“Three Mile Island: What About Waste?”

By:

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A Real Energy Crisis

No energy policy has been as dramatically affected in the US than that of the nuclear energy policy following an accident on March 28, 1979. The Three Mile Island Nuclear Generating Station, near Harrisburg, PA was the site of the worst civilian nuclear power related accident in US history. This accident cites a major turning point in US energy policy after large amounts of radioactive material leaked from one of the two reactors and left the plant with large amounts of waste to be cleaned and dealt with. It wrecked havoc for many days, and the accident helped fuel anti-nuclear advocates, having profound effects on US energy policy as a whole.
The Conundrum of Waste Water

The NRC (Nuclear Regulatory Commission) classifies radioactive waste into two categories; Low-Level and High-Level waste. Low-Level radioactive waste are items that have become contaminated with radioactive material or have become radioactive through exposure to neutron radiation. This type is fairly easy to dispose of because the half-life in the radioactive isotopes is fairly short. Most Low-Level radiation waste is held on-site at many nuclear power stations until the isotopes have decayed and can be discarded as regular trash. High-Level radioactive waste is the substance from the core of the nuclear reactor such as reactor fuel and waste materials. This type has an extremely long half-live and requires permanent facilities where the waste can be stored. The debate as to what to do with High-Level radioactive waste has forced the nuclear power facilities to store all High-Level waste at their facilities until plans are finalized for the underground Yukka Mountain facility or new alternatives comes about. Many nuclear power plants throughout America have been dealing with their waste problems since their inception and have had detailed plans in the works for how to store the waste properly on a regulated and regular basis. These detailed plans have attempted to imagine all possible scenarios or problems and have solutions as to how to resolve them but as accidents have taken place they ultimately have proved their inability to predict all that is unexpected. When the accident at TMI occurred in 1979 and subdue a few days later, the questions of how to assess the tremendous cleanup ensued. By the end of the accident and cleanup more than 2.1 million gallons of Low-Level contaminated water were generated and had to be disposed of properly.

What to do with all of this Waste?

The public utility holding company, GPU Nuclear Corporation, and its formal owner of TMI, Metropolitan Edison Company, weighed many disposal options of this large amount of water with the NRC. Early options included evaporation, solidification and river discharge. The report noted that the option of river discharge presented the potential for the strongest public and institutional reaction. They also wrote that with approval this method would pose to be the cheapest and quickest of the earlier options. With costs associated with the cleanup already estimated at nearly $1.5 billion, GPU was looking for the cheapest alternatives. Many advocates, scientists and concerned citizens argued at the time that the waste water should be shipped and processed at one of the three facilities in America that accept Low-Level nuclear waste. These Low-Level waste facilities located in Washington, Utah and South Carolina safely process and recycle nuclear waste items for reuse or to dispose of properly. Due to the large amount of water, the transportation costs and the risk of mishap and accident along the way this option was not included in any of the alternatives. The question of what to do with the waste would continue for years to come.

Decisions: Cleaning up TMI

Cleanup began in April of 1979 and the water was of top concern along with the damaged uranium. Before any further cleanup could be done the highly radioactive water had to be removed. While debate still raged about what to do with the water a SDS (Submerged Demineralization System) was installed to remove some of the radioactivity in the water. This new technology then trapped dangerous elements in the demineralizer. This system “cleaned” the water and pumped it into 500,000 gallon steel storage tanks on the facility. The sludge material that sank to the bottom or that was sucked and concentrated in the SDS filters were put into liners and transported to the Low-Level waste facility in Washington State. The waste-water that remained transported from the TMI-2 basement and core to holding tanks still posed legitimate threats. Finally, after long debate, the NRC and GPU came to agreement to follow
the option of evaporation. On June 5, 1987, nearly eight years after the accident an agreement was reached between the owners of TMI and the NRC to evaporate the millions gallons of radioactive water in the holding tanks.
Three Mile Island: What About Waste?

