

Introduction

The Longhorn Army Ammunition Plant (LHAAP), built in response to the attack on Pearl Harbor, was located in the Piney Woods of east Texas. Even though LHAAP was a relatively small facility in a remote location, events at the plant throughout its operating history, and even after its closure, reflect the social history of the second half of the twentieth century. Although it simply a job to many of the employees at the facility, the parts played by the employees, Thiokol, the operating contractor of the plant, and the Army, are significant when viewed from the greater perspective of recent American history.

World War II was a turning point in the social and economic history of the United States. Prior to the war, women worked primarily in domestic industries, taverns, and the textile industry. Some women in the textile industry were employed in factories as line workers, although most companies restricted women to piecework programs, such as yarn spinning, in which women brought the materials home, and produced the yarn, which they then returned to their supervisors, who turned it over to the plant for further processing.¹ Mostly poor, uneducated women worked outside the home and usually because of economic hardship. Some middle-class women agitated for change even before 1848, the date of the first American women's rights convention in Seneca Falls, New York, but few men, or other women for that matter, took their concerns and complaints seriously; instead, most men considered those women who spoke up to be aberrant, rather than the norm.²

¹ Edith Abbott, *Women in Industry: A Study in American Economic Industry* (New York: Arno and the New York Times, 1910): 10-22.

² Anne Boylan, "Women and Politics in the Era before Seneca Falls," *Journal of the Early Republic* 10, no. 3 (Autumn, 1990): 363-364. <http://www.jstor.org/stable/3123393> (accessed January 12, 2010).

Although custom and culture restricted middle-class women to the home, African Americans faced legal restrictions in every facet of their lives due to Jim Crow legislation. Black men were limited to service jobs, such as waiters and porters on railcars, or agricultural jobs, such as sharecropping. African-American women were frequently employed as maids, housekeepers, laundresses, and nannies, essentially the same jobs they did for their white masters in the antebellum South.³ Even during World War I, when fewer white men were available to work in factory jobs, African Americans continued to be restricted in the workplace, such as separate entrances, segregated break rooms, and separate bathrooms if companies provided indoor facilities for the minority employees.⁴ Jim Crow remained a way of life for African-Americans in the South throughout the majority of the twentieth century.

African-American women were hindered not only by their race during this era, but also by their gender. For many blacks following the Civil War, emancipation meant the ability to choose where they worked and who they worked for; for African-American women, it meant control not only over their labor, but their bodies, too.⁵ During slavery, it was common practice for slave owners to rape their bondswomen. According to Adrienne Davis, the William Van Cleve Professor of Law at Washington University School of Law, the control that slave owners held over the sexual activities and reproduction symbolized not only their power over women, but also the legal control they had over their human property. Davis states that “Men rape women not only for personal pleasure, but to discipline women into conforming to certain

³ Sharon Harley and The Black Women and Work Collective, eds., *Sister Circle: Black Women and Work* (New Brunswick: Rutgers University Press, 2002): 4.

⁴ C. Vann Woodward, *The Strange Career of Jim Crow* (New York, London: Oxford University Press, 1955): 83.

⁵ Harley, et. al., *Sister Circle*, 5.

behaviors. . .”⁶ The stereotype of black women as being “sexually loose and unworthy of respect,” an idea held long after Emancipation, put them outside the respectable image of white women. As a result of this promiscuous identity, many employers and supervisors failed to treat them with the same respect given to white women.⁷ Black women, despite their continued labors for low wages and even less dignity, were usually the “last hired, first fired,” and “constituted the most disposable segment of the American labor force.”⁸

The Japanese attacked Pearl Harbor, Hawaii on December 7, 1941, drawing the United States into the worldwide conflict, and millions of American men were called to duty in Europe and the Pacific leaving gaping holes in various vital industries where employees were desperately needed. The only people left available to fill those positions were those once considered not suitable. Patriotic women and African Americans went to work, key elements in the fight to save the world from imperialistic aggression.

At the end of the war, American men returned home to pick up their lives once again, and women and African Americans lost the jobs that had allowed them to contribute to the war effort. The 1950s were considered an idyllic time with new homes being built at a faster pace than ever before, former G.I.s going to college in the highest numbers ever recorded, and the American economy growing at the fastest rate in history.⁹ However, there was a dark underside to the seemingly utopian conditions. Employers were refusing to hire women and African Americans, reverting to the pre-war norm of employing white men almost exclusively.

⁶ Adrienne Davis, “Don’t Let Nobody Bother Yo’ Principal: The Sexual Economy of American Slavery,” Harley, et. al. *Sister Circle*, 115.

⁷ Lydia Maria Child, *Brief History on the Condition of Women*. (New York: C. S. Francis and Company, 1854), 58; Deborah Gray White. *Too Heavy a Load, Black Women in Defense of Themselves 1894-1994* (New York: W.W. Norton and Company, 1999), 215.

⁸ Harley, et. al., *Sister Circle*, 4.

⁹ Karen R. Merrill, *The Oil Crisis of 1973-1974: A Brief History with Documents* (Boston: Bedford/St. Martin’s, 2007), 2-3.

Remembering their contribution to the war effort, women and African Americans knew that they could do more and were no longer content to maintain the status quo. Such dissatisfaction fed the growing feminist and Civil Rights movements.

