Apollo 4 Essay, Research Paper

Apollo 4

Introduction

This paper is going to compare the Apollo 1 and the Challenger disasters.

Both space programs were unfortunate disasters, caused by a series of oversights

and misjudgments. How did this lost of life occur in such a high tech

environment? Apollo 4

On January 27, 1967, the three astronauts of the Apollo 4, were doing a

test countdown on the launch pad. Gus Grissom was in charge. His crew were

Edward H. White, the first American to walk in space, and Roger B. Chaffee, a

naval officer going up for the first time. 182 feet below, R.C.A technician

Gary Propst was seated in front of a bank of television monitors, listening to

the crew radio channel and watching various televisions for important activity.

Inside the Apollo 4 there was a metal door with a sharp edge. Each time

the door was open and shut, it scraped against an environmental control unit

wire. The repeated abrasion had exposed two tiny sections of wire. A spark

alone would not cause a fire, but just below the cuts in the cable was a length

of aluminum tubing, which took a ninety-degree turn. There were hundreds of

these turns in the whole capsule. The aluminum tubing carried a glycol cooling

fluid, which is not flammable, but when exposed to air it turns to flammable

fumes. The capsule was filled with pure oxygen in an effort to allow the

astronauts to work more efficiently. It also turns normally not so flammable

items to highly flammable items. Raschel netting that was highly flammable in

the pure oxygen environment was near the exposed section of the wires.

At 6:31:04 p.m. the Raschel netting burst into an open flame. A second

after the netting burst into flames, the first message came over the crew’s

radio channel: “Fire,” Grissom said. Two Seconds later, Chaffee said clearly,

“We’ve got a fire in the cockpit.” His tone was businesslike (Murray 191).

There was no camera in the cabin, but a remote control camera, if zoomed

in on the porthole could provide a partial, shadowy view of the interior of the

space craft. There was a lot of motion, Propst explained, as White seemed to

fumble with something and then quickly pull his arms back, then reach out again.

Another pair of arms came into view from the left, Grissom’s, as the flames

spread from the far left-hand corner of the spacecraft toward the porthole

(Murray 192). The crew struggled for about 30 seconds after their suits failed,

and then died of asphyxiation, not the heat. To get out of the capsule

astronauts had to remove three separate hatches, atleast 90 seconds was required

to open all three hatches.

The IB Saturn rocket contained no fuel, so no chance of fire was really

thought of, so there were no fire crews or doctors standing by. Many people

were listening to the crew’s radio channel, and would have responded, but were

caught off guard and the first mention of fire was not clearly heard by anyone.

Challenger

On January 28, 1986 the space shuttle Challenger was ready to launch.

The lead up to the launch had not been without its share of problems. The talk

of cold weather, icicles, and brittle and faulty o-rings were the main problems.

It was revealed that deep doubts of some engineers had not been passed on by

their superiors to the shuttle director, Mr. Moore.

Something was unusual about that morning in Florida: it was uncommonly

cold. The night before, the temperature had dropped to twenty-two degrees

fahrenheit. Icicles hung from the launch pad, it was said that the icicles

could have broken off and damaged the space shuttle’s heat tiles. It had been

the coldest day on which a shuttle launch had ever been attempted.

Cold weather had made the rubber O-ring seals so brittle that they no

longer sealed the joint properly. People feared a reduction in the efficiency

of the O-ring seals on the solid rocket boosters. Level 1 authorities at NASA

had received enough information about faulty O-rings by August 1985 that they

should have ordered discontinuation of flights.

The shuttle rocketed away from the icicle laden launch pad, carrying a

New Hampshire school teacher, NASA’s first citizen in space. It was the worst

accident in the history of NASA in nearly 25 years. 11:38 a.m. cape time, the

main engine ignition followed by clouds of smoke and flame came from the solid

fuel rocket boosters. Unknown to anyone in the cabin or on the ground, there was

a jet of flame around the giant orange fuel tank coming from the right-hand

booster rocket. Seventy-three seconds after lift-off the Challenger suddenly

disappeared amid a cataclysmic explosion which ripped the fuel tank from nose to

tail (Timothy 441). The explosion occured as Challenger was 10.35 miles high

and 8.05 miles downrange from the cape, speeding toward space at 1,977 mph.

Lost along with the $1.2 billion spacecraft were a $100 million satellite that

was to have becooome an important part of NASA’s communications network

(Associated Press 217). Pictures taken revealed that even after the enormous

explosion occurred the cockpit remained somewhat intact. Aerodynamic pressure

exerted on the human passengers would have killed anyone who survived the

explosion. The remains of the shuttle were spread over miles of ocean. Over

half were recovered.

In comparison, both disasters were preventable. Both disasters had a

main explosion or malfunction, but even if there were survivors they would have

died because there was no escape. The Challenger disaster was mainly a lot of

people wanting to get better jobs and more money, or simply to get on the good

side of someone. The Apollo 4 had many problems which should have been caught.

Conclusion

Apollo 4 had many deficiencies: loose, shoddy wiring, excessive use of

combustible materials in spite of a 100 percent oxygen atmosphere, inadequate

provisions for rescue, and a three layer, ninety plus second hatch. The

Challenger had faulty O-rings, icicles, and bad management which threatened to

bring the entire american astronaut program to an end. Over a billion dollars

was lost all together.

Both disasters could have been prevented if the time, effort, and

funding was spent. Many people involved in both disasters were either lazy or

greedy.

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