Energy policy in the United States has dominated the political spectrum since the Industrial Age and in particular the twentieth and twenty-first centuries. Policies such as the subsidization of oil exploration, coal mining and ethanol conversion, along with regulatory practices of the Environmental Protection Agency continue to be areas of constant debate. These policies are examined and altered every year as new ideas come about, as science improves, and as accidents and disasters take place. No such policy has been as dramatically affected in the US than that of the nuclear energy policy following one such accident on March 28, 1979. The Three Mile Island Nuclear Generating Station, near Harrisburg, PA was the site of the worst civilian nuclear power related accident in US history. This accident cites a major turning point in US energy policy after large amounts of radioactive material leaked from one of the two reactors and left the plant with large amounts of waste to be cleaned and dealt with. It wreaked havoc for many days, and the accident helped fuel anti-nuclear advocates, having profound effects on US energy policy as a whole. The mishap also has become the topic of a blame-game among scholars who have looked into the event as to how it unfolded, how the operators of the plant, and the Nuclear Regulatory Commission’s response handled it and what impact it had on the nuclear power industry.

While environmental historians, lawyers and journalists who have studied this topic agree on the events as they took place that day in March, many disagree as to whom is to blame for the accident, the responses taken in correcting the mess and what impact it had on the
industry as a whole. Some scholars argue that the accident was due to inadequately trained operators and employees of the plant itself, while others put blame on the government for loose regulation of employee licensing and training. Still others blame the Nuclear Regulatory Commission (NRC) for slow and/or poor reaction time and deficient inspections prior to the accident. This paper will examine various secondary sources from authors of different expertise of history, science and law to analyze the different approaches taken in studying this event but more importantly will fill the void left by each in examining the post-accident cleanup of the waste. Many authors who have written about the accident completely neglect the second stage of the accident which is arguably of more importance than the accident itself. By using numerous primary sources the second half of this paper will examine the planning and follow through of the cleanup of millions of gallons of waste water distributed throughout Reactor 2 and will show the weaknesses left by scholars who have performed research on the issue.

Much like the response of Federal Emergency Management Agency to the Hurricane Katrina catastrophe in 2005, author Daniel Martin from the University of Baltimore makes the case that the NRC inadequately responded to the Three Mile Island (TMI) accident. In his book *Three Mile Island: Prologue or Epilogue?*, Martin begins by claiming that the Commission acted improperly since its first efforts to promote the building of nuclear power plants was executed in the 1950's. Blaming the event on a total failure of the NRC, he cites developments that the government should have stayed out of to have better protected its citizens.

According to Martin, throughout the 1950's, no insurance company wanted to take the risk of insuring a new and uncertain industry such as nuclear power for the fear of a meltdown and the costs associated with such an event. The government then subsidized the insuring of
these plants by capping debt settlements at $560 million, $500 million of which they would cover. Only $60 million was left to gather in commercial insurance. “They provided and still provide a massive financial subsidy to underwrite the insurance costs in developing nuclear energy.”¹ The second development was an Atomic Energy Commission's (AEC) (future NRC) threat to utility companies to adopt the use of nuclear power or face the AEC “build[ing] its own reactors and begin competing with the utilities for the sale of electricity.”² They even went as far as offering a free first load of fuel and free research and development. Finally, in 1957 the first “pilot project reactor” went commercial in Shippingport, Pennsylvania, and after cheap oil and coal came to end in the 1960's and 70's, applications for nuclear power plants rose dramatically.³

After construction of nuclear power plants took off, the AEC was now left to confront such issues as licensing, safety systems, inspections, regulation, and the storage of nuclear waste. These issues are what Martin felt were left on the back-burner as the AEC, who were suppose to be the “protector of public safety, [became] hampered by unabashed enthusiasm for technology.”⁴ Further, Martin notes that the NRC or the older AEC were never keen on cooperating with state and local agencies regarding emergency plans. This proved costly when the NRC arrived and there was confusion and a difference of opinions between the operators of the plant and the staff of the NRC. The philosophy of the NRC was that “emphasis on radiological emergency planning would serve only to arouse public concern and to stifle the development of nuclear power.”⁵

Martin's story of a total failure on the part of the NRC is almost comedic at times for the

¹ Daniel Martin, *Three Mile Island: Prologue or Epilogue?* (Cambridge: Ballinger, 1980), 68
² Ibid., 69
³ Ibid.
⁴ Ibid.
⁵ Ibid., 97
total lack of regulation that he points out. The accusations were astonishing to say the least but almost frightening due to the complexity and the importance of the situation. His work points out key flaws in the agency that need to be addressed and that should be examined and re-examined annually to assure that no such accident takes place in the country again. Finally, his accusations about the process of subsidization of the industry is a path that could be explored further, for maybe it would show that what the government wants or feels is the best is not always the optimum.