Much was accomplished in the 1950s and 1960s in many Americans' lives, leaving time for people to notice other areas that needed attention, such as the environment. Rachel Carson published *Silent Spring* in 1962, raising consciousness that man was affecting the planet and not always in a good way. Despite early unrest over environmental conditions, the government was reluctant to toughen regulations on industries that were providing much needed jobs, producing products needed at home and for trade with other countries, and providing an extensive tax base. Then, in 1969, the Cuyahoga River caught fire. Chemical companies had used the river as a waste dump, pouring untold tons of chemicals into the river over the years.¹⁰ The federal government was forced to act, and began passing laws designed to protect the environment and regulate what corporations were doing with the waste that they produced.

The Army contracted the construction of the Longhorn Army Ammunition Plant in 1942. Representative Lyndon B. Johnson of Texas pushed the bill through Congress with the help of long-time Representative Wright Patman.¹¹ Congress designated the land next to Caddo Lake in East Texas as the site for the plant. The majority of the land involved was fortuitously owned by Johnson's father-in-law, Thomas Jefferson Taylor, who sold it to the Army and assisted the Army in the purchase of the rest of the necessary property. The facility eventually covered more than 8,000 acres on the eastern border of Texas close to Shreveport, Louisiana.¹²

¹⁰ J. T. Dale, "Cleveland's Regional District: From Chaos to Progress," *Journal (Water Pollution Control Federation)* 51, no. 1 (January, 1979): 6. <http://www.jstor.org/stable/25040233> (accessed October 20, 2008).

¹¹ Nancy Beck Young, *Wright Patman: Populism, Liberalism, and the American Dream*. (Dallas: Southern Methodist University Press, 2000), 129.

¹² Gail K. Beil and Max S. Lale, "Max Sims Lale and the Longhorn Army Ammunition Plant," *East Texas Historical Journal* 45, no. 1 (2007), 33.

Throughout World War II, the Longhorn Ordnance Works, as it was known at the time, and its initial operating contractor, Monsanto, produced TNT so efficiently that the cost of the explosive dropped approximately sixty percent by the end of the war. Following the end of WWII, the plant was essentially closed, with only a few employees remaining to complete the mothballing of the facility. It was reopened for the Korean Conflict, with a second plant constructed for the production of pyrotechnics and the operating contractor Universal Match. It was shut down again following the end of the Korean War until 1956, when Thiokol Corporation received an Army contract to produce solid rocket fuel and constructed a new plant on the property for that purpose. Brown and Root Corporation, a Texas company with close ties to Johnson, received the contract to construct the new facility needed to manufacture solid rocket fuel.¹³

The plant operated continuously from 1956 until 1994 when it was shut down in a round of base closures, having been placed on the list of closing facilities at the demand of Richard Cheney, Secretary of Defense during President George H. W. Bush's administration, despite the efforts of Senator Phil Gramm of Texas. Before it closed, however, it played a small part in the end of the Cold War, when the Pershing IA and the Pershing II missiles were destroyed at the Karnack facility in accordance with the Intermediate-Range Nuclear Forces Treaty, signed with the Soviet Union in 1988, over the course of a year and a half bringing international attention to East Texas.¹⁴

¹³ Ibid., 34.

¹⁴ Ibid., 37-38.

Chapter One

During the early years of the twentieth-century, few opportunities existed for women and African Americans in the workplace. Prior to World War II, society expected middle and upper class women to stay home and care for their husbands and children. Many African-American men and women worked in poorly-paid service jobs, and few African-American women had the luxury of staying home with their families; instead, their families needed the additional income to survive. During World War II, industries increased production to fulfill the requirements of the Allied war machine, but few men remained to fill the positions created by the economic upswing. In many cases, women and minorities were hired to fill positions traditionally held by white men, such as welders and riveters. But with the end of the war and the return of the country to a peace-time economy, women and minorities returned to the positions they had traditionally held before the war. Conventional views on the employment of women and African Americans remained the standard practice, until President Lyndon B. Johnson signed the Civil Rights Act of 1964 including the amended Title VII, which prohibited both racial *and* gender discrimination in employment.¹⁵ With this act, facilities such as the Longhorn Army Ammunition Plant had no choice but to institute a plan of Affirmative Action, guaranteeing the employment of African Americans and women at the East Texas facility and placing the plant within the framework of American social history of the latter half of the twentieth century.

During WW II, companies hired women and minorities, because many able-bodied men served in the various theaters of engagement. From the beginning of operations at LHAAP, women worked on the line. The practice of hiring women for munitions assembly continued after

¹⁵ The introduction of “sex” into the language of the Civil Rights Act by Congressman Howard Smith of Virginia may have been done facetiously, in an effort to impede passage of the bill by the staunch segregationist. Sonia Pressman Fuentes, “Representing Women,” *Frontiers: A Journal of Women Studies* 18, no. 3 (1997): 94. <http://www.jstor.org/stable/3347175> (accessed 12/09/2009).

the re-activation of the facility during the Korean conflict, and they quickly became irreplaceable. According to Hal Cornish, a retired plant manager of the Thiokol-operated facility, the smaller, more dexterous hands of women were physically better equipped for the fine, close work involved in manufacturing munitions. In addition, the attention span of women seemed longer than most men, making them better suited to the tedious work.¹⁶

