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Based on Homework Solution by Fahd Alshafei

Executive Summary

The Hoover Dam

This report details the history of the area the Hoover dam was built in along with the reasons it was constructed. From the speed of the river to the amount of rain on the area, all details of the geography are mentioned. The report goes on to talk about the proposition to build the dam before congress and the steps and political problems it faced. Finally the bill is passed and a certain amount of money is set for the project.

The report then moves on to the design and construction of the dam. The report starts by mentioning the calculations behind the design and how hard it was on the engineers who didn't have all the technical advantages of today. The report then mentions the problem with the dam's cost and how they solved it by decreasing what unskilled labor got paid per hour. Moving, the reports talks in great detail about the construction planning and the six major companies that were in charge of the construction. Two diagrams of the dam's design are provided. The river the dam was to be built on had to be diverted in order for the construction to begin. A lot of details are given to how the companies diverted the river. 500,000 cubic yard of muck had to be removed in order for the dam to be built. The dam is 726.4 feet high, 660 feet wide at the base, 45 feet wide at the top, and a crest length of 1,244 feet. Te report then mentions the actual construction of the dam and the concrete and steel design that were used. There were nine power generators in the dam. The next part explains in great detail how much power the dam could generate and the stages of development.

The next section of the report includes how the Hoover dam helped during the war and details about how much power was diverted to war factories. The dam was a potential target for the enemies so security was updated. The dam was used as a weapons research lab which produced unconventional weapons that helped the allies win the war. A canal system was constructed to provide water to the rapidly growing cities around the dam including Los Angeles which was growing at an exponential rate and needed more water every year. Also mentioned in great details are the other dams around the Hoover damn to generate electricity from the Hoover's excess water flow.

The report is concluded by mentioning how important and historical the Dam is and how we should all be impressed at the engineers who designed and built the dam.

Based on Homework Solution by Fahd Alshafei

Executive Summary

The Hoover Dam: A World Renowned Concrete Monument

David Moore, PE explains the history and process of building the Hoover Dam. He begins by exploring the need for building the dam by displaying history of the west (California and Nevada mainly) and their flood and drought problems. It began with the government realizing this problem through Arthur Davis who roughly estimated a dam approximately 750 ft high to hold about two years of average flow from the Colorado River would be in the best interest of solving this problem. By 1922 Mr. Davis teams up with the Secretary of Interior, A.B. Fall to submit a report to the Senate explaining the need of building a dam in the Las Vegas area of the country to distribute water properly to surrounding areas and states. By 1924 F.E. Weymouth had approximately 70 possible dam sites to construct this dam in which a board of engineers selected one at Black Canyon, naming the dam "Boulder Dam" and was located to successfully control water to California, Nevada, and Arizona. Herbert Hoover was selected to represent the Federal Government on the Interstate Compact Commission where he got the three states (California, Nevada, and Arizona) to agree on the rights and distribution of the water from the dam that is to be constructed. By 1928, the Boulder Canyon Act was passed by congress and the government assigned \$175 million to build the dam.

The author then goes into a little detail in the design of the dam including surveying the land where the dam was to be constructed, analysis of fault lines in the area and estimating the water capacity that the dam could potentially hold at a given time. He then states the company, which was a joining of six companies for this project because of how large of a project it was, that won the bid to build the dam and their process of completing the project. First with developing a place for all the laborers working on the dam to stay during the duration of constructing it, then the procedure to redirect the river for the duration of the dam construction, and finally the actual construction of the dam including converting the water flow of the river into energy: making the dam not just a dam but a power plant.

Lastly, the author, David Moore, PE writes about some of the little known facts about the dam, such as going into detail about how it helped in World War II as an energy source among other benefits it has provided.

Based on Homework Solution by Eric Schmidt