Chernobyl evokes an image of disaster in the mind of most people. This image is reinforced by the multitude of media depictions of the nuclear accident that occurred there. But what caused this infamous disaster? How could such a thing have happened in modern times? The answers lie behind a veil of secrecy that was part of accepted Soviet policy. Hiding their technology expertise or lack thereof was the expected mode of business in their country. The Soviets who were in charge of nuclear energy were not required to have accountability to any outside sources in their field except themselves. “The Chernobyl accident was the inevitable outcome of a combination of bad design, bad management and bad communication practices in the Soviet nuclear industry”. Chernobyl: The Inevitable Results of Secrecy. Many sources agree that Soviet secrecy led to the technological and human errors, which caused the Chernobyl accident. The IAEA, (International Atomic Energy Commission) stated in the report, Ten years after Chernobyl: What Do We Really Know? that the Soviet scientists knew of the design problems in the RBMK reactor. Furthermore, this report adds that the Soviet’s practice of a lack of ‘safety culture’ created a situation in which they chose to ignore or develop plans to counteract these inherent problems. Evidence of technological in-expertise was blatantly exposed as a result of the Chernobyl accident. Chernobyl underwent a full core nuclear meltdown, the worst possible accident that can occur at a nuclear power plant.

Nuclear power development began in the Soviet Union in 1946 in a secret laboratory. The first investigational reactor was built. Although this reactor could not be used to generate
electricity, this reactor preceded all other countries in their development of nuclear reactors. The Soviet policy for scientific development at this time was one of secrecy. Paramount to Soviet scientific research was ensuring the world that the Soviets were equivalent, if not superior, to other nations in the field of nuclear science. The Soviets wanted to retain the world’s perception that their military strength was closely parallel to the United States. As a result of this secretive policy of image protection, the Soviets developed their nuclear reactors without the input of the global community.

The practice of secrecy also applied within the Soviet nuclear energy ministry; information was shared guardedly and mistakes were omitted from the information that was available. Furthermore, it is evidenced that the development of science in the Soviet Union relied on stealing technology. In *The Fifty Year Wound*, Leebaret writes, “Soviet spy masters had long practiced ferreting out secrets…going back to at least to the Manhattan Project and in the 1960s having agents in place within General Electric…”(397) Evidence that this practice of stealing knowledge was prolific during détente is shown by the actions of the government. The Soviet State Committee on Science and Technology and the Military-Industrial Committee committees gave the KGB’s divisions on science and technology a ‘shopping list’ of information needed by the country’s scientific community. *The Fifty Year Wound*, Leebaret (397) This student’s discussions with her father, a nuclear physicist who worked for the United States government, noted that the stealing of technology was key as to why this accident occurred. (*1) Stolen technical knowledge was utilized so that results were obtained without any of the safeguards that had been set up by the originators of the ideas.

The Soviet policy of stealing technology was born out of financial necessity. Spending on arms during the cold war far outpaced funding for technological development. During the cold
war, the CIA collected evidence on Soviet arms development, that until recently, was still classified information. Procuring reliable figures from declassified CIA documents is difficult. The common technique used by the CIA during the cold war years was the analytical technique known as the ‘machinery purchases residual approach.’ However, a CIA report entitled, “Estimating Soviet Hardware Purchases: The ‘Residual’ Approach”, dated June 1986, questions the validity of this Residual approach methodology. Stronger evidence of the Soviet nuclear arms spending patterns became known as the American defense department, spending billions each year for the past decade, has aided the Soviets in dismantling the massive stockpiles of nuclear arms built up during the cold war. In a speech to the U.S. Conference of Mayors in 1995, Secretary of Defense William J. Perry describes the scope of this project. The Soviet Union had approximately 25,000 nuclear weapons at the time of the Chernobyl Disaster. The Soviet nuclear energy program was ranked third in the world. In 1984, two years prior to the Chernobyl accident, the United States nuclear energy program was ranked number one and provided 14 percent of its energy through nuclear power. The figure had risen to 19 percent by 1989. In comparison, by 1985 the Soviet Union supplied 11 percent of its nation’s electricity through nuclear power stations, although the reliability of its figures is questionable. At the time of the Chernobyl disaster, the Soviets had planned on adding more reactors with the goal of generating 20 percent of the nation’s electric needs in four years.

The Soviet choice of nuclear reactors was dissimilar from the rest of the world. The Soviets were investing in graphite-moderated reactors as opposed to the water-moderated type found commonly in America, The Soviets claimed in an April 29, 1986 NY Times article, “Atom Power Gets Priority In The Soviet,” that the graphite-powered reactor would allow them to contain a breakdown in a channel without shutting down the entire reactor. A complete reactor
shutdown is costly. The experiment on April 25-26 at the Chernobyl power plant was a partial shutdown; this experiment would lead to the Chernobyl disaster.