Longhorn's employment of African Americans during WWII and the Korean Conflict is more difficult to establish. Little evidence exists to indicate that blacks worked on the line or in any position other than janitorial services. *The Basic Installation History: Longhorn Army Ammunition Plant, Marshall, Texas, December 15, 1941 to December 31, 1967* produced by Thiokol and written by Max S. Lale, Public Information Officer for the facility, made no mention of either African-American or female employees. Cornish did state that women worked at the facility from the very beginning, but he had little knowledge of black employees during WWII or the Korean conflict.¹⁷

Thiokol incorporated an Affirmative Action plan into its hiring policies in 1968, and the program appeared fairly effective according to the employment statistics of that year. The overall workforce increased from 2,578 in January to 2,953 total employees in December, with an increase from twenty-five percent non-white employees to thirty-one percent non-white employees during the same period. However, by mid-1970, the company scaled back production and began layoffs, reducing both the total numbers of employees and the ratio of non-white employees to white employees, as non-white employees lacked the seniority needed to keep their jobs.¹⁸

¹⁶ Hal Cornish, interviewed by author, Marshall, TX, April 18, 2008.

¹⁷ Ibid.; Hal Cornish, interviewed by author, Marshall, TX, January 13, 2009.

¹⁸ Max S. Lale, *Third Annual Supplement to Basic Installation History: Longhorn Army Ammunition Plant, July 1, 1969 to June 30, 1970* (Marshall: Thiokol Chemical Corporation, Longhorn Division, 1970), iii-iv.

Although the federal government continually responded to demands made during the Civil Rights movement to improve working conditions for African Americans, this did not always lead to real, concrete changes. Pan-African historian J. Blaine Hudson theorized that Affirmative Action programs “have only produced only high visibility tokenism . . . and new forms of work force segregation or segmentation.” The government designed the Affirmative Action program to alleviate the inequalities caused by Jim Crow, but many companies only followed the law nominally and found new ways to avoid a completely integrated workforce.¹⁹ According to sociologist Robert Merton, the practice of only hiring African Americans when forced to do so, either because of fear of economic pressure directed at the corporation or of governmental sanction, fall under Merton’s category of the prejudiced nondiscriminatory. This is more commonly known as the timid bigot. Although the timid bigot may be racist in his or her (or the corporate) mind, if discrimination is likely to cost the person or corporation money, he or she will refrain from the practice of overtly inequitable policies.²⁰

Working conditions for African Americans at Thiokol did not always reflect the Civil Rights movement’s spirit of reform and equality. Max Sims Lale stated that Thiokol hired not simply for the numbers, but had also promoted “representatives. . . selected from the workforce to fill jobs in which they previously had not been utilized, particularly foreman and darkroom technician.”²¹ However, a former African-American employee at the plant, who wishes to remain anonymous due to security concerns, contradicted this claim. The former employee stated that management used qualification exams, required to substantiate a person’s abilities and theoretically nondiscriminatory, to circumvent promoting African Americans to positions such as

¹⁹ J. Blaine Hudson, “Affirmative Action and American Racism in Historical Perspective,” *Journal of Negro History* 84, no. 3 (Summer, 1999), 260. <http://www.jstor.org/stable/2649005> (accessed September 24, 2009).

²⁰ Richard T. Schafer, *Racial and Ethnic Groups*, 12th edition (Upper Saddle River, NJ: Prentice Hall, 2010), 36-37.

²¹ Lale, *First Annual Supplement to Basic Installation History*, 11.

foreman. According to the former employee, the people in management who administered the exams did not give the employees their test scores upon completion; instead, they were only told that they failed to qualify for the positions for which they were applying. The former employee said that this happened to him, when he first applied to Thiokol in 1960. Once the Viet Nam conflict escalated, however, the plant needed more employees, so he took the qualification exam a second time. He recalled, “I passed with flying colors! And I know I didn’t do as good on that second time as I did the first time!”²² This suggests that management manipulated test results, according to the plant’s need for new employees and in order to meet required quotas, rather than promoting or hiring according to the qualifications of the applicants; at the very least, African-American employees perceived a practice of discrimination by management despite federal legislation that outlawed discriminatory policies.

The employment of women also increased, and Thiokol promoted women to positions of more responsibility after the implementation of Affirmative Action. Although specific employment numbers are not available prior to 1968, after that year, Thiokol made a concerted effort to employ women in positions previously considered gender specific. According to the installation history covering 1969, “Minority group members [including women] were selected for job categories which they previously had not filled, including jobs ranging from clerical classifications through the skilled craftsman categories.”²³

²² Confidential interview with male African-American former Thiokol employee, interviewed by author, June 12, 2009. In March, 2009, an unknown person, presumably a member of the Ku Klux Klan, threw flyers, rolled up like a newspaper and bagged, onto the lawns of local homeowners who lived in “white” neighborhoods; in addition, some flyers were thrown in a neighborhood that was predominately Hispanic. These flyers advertised the “United White Knights of the Ku Klux Klan, Klan No. 11.” It listed an email address, a website, and gave a “Klan Hotline.” The second and third pages describe the organization’s beliefs, all of which are in reasonable language; it also claims that “We are NOT a hate group.”

