PART1, introduction:

Deepwater Horizon was a 10-year-old semi-submersible, mobile, floating, dynamically positioned drilling rig that could operate in waters up to 10,000 ft (3,000 m) deep.

The Deepwater Horizon oil spill (also referred to as the "BP oil spill") was an industrial disaster that began on 20 April 2010 off of the coast of the United States in the Gulf of Mexico on the BP-operated Macondo Prospect，considered to be the largest marine oil spill in the history of the petroleum industry.

At approximately 7:45 pm CDT, on 20 April 2010, high-pressure methane gas from the well expanded into the marine riser and rose into the drilling rig, where it ignited and exploded, engulfing the platform Eleven missing workers were never found despite a three-day U.S. Coast Guard (USCG) search operation and are believed to have died in the explosion. Ninety-four crew members were rescued by lifeboat or helicopter, 17 of whom were treated for injuries.[The Deepwater Horizon sank on the morning of 22 April 2010.

This accident, which killed 11 workers and sent oil spewing into the Gulf of Mexico for 87 days, triggered one of the worst environmental disasters in US history. It released 206m gallons of oil from BP’s Macondo well, according to US government estimates, affecting wildlife and water-quality along hundreds of miles of Gulf coastline.

At its height, 88,522 sq miles of sea were closed to fishing because of the spill, according to a federal report.

Economic prospects in the Gulf Coast states were dire, as the spill affected many of the industries upon which residents depended. More than a third of federal waters in the gulf were closed to fishing at the peak of the spill, due to fears of contamination.

PART 2, Cause:

The ultimate cause of the Deepwater Horizon disaster was a series of preventable missteps by engineers and workers designing and carrying out a drill plan in the weeks and hours preceding the event.

Problems began during drilling. BP had to stop drilling into the seabed about 2,000 feet (610 m) higher than expected because the pressure was too high. Next, they had to line the hole with a casing — a concrete pipe that prevents the hole from caving in. A shorter casing would be easier to cement into place and was deemed safer by computer models, but the company ultimately decided to use a longer casing, which would be less prone to leaks. In order to hold the casing in place, concrete would be pumped into the space between the casing and the surrounding Earth. For this to work, the concrete must surround the casing evenly, otherwise it could be unstable and vulnerable to oil leaking in from the sides. To ensure an even, snug fit, engineers fit the casing with centralizers, which are metal tubes with strips of metal sticking out on each side. Computer models recommended that the casing be fit with 21 centralizers, but BP engineers chose to insert only six centralizers because of a supply shortage. This increased the risk that the cement would surround the casing unevenly.

The cement job wasn’t done correctly. As casing goes into the ground cement is poured in to seal it so nothing comes up that’s not in the controlled environment of the casing. If the cement job isn’t properly done there’s nothing stopping 15,000 PSI of oil.

The BOP didn’t function properly because it wasn’t properly maintained. A simple flip of the switch should have engaged hydraulic rams that crushed the casing and sealed the well of; it didn’t work. A secondary safety feature was for an ROV to go down and manual close the rams, but again, it didn’t work.

PART 3: Corrective measure

PART 4: Conclusion