_Three Mile Island; A Nuclear Crisis in Historical Perspective_, written by J. Samuel Walker provides a background and the account of the NRC related to the TMI accident. Walker, a historian for the NRC, was hired just after the accident took place in 1979. Since then he has established himself as one of the prominent nuclear historians in the country and has published a number of other pieces related to the industry.

Walker begins his book by giving a three chapter history of the NRC and then proceeds to give a five day analysis of the accident broken down into five chapters. Considering the event “the single most important event in the fifty-year history of nuclear power regulation in the United States,” Walker blames the faulty stuck valve in the cooling system and confused reactor operators as the true cause of the problem. Further he blames the power company for underestimating the severity of the crisis when contacting the NRC, and the state of PA for having limited resources to deal with such a scenario. He does touch on the fact that the NRC may have provided further confusion in trying to deal with the accident initially from their offices of Maryland but limits his depth of their responsibility.

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The last chapters analyze the emergency response of the industry, state and federal officials and the long-term impact of the accident. Walker counters arguments that the TMI accident halted the construction of new plants. He notes that new orders for plants were declining before the accident for a number of reasons. Explaining how the OPEC oil embargo of the early 1970's originally appeared to assist the nuclear power industry in “quickly and sharply driv[ing] up the price of oil and other fuels that utilities purchased to run their plants which drained their financial resources.” It also “exacerbated the already serious problem of inflation, which greatly increased the cost of borrowing money for construction.” Finally, he points out that the economic recession forced people to cut back on energy consumption to save money.

While Walker does a fine job of looking at the reasons for the discontinuation of the nuclear power industry and a play by play account of the accident and days after, the book lacks any real technical or in depth explanation of what went wrong and why. Focusing more on accounts and interactions among the plants staff, owners and creators it avoids the gray area where the main problem lied. His evidence relied heavily on newspaper clippings and articles, but overall Three Mile Island; A Nuclear Crisis in Historical Perspective was a well written book and was interesting to examine the NRC’s side on the matter. Also, in defending the side of the NRC he also completely refrains from speaking about the subsidization of the energy source in the beginnings of the industry. By doing so, he probably would have exposed evidence that would demonstrate the ineptness of central planning and how the government may not always be looking for the cleanest or safest energy for the environment.

Daniel Ford a member of the Union of Concerned Scientists argues in his well-written

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8 Walker, Three Mile Island, 8.
9 Ibid.
book, *Three Mile Island: Thirty Minutes to Meltdown* that the overall blame for the TMI accident can be placed on the instruments and valves in the control rooms. Plagued by the mismanagement of the designers and engineers of the plant, operators were left in the control room trying to distinguish and sort through hundreds of bells, alarms, lights and indicators. “The control room at Unit 2 had no indicator that directly reported whether or not the relief valve was open, and it remained open, unknown to operators, for some two hours and twenty minutes.”¹⁰ There was also no instrument that “directly told the operators how much cooling water was inside the reactor.”¹¹ These two simple indicators, along with faulty pressure valves, Ford argues, could have prevented the whole event, for the fuel rods would not have overheated and burst.

Ford gives a detailed account much like Martin and Weiss of the event, focusing on defective or absent instruments, but fails to cite or footnote anything throughout his book as it is filled with detailed explanations of the accident. He also contradicts himself at times, blaming the event largely on faulty or lack of instruments and then criticizes the operators for not having the intelligence or training to resolve such a problem. Overall the book does a fine job of conveying a well-rounded explanation for the TMI accident.

While all these sources explain well the events that took place at TMI on March 28, 1979, they all differ on who is responsible for the accident itself. As stated above Martin puts blame on the NRC, Walker accuses plant staff for operator errors and the power company and Ford focuses the basis of his argument on faulty or non-existent instruments that would have helped resolve the issue. Further, while they all rest some of the blame on the government, they all fail to adequately examine what took place once the accident was subdued and controlled. All

¹¹ Ibid., 19
three books examined above end once the immediate threats from the accident were tamed. Following the accident tons of uranium were damaged and millions of gallons of coolant water had been contaminated by its reaction with the nuclear fuel. As the immediate threats of the accident came to an end the cleanup debate had just begun. This debate continued for over ten years before TMI-2 was officially rid of its waste and shut down for good.

