Dany Silatcha Woussah

Professor Viviana

TCET 2220

Engineering Ethic

The Space Shuttle Challenger disaster

On January 28, 1986, a Space mission named The Space Shuttle Challenger broke apart 73

seconds into its flight, leading to the deaths of its seven crew members. The spacecraft

disintegrated over the Atlantic Ocean off the coast of central Florida at 11:38 EST.

The disintegration of the vehicle began after an O-ring seal in its right solid rocket booster

failed at liftoff. The O-ring failure caused a breach in the Solid rocket booster joint it sealed,

allowing pressurized hot gas from within the solid rocket motor to reach the outside and impinge

upon the adjacent Solid rocket booster attachment hardware and external fuel tank. This led to

the separation of the right-hand Solid rocket booster aft attachment and the structural failure of

the external tank.

The disaster resulted in a 32-month hiatus in the shuttle program and the formation of the Rogers

Commission, a special commission appointed by United States President Ronald Reagan to

investigate the accident. The Rogers Commission found NASA's organizational culture and

decision-making processes had been key contributing factors to the accident. NASA managers

had known contractor Morton Thiokol's design of the Solid rocket booster contained a

potentially catastrophic flaw in the O-rings since 1977, but failed to address it properly. They

also disregarded warnings from engineers about the dangers of launching posed by the low

temperatures of that morning and had failed in adequately reporting these technical concerns to

their superiors.

What engineer in charge did not highlight was that the vehicle was never certified to operate in

temperatures that low. The O-rings, as well as many other critical components, had no test data

to support any expectation of a successful launch in such conditions. And this negligence led to a

dister.

This is why the engineering ethic is so important in the practice of engineering profession.