²³ Max S. Lale, *Second Annual Supplement to Basic Installation History: Longhorn Army Ammunition Plant, Marshall, TX., January 1, 1969 to June 30 1969* (Marshall: Thiokol Chemical Corporation, Longhorn Division, July 15, 1969), 19.

Both Thiokol and the Army employed women in the early 1960s in clerical positions, with similar levels of responsibility. Barrel racing champion and local celebrity Martha Josey worked for Thiokol as a secretary in Plant 2, from 1963 through 1966, before the United States became deeply involved in the Viet Nam conflict. During this time frame, female secretaries made few decisions, presumably because their male supervisors doubted their intellectual abilities. Josey's position did not include major responsibilities; she typed and filed for her male supervisor. The Army hired Dorothy Grant in 1961. For Grant, hired initially as a typist, her job became a career, and she advanced throughout the years of her employment until her retirement in 1993. When Grant retired, she was the civilian administrative public information officer for the facility, and intimately involved with the arrangements for the destruction of the Intermediate-Range Nuclear missiles, in accordance with the Intermediate-Range Nuclear Forces (INF) Treaty of 1988, between the Union of the Soviet Socialist Republic and the United States.²⁴

Grant was also appointed as the Federal Women's Program Coordinator, part of the Equal Employment Opportunity Commission (EEOC) program instituted by the federal government in order to educate both employers and employees about the rights of women in the workplace. According to Grant, her new position required an adjustment in her thinking, too. She remembered, "I came from the old school, that you ran up and down the hall and got the coffee for the fellas [sic], and were at their beck and call."²⁵ One of Grant's responsibilities as Program Coordinator involved organizing meetings that both entertained and educated the staff about types of gender discrimination. She also encouraged the administrative officers at the facility to consider appointing women to positions of higher responsibility than they had known previously.

²⁴ Martha Josey, telephone interview by author, Marshall, TX, November 5, 2009; Dorothy Grant, interviewed by author, Marshall, Texas, August 19, 2009.

²⁵ Grant, interview, August 19, 2009.

Grant stated that women reached positions of high authority during her tenure as Program Coordinator, including that position just below Division Chief. No woman achieved the position of Division Chief, because a college degree was required, and few women during that era at the plant had degrees. Most women had worked their way up from the secretarial pool.²⁶

Women on the line had different responsibilities, and their jobs were hot, dangerous, and physically more demanding than that of clerical employees. Ruth Briggs, a line-worker hired by Thiokol in 1966, stated that explosions were a common occurrence, especially of the 151 mm rounds. One woman died from an explosion, and Briggs speculated, as did investigations at the plant, that she had probably had on nylon hosiery, which caused static electricity to build up in her body. When she touched metal, there was a spark that caused an explosion of the gunpowder used to construct the rounds of ammunition. Subsequently, women were restricted to only cotton undergarments. Once the mandate against nylon was handed down by management, each woman was taken to the bathroom individually and checked by another female employee to make sure that she was not wearing the contraband lingerie.²⁷

Because of the regulation that required women to wear one hundred percent cotton clothing, including undergarments, Thiokol provided both overalls and lingerie, but as long as the female employees wore one hundred percent cotton, they were allowed to wear their own underwear. The facility had a locker room for the employees to change from their street clothes into the overalls. An African-American woman, a former Thiokol employee who wishes to remain anonymous, recounted an experience she had related to the required uniform. After the women had changed for their shifts, the black woman was confronted by her white foreman, who stated that a white woman, “Mrs. So-and-so had told him that she was wearing nylon panties.”

²⁶ Grant, interviewed by author, August 19, 2009.

²⁷ Ruth Briggs, interviewed by author, Marshall, TX, January 7, 2009.

The African-American employee denied that she was wearing the forbidden material, but the foreman refused to believe her, claiming that “I guess Mrs. So-and so knows nylon when she sees it!” He made her go into the locker room, and come out with proof that the underwear that she was wearing was cotton, not nylon as alleged.²⁸ This incident demonstrated the “social hierarchy based on race and sex that ranked white men first, white women second, though sometimes equal to black men, and black women last” that had developed during slavery.²⁹

Not only were black women treated as inferior by co-workers, management also overtly discriminated against the female African Americans. A retired employee commented that it was not uncommon for supervisors to assign them the dirtiest, most tedious jobs in the facility.³⁰ According to Darlene Clark Hine, “Black women faced greater economic discrimination and had fewer employment opportunities than did Black men. Black women’s work was the most undesirable and least remunerative of all work available . . .”³¹ African-American women were commonly the “last hired, first fired, and considered the most ‘disposable’ of all employees.”³²

Racial tension in Marshall increased throughout the 1960s, contributing to apprehension in the workplace. Before the Civil War, Harrison County was the largest slave-holding county in the state of Texas, and lynchings were common during the early twentieth century; the Civil Rights movement forced many to confront what they had tried to avoid.³³ Local students at

²⁸ Confidential interview with female African-American former Thiokol employee, interviewed by author, Marshall, TX, December 17, 2008.

²⁹ Child, *Brief History*, 52.

³⁰ Confidential interview, December 17, 2008.

³¹ Darlene Clark Hine, “Rape and the Inner Lives of Black Women in the Middle West,” *Signs* 14, no. 4, Common Grounds and Crossroads: Race, Ethnicity, and Class in Women’s Lives (Summer, 1989): 913. <http://www.jstor.org/stable/3174692> (accessed Feb. 2, 2009).

