

Task 1.0: Initial Project Preparation-The subtasks within this section are all tasks to start to project and prepare for the competition. Although there was no competition, the team was given alternative resources to review and was still able to do additional initial research on new treatment technologies.

Task 1.1: Application for WEF

Task 1.2: Review WEF Rules and Criteria

Task 1.3: Additional Treatment Research

Task 2.0: Site Investigation- The site investigation was supposed to be the team's chance to visit the treatment plant along with meeting and interviewing some of the employees of the treatment plant. During the site investigation the was supposed to also gather the technical background data. Due to the cancellation of the competition, the team was not able to complete this task.

Task 2.1: Field Visit

Task 2.2: Collect Current Data from Operators

Task 3.0: Evaluation of Site Investigation Data- For this task, the team worked on organizing the background data and the existing layout of the treatment plant.

Task 3.1: Analyze Data of Current Plant

Task 3.2: Review Existing Site Design and Technologies

Task 4.0: Population Estimation- The population estimation was done by analyzing the current population of the cave creek along with the residents of the city of Phoenix due to the treatment plant servicing a third of the citizens of Phoenix.

Task 4.1: Current Population Research

Task 4.2: Future Population Calculation

Task 5.0: Analyze Applicable Regulations- The team reviewed the required regulations for the treatment plant which consist of reviewing the federal regulations such as the Clean Water Act and the state regulations that are stated under the Arizona Department of Environmental Quality (AZDEQ).

Task 5.1: Federal Regulations

Task 5.2: State Regulations

Task 5.3: County Regulations

Task 6.0: Treatment Design- This task is focused on establishing design criterias for the different technologies within the treatment processes. Once the design criteria was created, the team graded each technology in order to choose the best design.

Task 6.1: Determine Criteria

Task 6.2: Determine Water Demand

Task 6.3: Initial Treatment

Task: 6.3.1: Preliminary Design of Alternatives

Task 6.3.2: Decision Matrix and Choose Alternatives

Task 6.4: Essential Treatment

Task 6.4.1: Preliminary Design of Alternatives

Task 6.4.2: Decision Matrix and Choose Alternatives

Task 6.5: Advanced Treatment

Task 6.5.1: Preliminary Design of Alternatives

Task 6.6.2: Decision Matrix and Choose Alternatives

Task 6.6: Disinfection

Task 6.7: Sludge Handling

Task 6.8: Final Design Matrix

Task 6.9: Final Decision and Design

Task 7.0: Life Cycle Cost Analysis- After the new design is confirmed with all of the team members along with the team's technical advisor, the team analyzed the life cycle cost with the new design.

Task 7.1 Construction Cost

Task 7.2 Operation and Maintenance Cost

Task 7.3 Lifecycle Cost

Task 8.0: Impacts Analysis- When the design and life cycle cost is finalized, the team reviewed the different impacts that the new design will have on the treatment plant. The three different areas of impact that were analyzed include environmental, social and economical impacts. These impacts can be positive or negative impacts.

Task 9.0: Deliverables- Throughout the project there were submissions of the final report and final presentation which would be revised after every submission in order to have the final report being the best quality.

Task 9.1 30% Submission

Task 9.2 60% Submission

Task 9.3 90% Submission

Task 9.4 100% Submission

Task 9.5 Competition Deliverables

Task 10.0: Project Management- Throughout the project the team members cycled through specific roles and responsibilities for project management. The project management was separated into three subtasks consisting of meeting, schedule, and resource management.

Task 10.1: Meetings

Task 10.2: Schedule Management

Task 10.3: Resource Management