This accident has had a profound impact on the building of nuclear power plants. Following the accident, a complete cessation of nuclear construction in the US took place. At the time of the TMI incident, 129 nuclear power plants had been authorized for construction; only 53 were ever completed. This accident, with the help of activists protesting essentially against the governments support for nuclear energy, seem to have provided further enthusiasm to end the continuation of construction for nuclear plants in the US. The authors of the books, provided a give-name-to-the-blame but Ford and Martin missed the overall picture of the dramatic affects of this accident and why the advocation of these plants were not necessarily the best idea. They all neglect to detail the messy clean-up succeeding the acciden. TMI proved to be the final strike to the nuclear power industry.

The Conundrum of Waste Water

As America ended one millennium and began the new, the issue of energy became the forefront of many debates. Many advocates argued that Americas addiction and dependence on foreign oil and other fossil fuels such as coal must come to an end. Others pushed for new sources such as wind, solar and geothermal as viable energy alternatives. The nuclear power alternative was thus in a field of its own and in need of particular attention. Because of nuclear power's given track record, the near end of many of the power plants operational lives and their
future, and most immediate, what to do with the large amount of waste accumulating at the plants were just some of the questions being asked at the turn of the century. Many still have not been answered. This half of the paper will examine the policies of the United States government in dealing with Low and High-Level nuclear waste the actions taken in cleaning up TMI-2 following the accident left out by other scholars.

Former President Bush proposed in 2005 an increase in nuclear power generation, but nothing ever came from this proposal.\(^\text{12}\) The current administration has focused more on wind and solar, but there are many people who think nuclear energy still has a strong future within the new alternative energy policies being developed. Many of the arguments in the debating of these energy decisions revolve around key issues that have had profound impacts on the industry as a whole. Incidents such as nuclear accidents that have taken place throughout the world, how to properly protect such vulnerable targets, and the conundrum of what to do with Low and High Level nuclear waste are just some of a proponent's arguments against further construction of new plants. The waste issue has had the most attention over the years and continues to pose a dangerous threat.

The NRC (Nuclear Regulatory Commission) classifies radioactive waste into two categories; Low-Level and High-Level waste. Low-Level radioactive waste are “items that have become contaminated with radioactive material or have become radioactive through exposure to neutron radiation.”\(^\text{13}\) This type is fairly easy to dispose of because the half life in the radioactive isotopes are fairly small. Possible items include protective clothing worn by operators, cleaning


utensils such as mops and filters and even the millions of gallons of coolant water used to keep the core from overheating. Most Low-Level radiation waste is held on-site at many nuclear power stations until the isotopes have decayed and can be discarded as regular trash. If large amounts of Low-Level waste are accumulated, shipment can be arranged through the NRC and DOT (Department of Transportation) to have the waste transported to a Low-Level waste disposal site.\textsuperscript{14}

High-Level radioactive waste is the substance from the core of the nuclear reactor such as reactor fuel and waste materials. The waste includes plutonium and uranium along with other highly radioactive matter created during the process. This type has extremely long half-lives (sometimes lasting as long as hundreds of thousands of years) and requires permanent facilities where the waste can be stored.\textsuperscript{15} The debate as to what to do with High-Level radioactive waste has forced the nuclear power facilities to store all High-Level waste at their facilities until plans are finalized for the underground Yucca Mountain facility or new alternatives comes about while select Low-Level waste can be disposed of at licensed sites.\textsuperscript{16}

Many nuclear power plants throughout America have been dealing with their waste problems since their inception and have had detailed plans in the works for how to store the waste properly on a regulated and regular basis. These detailed plans have attempted to imagine all possible scenarios or problems and have solutions as to how to resolve them but as accidents have taken place they ultimately have proved their inability to predict all that is unexpected. When the accident at TMI (Three Mile Island) occurred in 1979 and subdued a few days after,

\textsuperscript{14} Ibid.
the questions of how to assess the tremendous cleanup ensued. By the end of the accident and cleanup more then 2.1 million gallons of Low-Level contaminated water were generated and had to be disposed of properly.\textsuperscript{17} Many options were weighed each with “technical merits and special requirements that [had to] be met.”\textsuperscript{18}