³² Harley, et. al., 4.

³³ Johnson, “Negro Migration,” 405; Kenneth M. Hamilton, “White Wealth and Black Repression in Harrison County, Texas: 1865-1868,” *Journal of Negro History* 84, no. 4 (Autumn, 1999), 340. <http://www.jstor.org/stable/2649036>; Randolph B. Campbell, “Planters and Plain Folk: Harrison County as a Text Case, 1850-1860” *Journal of Southern History* 40, no. 3 (August, 1974), 373. <http://www.jstor.org/stable/2206490> (accessed March 17, 2009).

Wiley College and Bishop College held a sit-in protest at three local lunch counters on March 26, 1960.³⁴ Although the initial protest ended peacefully, several days of escalating violence preceded the demonstration, including vandalism at Booker T. Washington elementary school, a bottle thrown through the window of G. A. Rosboro, principal of the black Pemberton High and rocks thrown at a carload of young men driving through a neighborhood.³⁵ The violence culminated that week with the murder of Alma Williams, a sixty-two year-old African-American woman, whose body was stuffed into a drainpipe and discovered by a Marshall High School baseball player, J. W. Waldrop, while he was chasing a foul ball.³⁶

Apprehension continued throughout the next week in Marshall, as the students continued their demonstrations. The local and state police involved in containing the situation resorted to turning fire hoses on a group of approximately five hundred protestors on the Harrison County Courthouse lawn, and made mass arrests. The arrestees were not jailed, but were bonded out by the leaders of the protest.³⁷ Despite actions taken by law-enforcement to stem the protests, tensions continued, and racism flourished. According to Bicknell Eubanks, a reporter for *The Christian Science Monitor*, a man who was identified by a Marshall businessman as “prominent in groups working to maintain white supremacy,” was quoted as saying “the best thing to do is shoot a few of them and scare them all into believing.”³⁸

It was in this atmosphere that African Americans tried to work side-by-side, or in supervisory posts, with many of the same people that felt anger at African Americans for

³⁴ Clyde Foster, “Sit-ins Staged Here: Negroes Make Three Visits To Counters,” *Marshall News Messenger* March 27, 1960. *Negro Sit-In, Marshall Reconstruction, 1960-*, Jarrett Library Special Collections, East Texas Baptist University, Marshall, Texas.

³⁵ Author, newspaper unknown, “By City Police: Three Vandalism Reports Checked,” *Negro Sit In*, Jarrett Library, ETBU.

³⁶ “Negro Woman Found Slain,” *Marshall News Messenger*, March 25, 1960. Jarrett Library, ETBU.

³⁷ Harry McCormick, “Hosing Breaks up Crowds in Marshall After Sit-In Moves,” *Dallas Morning News*, Section 1, Page 1, March 31, 1960. *Negro Sit-In*, Jarrett Library, ETBU.

³⁸ Bicknell Eubanks, “Integration Rumors Stir East Texas City,” *Christian Science Monitor*, April 1, 1960, *Negro Sit-In*, Jarrett Library, ETBU.

wanting equal rights. Racism continued to plague the facility into the seventies. Ruth Briggs, a longtime white female employee, recounted an incident she experienced during the 1970s while working at the facility. One year, a male supervisor brought watermelons to the plant for the African-American employees to honor Juneteenth. They refused the watermelons, stating that they “were Americans and we don’t want to celebrate Juneteenth.”³⁹ A more likely explanation is the rejection of the racist symbol inherent in the presentation of the watermelons to the African-American employees, as watermelon is considered by many to be “soul food,” and as such, a suitable gift to celebrate a significant date in African-American history.

Companies frequently used the fear of work slow-downs and strikes as an excuse to not hire African Americans. In Detroit, Michigan and other cities during World War II, strikes were led by white women to protest the hiring of black women, specifically to prevent them from receiving high-paying factory positions.⁴⁰ Up until World War II, most African Americans were hired as janitorial staff. Once Affirmative Action became the primary force behind desegregation in the workplace, “the American workforce was desegregated primarily at the ‘bottom’ or in occupational categories wherein persons of color were ‘service providers.’”⁴¹

Disgruntled employees at LHAAP used the work slow-down at least once as a protest over the promotion of an African American to a supervisory position. According to Briggs, a “clique” of women joined together to try to discredit the black crew leader by slowing down production. Briggs refused to participate; instead, she felt forced to increase her production in order to make up for the slowing of the production line.⁴²

³⁹ Briggs interview.

⁴⁰ Harley et. al., 8.

⁴¹ Hudson, 270.

⁴² Ibid.