The Chernobyl reactor, also known as a RBMK, standing for “reactor high-power boiling channel type” The Legacy of Chernobyl (2) is a graphite-block moderated reactor. The RBMK reactor was outdated in 1986, and most of the world utilizing nuclear power was using water-moderated reactors. The military advantage of using the RBMK reactor is that it is easier to remove spent reactor fuel and thus spent reactor fuel can be adapted for military purposes. Due to the change that occurs to uranium over the life of a reactor the fuel becomes more dangerous. The two most dangerous scenarios in a reactor of this type are burst fuel channels or lack of water circulation, which is needed to cool the core. In the RBMK reactor, the cooling water comes in direct contact with the fuel channels. More modern reactors cool by heat exchange, cooling water is contained in a tower besides the core; the elements in the core and the cooling water never meet. Electricity is a must to ensure operation of multiple safety systems. The reactor itself usually supplies this electricity, but multiple gasoline generators are usually utilized as well as the ability to switch to an alternate source of electricity for backup purposes. In the Chernobyl accident, the team was conducting a ‘run down’ experiment on April 25, 1986 in which they were attempting to prove that water circulation, or cooling, would be uninterrupted, even with a loss of power. The Soviets thought that even if one channel encountered difficulty, that they could insert control rods around the tube and then it could be safely removed.

Zhores Medvedev, author and exiled Soviet scientist stated in The Legacy of Chernobyl that the scientists at Chernobyl were not trying to test the system, but rather trying to install a safety system that should have been installed when this reactor was built. He points to the date on which this reactor was put into use, Dec 20 1983 as proof that the scientist ignored safety in
order to fulfill another goal. This goal was to having a noteworthy achievement on annual day in which energy workers are fêted; this day includes publicity and bonuses for the scientists involved. Medvedev contends that these facts were purposefully omitted at the post-catastrophe conference of the IAEA. During the August 1986 Soviet post-disaster trial of the six senior administrators, it became clear that all safety tests had not been completed.

Although the test was scheduled in advance, and engineers and experienced testers were present, the test was delayed for hours because an electricity grid manager did not want the problems resulting from loss of power in the daytime. This delay resulted in inexperienced testers and managers running the operation. Soviet academician, Valery Legasov, who headed the Soviet scientific team commissioned to report to the IAEA, gathered evidence of the incompetence of the operators at the reactor on the night of April 25, 1986. From transcripts of telephone conversations from the Chernobyl reactor the night of April 25, 1986 “One operator rings another…. “In the programme there are instructions…and then a lot of things are crossed out”. The Legacy of Chernobyl (24-25). This data was not included in the Soviet report but was revealed in a posthumously published article following Legasov’s suicide. This test, designed by the chief engineer, had been submitted to other Soviet nuclear power plants but all other plants had refused the test. The inherent problem with the test was that it bypassed the safety systems built into the power plants, namely the electricity must remain on to continue the circulation of cooling water through the reactor core.

Ignorance, or purposeful disregard for human safety after the accident, was evident by the roles of the firemen. They came onto the scene dressed in only their regular gear. In the process of fighting the fire, they stood on the roof of the reactor. Here their bodies were subjected to intense radiation and the resulting radiation sickness would kill them in just over two weeks. In
addition to fireman, other workers were sent to the plant in the days that followed the disaster. International knowledge of radiation levels would have informed them that these unprotected workers would certainly die. The Soviet authority established a measure of radiation exposure that was not based on international standards. This represents the Soviets’ lack of knowledge, or more cruelly, it represented the Soviets’ manipulation of facts for their own means.

In the days that followed, shift workers poured water on the site exposing them to radiation levels that would be fatal to them as well. Furthermore, workers were ordered to physically clean up debris from the reactor. Although these workers were given protective suits, no suit is designed to protect workers from the intense level of radiation at Chernobyl. One hundred and eleven would develop severe radiation sickness. Many would die. The official Soviet death toll only accounts for those killed directly by the explosion. In a further attempt to deny their lack of safety measures, those who worked after the accident at the Chernobyl plant, and who received a lethal dose of radiation exposure, were labeled as having a mental disorder termed “radiophobia” *Ablaze* (264)

The most significant example of the Soviet secrecy and the lack of safety in global terms was the deficiency of the Soviet government to alert the world to the disaster. Acknowledgement of the accident only came after Sweden, Denmark, and Finland noted exceptionally high atmospheric levels of radiation. The levels were so high that these countries thought that there had been a leak in one of their own reactors. Many of the authors on the Chernobyl catastrophe accept the claim that if the wind had been blowing in a different direction, that there would not have been Soviet acknowledgement of the accident.

In another attempt at secrecy and denial, the Soviets initially claimed that radiation exposure in the air was limited. Contrary evidence is found in the research of a meteorological
scientist from Livermore California, he measured a two hundred kilometer square of the atmosphere of Chernobyl area in the days after the accident. The data he collected showed radiation contamination beyond anything that had been previously measured; his findings were far greater than the Soviet claims.

Long term health and environmental problems and figures are widely debated in the literature. However evidence suggests that clean-up workers are at greater risk for thyroid cancer. The clean-up workers include not only for those who worked close to the site in the days after the disaster, but thousands of clean-up workers in the 30 kilometer exclusion zone between the years 1986-1989. In the years between 1986 and 2005, there was an increased reporting of thyroid cancer in children living in the surrounding areas.

The rush to develop nuclear power and the purposeful disregard of safety led to the Chernobyl accident. The policy of restricted information sharing within the Soviet Union’s own nuclear energy department, combined with clandestine information gathering, led to the world’s greatest nuclear disaster.

(1) Footnote it was this conversation that prompted my interest in the Chernobyl disaster.
Works Cited