The public utility holding company, GPU Nuclear Corporation, and its formal owner of TMI, Metropolitan Edison Company weighed many disposal options of this large amount of water with the NRC. Early options included evaporation, solidification and river discharge.\textsuperscript{19} Evaporation included processing the water at the facility, separating the solidified residues and all the rest would be “releas[ed] to the atmosphere and dispersed without significant environmental effects.”\textsuperscript{20} The remaining Low-Level residue extracted was shipped to a Low-Level processing center. According to the GPU memorandum this option would take about two-and-a-half years to complete with a cost of $6 to $14 million. The second option of solidification required the “processing and solidification of the water in cement .. followed by burial in an on-site industrial land-fill”.\textsuperscript{21} This option would require that the radioactive content of the material be below regulatory standards. It would also demand a land-fill permit from the Pennsylvania Department of Environmental Resources. The costs associated with the mode of cleanup were less in time and money to complete but would involve the release of an estimated 50 percent of the tritium (radioactive isotope of hydrogen) to the atmosphere.\textsuperscript{22}

The final alternative was river discharge and needs little explanation. The plant would

\textsuperscript{17} GPU Nuclear Corporation to Roger Shingleton Vice President of Pacific Nuclear Systems Inc., memorandum, 15 June 1987. Record Group 7.23, Archives and Special Collections, Dickinson College, Carlisle, PA.

\textsuperscript{18} GPU Nuclear Corporation to Dr. Traver Director US Nuclear Regulatory Commission, memorandum, 31 July 1986. Record Group 4, Archives and Special Collections, Dickinson College, Carlisle, PA.

\textsuperscript{19} Ibid.

\textsuperscript{20} Ibid.

\textsuperscript{21} Ibid.

\textsuperscript{22} Ibid.
“monitor discharge to the Susquehanna River result[ing] in significant dilution of the processed water with non-accident water and ultimate dispersal with no significant environmental effect”. The report further noted that this option presented the potential for the strongest public and institutional reaction. They also wrote that with approval this method would pose to be the cheapest and quickest of the earlier options. With costs associated with the cleanup already estimated at nearly $1.5 billion GPU was looking for the cheapest alternatives.

Many advocates, scientists and concerned citizens argued at the time that the waste water should be shipped and processed at one of the three facilities in America that accept Low-Level nuclear waste. These Low-Level waste facilities located in Washington, Utah and South Carolina safely process and recycle nuclear waste items for reuse or to dispose of properly. Due to the large amount of water, the transportation costs and the risk of mishap and accident along the way this option was not included in any of the alternatives. The question of what to do with the waste would continue for years to come.

Cleanup began in April of 1979 and the water was of top concern along with the damaged uranium. Before any further cleanup could be done the highly radioactive water had to be removed. While debate still ragged about what to do with the water a SDS (Submerged Demineralization System) was installed to remove some of the radioactivity in the water. According to the New York Times, “The submerged demineralizer system (titled Epicor II) employs zeolite, an inorganic ion exchange medium, and certain man-made organic resins, which are also ion exchangers. These materials will strip away the radioactive elements, such as

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23 Ibid.
cesium and strontium, from the water-soluble compounds in which they are now contained.” The new technology then trapped those dangerous elements in the demineralizer “much as a home water softener removes the calcium from dissolved calcium compounds that plug plumbing.”

This system “cleaned” the water and pumped it into 500,000 gallon steel storage tanks “such as the 'B' Spent Fuel Tank” on the facility. The sludge material that sank to the bottom or that was sucked and concentrated in the SDS filters were put into SDS liners and transported to the Low-Level waste facility in Washington state. The waste-water now still remained transported from the TMI-2 basement and core to holding tanks still posing legitimate threats.

Finally, after long debate the NRC and GPU came to agreement to follow the option of evaporation. On June 5, 1987, nearly eight years after the accident an agreement was reached between the owners of TMI and the NRC to evaporate the millions gallons of radioactive water in the holding tanks. The agreement stated that a 100 foot stack with a sound damper must be constructed and that the owners must provide “all required properly trained labor, supervision, tools and equipment, including a Licon Dual Evaporation System, to evaporate 2.1 million gallons of radioactive water at the TMI-2 Nuclear Generating Station”. In 1988 the evaporation process finally began and lasted until 1991 when the last of the reactor coolant was substituted, marking the end of the coolant-water fiasco.