Another incident also involved an African-American line crew leader. Women on the crew frequently complained about the work conditions, especially placing African Americans in managerial positions, but according to Briggs, this was not a common practice among all employees. However, one woman was injured on the line, and the crew leader attempted to drive the injured employee to the dispensary, but despite her injury, she refused to ride in the truck with the African-American supervisor. Instead, she rode in the bed of the pickup.⁴³

Just because a woman worked an eight hour day at an ammunition plant in hot, dangerous conditions did not mean that her responsibilities to her husband and children were suspended. Familial responsibilities have fallen to women from ancient history on, no matter what her outside responsibilities have been as the “breeder-feeder-producer.”⁴⁴ Briggs stated that she would go home after her shift, and sometimes her husband would prepare dinner, although it was usually Briggs’s responsibility to cook the meals; if she was on the swing shift, she would eat and almost immediately go to bed. Briggs spent her weekends cleaning house and attending her children’s extracurricular activities, such as ball games. Another female employee raised a large family during her long tenure at the plant, dealing with the responsibilities and complications that came with several children. Martha Josey not only worked full-time at the facility, she barrel raced on the weekends during the early days of her championship career.⁴⁵

During the 1960s and 1970s, monumental changes took place in both the workplace and general society. Title VII of the Civil Rights Act of 1964 forced major changes in the workplace for African Americans and women, despite sometimes violent protests around the country. East

⁴³ Briggs interview.

⁴⁴ Elise Boulding, “Familial Constraints on Women’s Work Roles,” *Signs* 1, no. 3 Women and the Workplace: The Implications of Workplace Segregation (Spring, 1976), 95. <http://www.jstor.org/stable/3172999> (accessed 12/09/2009).

⁴⁵ Briggs interview; confidential interview, interviewed by author, Marshall, TX, December 17, 2008; Josey interview.

Texas and Longhorn Army Ammunition Plant did not escape tensions that prevailed throughout the South and as a result demonstrated many theories of social scientists in the events at the plant.

Chapter Two

At the end of World War II, the United States acquired a new enemy in the form of the Union of the Soviet Socialist Republic (USSR), despite the alliance between the two Superpowers during the fight to save the world from the fascist regime of Nazi Germany. For the next forty years, a Cold War illustrated the relationship between the two nations. LHAAP produced much of the ordnance needed to prevent the total annihilation of the world by a nuclear war. At the end of the communist regime, the two powers signed a nuclear reduction treaty, the Intermediate-Range Nuclear Forces (INF) Treaty. The Army selected LHAAP as the site to destroy the rocket motors affiliated with Pershing missiles, and as a result of that decision, Longhorn played a small, but significant role in the effort to end the nuclear arms race.

Following the end of WWII, the nuclear capability of the Soviet Union became a critical issue, but with the advent of Mikhail Gorbachev in the 1980s the forty-year Cold War began its closing stages, and the possibility of reduction in nuclear arms became reality. The United States and the Soviet Union negotiated the INF Treaty in Geneva in 1987, where the United States Secretary of State George Schulz and the Soviet Foreign Minister Eduard Shevardnadze reached the preliminary agreement.⁴⁶ A summit was held in December, 1987 attended by the two nations' heads of state, President Ronald Reagan and Prime Minister Mikhail Gorbachev, who signed the historic treaty on December 8.⁴⁷ Republican Senators fought ratification, but the Senate approved the treaty on May 27, 1988.⁴⁸

⁴⁶ Associated Press, "Missile accord: Text of joint statement released by U. S. and Soviet Union," *New York Times*, September 19, 1987, <http://www.lexisnexis.com/us/lnacademic/delivery/> (accessed April 4, 2008).

⁴⁷ James Anderson, "Landmark Cold War date to remember," *Washington Times*, Final Edition, December 9, 1997, <http://media.etbu.edu:2066/us/lnacademic/delivery/> (accessed April 6, 2008).

⁴⁸ White, Michael and Alex Brummer, "Summit boost for Reagan as Senate ratifies INF treaty," *Guardian* (London), May 28, 1988, <http://media.etbu:2066/us/lnacademic/> (accessed April 6, 2008)

Once the treaty cleared the Senate, the debate began about where the destruction of the missile rocket motors would take place. The United States Army considered four different locations, including building a new facility on a California military base. Hal Cornish, general manager for Morton-Thiokol, the managing contractor for LHAAP, traveled to Washington D.C. and lobbied for the selection of the facilities available in Karnack.⁴⁹ The intense support for the contract included a letter signed by the entire Texas congressional delegation. On June 9, 1988, the government notified Morton-Thiokol that the corporation had received the contract to destroy a total of seventy-four rocket motors, fifty-six from the Pershing IA missile and eighteen from the Pershing II missile.⁵⁰ Cornish thought it was appropriate that the destruction of the Pershing Missile be accomplished at LHAAP: "It was like a womb-to-the-tomb operation because we manufactured the Pershing I rockets at Longhorn, then destroyed them at Longhorn."⁵¹

The employees at the plant began preparations to destroy the missiles by clearing trees for a radius of 150 yards of the firing stands, which needed refurbishing because of normal wear and tear.⁵² The company constructed two large buildings. Employees used the first for the processing of the fired missiles, removing scrap metal for discarding. The second was known as the Soviets' "data headquarters," but its primary purpose was to restrict the Soviets' movements around the sensitive facility. In addition to the physical preparations, Joe McDonald, Morton-Thiokol range safety officer, spent several days schooling a crew on the proper firing procedures, using an "inert" training motor.⁵³

⁴⁹ Hal Cornish, "When the Russians came to Harrison County: Texans made good impression on foreigners," *Lone Star Eagle*, March 3, 2005.

⁵⁰ Laureen Tedesco, "Longhorn gets contract: Plant to destroy Pershing missiles," *Marshall News Messenger*, June 10, 1988.

⁵¹ Bill Keith, "I remember Thiokol," *Lone Star Eagle*, May 13, 2004.

