions with your client about the project, and your past familiarity with this client, you preliminarily assign the base risk estimate to Class 2 (see guidance in Canvas assignments for further explanation of this). Further, based on recent discussions, you believe her baseline budget for this project is approximately $550,000 (plus/minus 20%). Based on this preliminary budget knowledge and your own experience, you feel this is a reasonable budgetary starting point. Others hired directly by the client will actually build the treatment system. However, design and performance specifications for the system will be developed by you, the Engineer, based entirely on data provided by the client. Further, all project team members for this project work for your company.

Your current understanding based on your review of the project:

- You have managed 3 similar projects for this client. You work well with her, but know that she is a hands-on person, wanting to engage in and discuss all aspects of the project.
- You expect a fixed-price contract for this project. You are generally comfortable that the contract type is a reasonable match with your understanding and knowledge of the scope. Your client has allowed change orders in the past, but not without a lot of justification.
- The project team you have used in the past is largely available now to participate in this project although one of your key hydrogeologists is heavily engaged in a project in Brazil and may have times when she is unavailable to devote enough time to this project. Her backup is a more junior person, and this is the first project of this type he has worked on, although his technical qualifications are a definite 'fit'.
- Senior staff available to do quality control reviews are available to work on this project, although they are currently very busy.
- The technology contemplated to be used in the treatment system is a state-of-the-art ion exchanger that has been used successfully in only one other location that you are aware of. The process treatment is really 'neat/hot/innovative' (which your client loves) but has also been shown to require additional design and testing under certain circumstances.
- The contaminant to be cleaned up is trichloroethylene, a common solvent used in the aircraft plating industry.
- The depth to groundwater is deep in this area and even then, the groundwater is not potable, so the local aquifer is not a source of drinking water. Local drinking water is supplied by distant (>10 miles) surface water impoundments.
- Local stakeholders and regulatory agencies are glad this manufacturer has finally agreed to clean up this contamination and wait with eager anticipation to get this project initiated, implemented, and completed.

Based on the above information (and any other insights you might have), conduct an initial risk assessment of this project:

Part A:

1. Complete the initial Risk Register for this project. (Use the spreadsheet template provided).
   Deliverable: Initial risk register (submit to Canvas as an .xlsx file)

2. Transfer the appropriate risk information (% probability and total impact) for each risk from the register to the simulator input area as shown below shown below. After each input the simulation will automatically run, so be patient. **Deliverable:** Your Excel simulation worksheet (Input tab only) with the initial 80% probability cost clearly indicated and marked on the base plus risk chart (the third one) and submitted via Canvas as a pdf file.

Risk Input Table: Yellow= input cells

Risk ID	Probability(%	Tot mpact	Impact Exposure (Contribution)
1	0%	$ -	$ -
2	0%	$ -	$ -
3	0%	$ -	$ -
4	0%	$ -	$ -
5	0%	$ -	$ -
6	0%	$ -	$ -
7	0%	$ -	$ -
8	0%	$ -	$ -
9	0%	$ -	$ -
10	0%	$ -	$ -
11	0%	$ -	$ -
12	0%	$ -	$ -

Part B:

1. After the initial simulation, determine what risks would have to be **reduced or changed** to bring your price simulation analysis (at 80% probability) to within 20% of the original target price ($550,000, or as low as possible). **Note: you can't arbitrarily alter these to just make the numbers 'fit'; additional rationale and justification must be provided in the risk register as noted below.**

   Deliverable: revised workbook with the revised 80% probability cost clearly indicated and marked on the base + Total Project Risk chart (submit via Canvas as a .pdf file). Highlight your changes on the simulation input table in green to indicate what has changed in the first two columns only.

Risk Input Table: Yellow= input cells

Risk ID	Probability(%)	Total Impact	Impact Exposure (Contribution)
1	5%	$ -	$ -
2	0%	$ -	$ -
3	0%	$ -	$ -
4	0%	$ -	$ -
5	0%	$ -	$ -
6	0%	$ -	$ -
7	0%	$ -	$ -
8	0%	$ -	$ -
9	0%	$ -	$ -
10	0%	$ -	$ -
11	0%	$ -	$ -
12			$ -
13			$ -
14			$ -

Changes to simulation inputs

2. Update the initial Risk Register for this project based on the changes in Part B 1 above. Highlight your changes in the original register in yellow. Note: you may not arbitrarily change the % chance or $ impact without justification in the MITIGATION column in the register. Highlight these mitigation changes also in the register in yellow.

   Deliverable: Revised risk register with highlighted changes. Justify any changes in risk probability or impacts in the mitigation column. (submit to Canvas as an Excel .xlsx file);

3. Presentation of findings: See rubric for grading guidance.
   Submit your team's presentation using the combination of Google Slides and PowerPoint as described in Canvas. All team members are expected to contribute to preparation of the presentation as evidenced by the collaboration record preserved in Google Slides. All team members must also participate in the narration of the presentation. The required outline for the presentation:

   i. Brief statement of problem
   ii. Overview of initial risk register
      1. Risks identified
      2. Associated probabilities and impacts
      3. Mitigation plans, contingencies, triggers, and assignees
   iii. Risk reduction strategies to meet target price
   iv. Sensitivity analysis results (risk priority from color coded table)
   v. Wrap-up and summary