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ECET 49300

Draft: Ethical Analysis Paper

8/2/2020

Background

The Florida International University Pedestrian Bridge collapsed on the 15th of March 2018 in what was revealed to be the recklessness of engineers contracted to their job. 6 people were killed, and 8 others injured in the process. The Federal Highway Administration (FHA) investigated the case and concluded with various conclusions on what led to the collapse of the bridge. The wrong design of the bridge and calculations errors was the main cause. This accident occurred because FIGG design engineers did not follow their engineering ethics.

How it was handled

Investigations following the bridge's collapse discovered that the engineers had underestimated the load that the bridge would carry and overlooked the existing cracks later on (Viglucchi & Nehamas, 2018). According to John Bacon, "FIGG Bridge Engineers severely underestimated the demand on the bridge, significantly overestimated the bridge's capacity ... among other calculation errors," NTSB Chairman Robert Sumwalt said. "But another structure failed in this accident, the structure of public safety oversight." (2019). It clearly shows that the

FIGG engineers who designed and made the bridge's calculation did not follow the engineer's ethics and did not make people's safety a priority.

What was the cause of the accident?

The conclusions of the N.T.S.B. found that the bridge's failure was attributed to the faulty design that the engineering company contracted to build it made. The experienced Tallahassee firm, the F.I.G.G Engineers, made a big mistake in the first place. There were engineering errors that rose due to Faulty calculation errors made by F.I.G.G. Bridge Engineers, Inc. the agency stated that they underestimated the load on the bridge and overestimated its capacity. Also, there is an inadequate peer review, which was handled by engineering firm Louis Berger. These two were the chief probable causes for the collapse of the F.I.U. Pedestrian Bridge. Other engineers report that the fractures in the concrete were reported days before the collapse; however, the lead technician did not see it as a safety precaution. The engineer reported that the bridge will need repairs, but that they don't see any issue there was no concern about it from that perspective (Mazzei, 2019).

What was the ethical dilemma? What has been done to ensure that a similar ethical dilemma does not occur?

In my opinion, this incident could have been averted easily. Should the lead technician decide to postpone, cancel, or find a way to resolve the issues within the concrete of the project's span, six people would still be alive today. Not only that, but other engineers had initially flagged the bridge's faults so that they might be reviewed and repaired (Bacon, 2019). According

to NSPE.org “Engineers shall Hold paramount the safety, health, and welfare of the public.” (2019). This code illustrates that safety of the public is top priority for engineers before they start any projects whereas it had shown that FIGG engineers had not care about people’s safety because even the bridge collapsed when it was under constructions. The process of manufacturing the steel and joints of the bridge was the main part to be looked at thoroughly within the technical drawings and calculations to figure out where would the stress be concentrated, as well as conducting a simulation analysis via a computer aided 3D program (Zhou, Di & Tu, 2019). This project should have had been handled easily by engineers if they were to follow those steps, that way they could have had sorted out all the issues within the blueprints before they even start constructing the bridge.

Whether the problem began with the design, manufacturing, or installation of the crossing, lives should never be lost due to disbelief in such fractures leading to the significant mishap. I understand that construction was behind schedule and quite expensive, which may have influenced the technician's decision to continue with the project. Therefore, I believe that the mission should have just been aborted. It would have been a lot of money down the drain and a colossal waste and time and effort; but, if you are going to build a bridge, you are behind schedule, and you have already used lots of money to get a given amount done, it is better to lose all the money and resources, rather than lose the lives of six innocent human beings.

Recommendations

Conducting failure analysis would help determine the causes and impacts of the bridge failure and come up with appropriate solutions. This would enable the engineers involved in the

construction to identify the flaws and the real cause of the collapse as well as come up with alternative designs that can be used to alleviate future failures. The engineers did not check the validity of simple calculations to determine stress loads and failed to tighten the cables that would ultimately cause the collapse of the bridge. Engineers should check the validity of these calculations. Besides, they should also have closed the bridge immediately. They observed various cracks as it would have saved many lives. This should be observed in the future by engineers.



References

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