⁵² Tom Kelley, "A wintertime pledge will take on hard shape of reality today: Certain terms already fulfilled," *Marshall News Messenger*, September 7, 1988; Tedesco, "Longhorn gets contract: Plant to destroy Pershing missiles."

⁵³ Kelley, "A wintertime pledge will take on hard shape of reality today: Certain terms already fulfilled."

The guidance systems and the nuclear warheads, containing eleven pounds of plutonium, went into storage. The terms of the treaty only required the destruction of the rocket motors; it did not mandate the elimination of the nuclear warheads. As Jack Mendelsohn of the Washington-based Arms Control Association put it, “We’re destroying the six-shooters, but not the rounds.”⁵⁴

Destroying the missiles was complicated; it was decided to “static fire” the motors. This involved mounting them in a stand to prevent the motors from moving and then firing them to discharge the solid propellant, which is similar to the propellant used in other rocket motors, including the space shuttle.⁵⁵ Four wheeled dollies transported the motors to the firing site, and a crane then transferred them to the octagonal “Delta rings” that held the motors in place in the stand.⁵⁶ Engineers fired the motor only after it was secure. Once the fuel burned out, employees removed the casings and crushed them in a modified car crusher.⁵⁷ The workers burned any residual fuel at the burning ground.⁵⁸ They buried any remaining metal in a landfill on LHAAP property.⁵⁹ Originally, the Army planned to “open burn” the rocket motors by placing them in a pit and igniting them but instead chose to use the static firing technique.⁶⁰

As a method, static firing was considered safer for the environment because it released fewer emissions; thus, the State of Texas had no environmental concerns about the process involved in the destruction of the missiles. The Texas Air Control Board and the Texas Water

⁵⁴ Julie Mason, “Poised for peace role: Army plant to host Soviets who will verify missile destruction,” *Dallas Morning News*, July 3, 1988, LHAAP Coll., HCHM.

⁵⁵ Hal Cornish, interview by author, Marshall, Texas, April 18, 2005, transcript available, LHAAP Coll., HCHM.

⁵⁶ Keith, “I remember Thiokol.”

⁵⁷ Ibid.

⁵⁸ Mason, “Poised for peace role: Army plant to host Soviets who will verify missile destruction.”

⁵⁹ Allan C. Kimball, “Soviets’ Texas tour no picnic: Rocket site visit will be all business,” *Houston Post*, June 24, 1988, LHAAP Coll., HCHM.

⁶⁰ Kim Weeks, “Army has played major role in contracting,” *Marshall News Messenger*, September 7, 1988.

Commission worked closely with Morton-Thiokol and LHAAP to process the necessary permits and continued to monitor the facility throughout the intervening time.⁶¹ In addition, the State of Texas sent representatives from both agencies to monitor the first static firings.⁶²

Because the INF Treaty provided for teams from both nations to supervise missile destructions, some members of Congress voiced concerns regarding the presence of Soviet military on sensitive American facilities. Senators Jesse Helms of North Carolina and Orrin Hatch of Utah both expressed apprehension that the Soviet inspection team members would turn out to be “KGB agents in disguise.”⁶³ American agents snapped surreptitious photographs when the Soviet teams disembarked from the plane on their way to the plant. Approximately half of the inspection team consisted of legitimate missile experts and half the team consisted of known KGB agents. This information usually reached the plant before the inspectors did, and extra precautions were taken.⁶⁴ The Army also explained to the Senate that American soldiers would escort the inspectors wherever they went and restrict the Soviets’ travels. In addition, the escorts could search the Soviets’ persons and luggage at any time.⁶⁵ The Army commander also discouraged any wandering on the grounds of the facility when he described the local flora and fauna, such as poison ivy, poison oak, water moccasins, rattlesnakes, copperhead snakes, mosquitoes, and chiggers to each inspection team upon their arrival in East Texas. He did emphasize that medical treatment was available at the plant, should any accidents occur.⁶⁶

⁶¹ Tedesco, “Longhorn gets contract: Plant to destroy Pershing missiles.”

⁶² Kim Weeks, “Rocket motor eliminated: Soviets see historic event,” *Marshall News Messenger*, September 8, 1988.

⁶³ Peter Roper, “U. S. teams on 3 sites in USSR,” *Marshall News Messenger*, September 7, 1988.

⁶⁴ Cornish, interview by author, April 18, 2008.

⁶⁵ Roper, “U. S. teams on 3 sites in USSR,” *Marshall News Messenger*.

⁶⁶ Jeffrey Roper, Final INF In-Briefing packet, May 5, 1991, LHAAP Coll., HCHM.