After twelve long years of arduous repairs and cleanup TMI is cleaned of its radioactive waste and its damaged High-Level waste as well. Costing over $987 million the plant is in

25 Ibid.
26 MetEd/GPU to John T. Collins U.S. Nuclear Regulatory Commission, memorandum, 30 January 1979, Record Group 4, Archives and Special Collections, Dickinson College, Carlisle, PA
28 GPU Nuclear Corporation to Roger Shingleton Vice President of Pacific Nuclear Systems Inc., memorandum, 15 June 1987, Record Group 7.23, Archives and Special Collections, Dickinson College, Carlisle, PA.
permanent decommission, defueled and completely drained of its coolant. All radioactive waste has been shipped to handling facilities and reactor fuel was shipped to an undisclosed Department of Energy facility instead of leaving it at Three Mile Island. 2009 marks the 30 year anniversary of the accident and many who still live in the region of the plant remember that day as if it yesterday. Some hope that the 2001 First Energy - Exelon acquisition on the TMI-2 plant from GPU follow through with their plans to decommission both plants when TMI-1 license expires. Sad to say the TMI-2 cleanup was titled as one the the best engineering feet's of the 1980s and 1990s.

Other countries around the world practice different alternatives to recycling low and high level waste as well. Among them, France is the best know for its recycling of their and other surrounding countries waste also. Their facility 'La Hague' has handled and recycled over 23,000 tons of nuclear waste for their own reuse or for sale. According to the Heritage Foundation, “America's reactors have produced about 56,000 tons of used fuel. That "waste" contains roughly enough energy to power every U.S. household for 12 years. And it's just sitting there, piling up at power plant storage facilities”. They also claim that the United States invented the technology to recycle the used waste over 30 years ago but banned its use in 1977.

By leaving the issue out of debate for so many years and not addressing the problem from the beginning we are now forced to hold dangerous tons of nuclear waste as well as

30 Ibid.
33 Ibid.
continue to purchase more uranium and plutonium from abroad. 2009 marks the thirtieth anniversary of the TMI Accident and the issue of waste has still not been properly addressed. Tossed to the back burner among larger issues with all that is happening, the debate surrounding disposal of nuclear-waste such as the Yucca Mountain facility have been recently ignored. France meets all of its recycling necessities in one site and has limited problems with what to do with their waste. America lacks consistent debate on what actions to take and has compounded the already impeding problem by avoiding the issue. Something must be done before another Three Mile Island type accident takes place and broader problems arise.

In studying environmental history one must be conscious of the times in which he or she is living as well as the past. The debate over whether culture shapes the environment or environment shapes culture is a question that will remain like the question 'What came first the chicken or the egg?'. David Blackbourn's Conquest of Nature he examines the rise of environmental consciousness and the conservation of nature in Germany. Much of this protest he notes was due to, “high-tech projects that swallowed up land, and – above all – proposed atomic energy reactors”. Blackbourn does a fine job of pointing out citizen initiatives that helped shape the political structure of Germany and in particular the Green Party as much as it did the land. In reading, one can note the similar comparisons to the United States during the 1960's and 70's and their environmental movements. Both countries experienced backlash due to their advantageous efforts to promote what they felt were ideas that needed to be explored and gave witness to what happens in centrally planned states. By examining the past through a historical lens we can learn and improve from prior mistakes. History has a lot to tell us and if we neglect

to listen America follow in past countries footsteps.
Coming to Shippensburg University as an eighteen year old, I felt as if I were a child starting off in a new and unfamiliar world. I had little direction, no path or idea of the road I was about to endure and a predetermined attitude that I did not want to be here to begin with. With no familiarity of the various schools and majors the university offered and a bias based on the titles of the various schools I had no idea what I wanted to do. I knew I did not want to teach children so education was out, thinking the College of Arts and Sciences dealt strictly with Art and Sciences such as biology and chemistry I excluded both of those as well. So I enrolled in the Business School because that was all I had done up until that point in my life and all I felt familiar with.

After two years of monotonous accounting and numerous terrible teachers I came to the realization this is not what I wanted to do. I was unhappy and although it had always been my dream to begin my own business, I knew that I could not sit behind a desk doing accounting or marketing. Once I felt that I had retained enough of the basics I began to think of what else I might be interested in. Slowly the realization came that despite an unknown career path I must do something that I find enjoyable. I knew how much I love to read and how fascinated I was with politics and recent US history so I gave the History School a shot not even thinking about Political Science.

Four years later and I look back on all the things I would have done differently but with no regrets. I met some fabulous teachers and acquired a vast amount of knowledge in numerous different subjects and time periods of history. Upon entering the History School I had no idea of what it meant to be a historian, how historians conducted research or wrote history among other things but as of Saturday, May 2 I will be able to dutifully say I am a Historian and I have learned those qualities and traits thanks to Shippensburg University.

Since my early days in the History School, I knew I wanted to focus the attention of most of my
courses on recent US and world history. I am extremely interested in late 19th century to present day history and examining the effects, events such as the Civil War had and their lingering consequences of today. Dr. Burg's public history course on the African American experience in the Civil War and in particular local former Shippensburg citizens, sparked interest and explained what it meant to be a historian. Examining the African American, Mike Wilson and his role in the Civil War shook the very foundation of my body of knowledge. I was blown away to find out through primary and secondary sources that I was the first to write on this particular subject I was fascinated to find out that there was still so much in history that is untouched and just waiting for someone to decipher it and write about it in manageable terms.

Dr. Burg and our Theory and Practice course forced me to think outside the box on how to get and grasp primary sources. Through the hard work and searching through numerous pension files and records I was able to conclude that after Lincoln's Emancipation Proclamation on May 1, 1863 the war departments Major General Nathaniel P. Banks, sent Brigadier Daniel Ullmann to Union occupied Louisiana to organize a brigade of African American soldiers (corps d'armee – body of arms) who became known as the Corps d'Afrique. The original plan was supposed to consist of 18 regiments that would combine infantry, artillery and cavalry with three divisions of three brigades each, along with a regiment of engineers for each division. It ended up fusing into something far greater and different then anticipated. The 1st, 2nd, 3rd and 4th Regiments of the Louisiana Native Guard were the basis for this experiment and were transformed into the 1st through 4th Regiments of the Infantry of the Corps d'Afrique. Ullmann's next move was to gather strong minded and professional officers of “sufficient idealism and social standing to bear up to the indignities he knew they would face as leaders of black soldiers.”¹ He understood the task at hand and knew that something like this had never been tried before. This excerpt from my final paper is my first example of knowing just what was involved with being a historian.

Staying on the war path, I enrolled Dr. Stewart's Vietnam War course and was stunned and fascinated having a Major who served during most of the war give you first hand accounts of what it was like while having enough historical knowledge and literature to make it a well rounded experience. Everyday I could not wait to hear what he had to say and became fascinated with the US military and nation building. I also became consumed in studying the disastrous environmental policies the US took is Vietnam. More bombs were dropped on Vietnam than in all of WWII combined and millions of gallons of Agent Orange herbicides were dumped in an attempt to clear the triple canopy jungle. Upon realizing this I examined the subject further in the semester long paper which became my first experience of environmental history. The deforestation program the US pursued, had and still has disastrous effects on Vietnam as birth defects are rampant and many Vietnamese and US veterans continue to die of cancer and other abnormalities associated with the chemicals.

Finally, this past semester I utilized all my skills attained in my History schooling and applied them to our Senior Capstone Environmental History course with Dr. Dieterick-Ward. This course forced us to apply our historical knowledge to write a historiography and then perform our own case-study. With limited direction and no real prior knowledge to the field of Environmental History I chose to examine the Three Mile Island accident to due its proximity and curiosity about the subject. Being as though it is the 30th anniversary this year as well, I thought it could be relevant. With not a clue of what I wanted to study about the subject I went to the archives and performed research at Dickinson Archives and found numerous documents dealing with the problem of disposing of radioactive waste water generated by the accident and the ensuing cleanup. Going through boxes of files of primary source documents was new, exhilarating and fun. I only wish I had more time but the experience offered an invaluable amount of knowledge as to how to go about researching something like that. By getting your hands dirty and spending the time sifting through hundreds of files I got the feeling of accomplishment when I found something I could examine, write about and present a body of knowledge that had not been examined before.
My experience at Ship both in and out of school has shaped me and made me who I am today. For that and for the experience of getting away from home and attending college I am forever grateful. As of now I will not be using my History degree per say but have started my own business in the minting of gold and silver. I learned about gold and silver and their historical significance by reading and using applied knowledge learned from my years of schooling. I often find myself applying ways of studying and going about tasks by citing past references about how I did it in school as I am sure that will continue. I hope to apply to Shippensburg's graduate school someday and continue to be apart of the family. Thanks for the past four years.