In addition to the official arrangements at LHAAP, the city of Marshall prepared to host the Soviets in typical East Texas style. The Soviets stayed at the Ramada Inn in Marshall.⁶⁷ A letter went out from the Marshall Chamber of Commerce inviting volunteers from the business community and all citizens to participate in the “Goodwill Program” designed to welcome the Soviets to the region. The Government Affairs Division of the Chamber of Commerce took charge of coordinating any affairs, activities, and gift baskets for the Russian visitors.⁶⁸ The local interest in the Russian visitors was so intense that Hal Cornish taught a basic Russian language course at the First Baptist Church in Marshall so that the townspeople could learn to communicate with their guests, even though about half of the Russians spoke English, and the Russians also traveled with translators at all times.⁶⁹

Because of the fear of an international incident, including that an “East Texas redneck would decide to even the score” with the Soviets, LHAAP put into place complex security and safety precautions.⁷⁰ Major safety concerns were the possible misfiring of a missile or the malfunction of the stand, which would allow a missile to break free of the Delta Rings.⁷¹ Workers placed a thrust reaction cell, consisting of a concrete block, at the front to prevent the rocket motor from forcing its way out of the Delta rings.⁷² For security reasons, limited usage of the off-plant telephone line went into effect on September 6 at 8:00 a.m. and continued through September 8, the date of the initial firings. The only off-plant calls allowed on September 8, from 11:00 a.m. until 1:30 p.m., were emergency calls.⁷³ Vice President George H. W. Bush decided

⁶⁷ “Welcome, ya’ll,” *Marshall News Messenger*, September 7, 1988.

⁶⁸ H. A. (Tony) Bridge and George Smith to Citizens and Businesses of Marshall, November 8, 1988, Longhorn Army Ammunition Plant Collection, Harrison County Historical Museum.

⁶⁹ Cornish, interview by author, April 18, 2008.

⁷⁰ Ibid.

⁷¹ Ibid.

⁷² Hal Cornish, “When the Russians came to Harrison County: George H. W. Bush visits,” *Lone Star Eagle*, March 17, 2005.

⁷³ Hal Cornish and Allen Germain, memo to all employees, September 6, 1988, LHAAP Coll., HCHM.

to attend the ceremonies with the Soviet Ambassador a couple of days before the event, complicating arrangements further, as the security precautions needed adjustment to accommodate the Secret Service.⁷⁴

The Soviet inspection team members and their escorts arrived in East Texas on September 7, landing at the Gregg County airport.⁷⁵ Bush also flew into the Gregg County airport, accompanied by the Soviet Ambassador, on September 8 at 9:00 a.m.⁷⁶ The Secret Service flew Bush's armored limousine into Barksdale Air Force Base in Shreveport, Louisiana on a military transport and brought it to the plant, while Bush and the ambassador were flown by helicopter to the facility. The limousine transported the men from the administration area to the firing area, a distance of approximately three miles.⁷⁷ In addition to the dignitaries and the inspection team, about four hundred people attended the event.⁷⁸ Workers erected a large tent for the comfort of the approximately 150 notables and high-ranking officials. Others sat in the viewing stands, located roughly 1,300 yards from the firing pad. The Soviet inspection team witnessed the firing from a concrete bunker 900 yards from the site.⁷⁹

Both firings were accomplished with no complications, each lasting about forty seconds before the solid rocket fuel burned out. Bush's response after the firing of the first rocket was "Ooh, powerful." However, the demolition of the casings did not go as smoothly.⁸⁰ The two men in charge of destroying the casings struggled to start the gasoline-powered adapted car crusher as the Vice President and the Soviet Ambassador were on their way to watch the process.

⁷⁴ Tom Kelley, "INF missiles disarmed, 'no glitches,'" *Marshall News Messenger*, September 9, 1988.

⁷⁵ Kelley, "A wintertime pledge will take on hard shape of reality today: Certain terms already fulfilled."

⁷⁶ "Welcome, ya'll," *Marshall News Messenger*, September 7, 1988.

⁷⁷ Hal Cornish, "When the Russians came to Harrison County: The rest of the story," *Lone Star Eagle*, March 17, 2005.

⁷⁸ Alisa Stingley, "It's two down and 798 to go," *Shreveport Times*, September 9, 1988, LHAAP Coll., HCHM.

⁷⁹ Weeks, "Rocket motor eliminated: Soviets see historic event."

⁸⁰ Stingley, "It's two down and 798 to go."

Finally, as Bush and the Ambassador approached the site, the machine started. “. . . Boy, were we relieved,” said George Huffman, one of the men in charge of the piece of equipment.⁸¹

The ceremonial destruction of the first Pershing Rocket Missiles under the INF Treaty also had some uninvited guests. Representatives of several peace advocacy organizations, including Pax Christi and the All Souls Social Concerns Committee in Shreveport, carried banners. Approximately eighty people demonstrated for the continuation of peace talks outside the gates of LHAAP during the firing of the missiles, but they left shortly thereafter.⁸²

After the initial historic moment, the destruction of the missiles became almost commonplace at the Karnack facility. LHAAP static fired more than 250 motors from September 8, 1988 to March 19, 1989, alternating between motors for the Pershing IA and Pershing II missiles.⁸³ As the destruction of motors continued, the Army frequently amended the contract with Morton-Thiokol to compensate for the increased number of motors scheduled for demolition by the company. The treaty ultimately called for the elimination of roughly 850 Pershing missiles.⁸⁴

The Soviet inspection teams rotated home every four weeks, but during their time in the Piney Woods they availed themselves of opportunities for relaxation and goodwill.⁸⁵ Aleksander Kuznet, head of the Soviet inspection team staying in Marshall during July, 1990, enjoyed fishing in one of the many private lakes located in East Texas.⁸⁶ A team and its translator visited Marshall High School at the invitation of the Student Council and answered questions from the

⁸¹ Keith, “I remember Thiokol.”

⁸² Stingley, “It’s two down and 798 to go.”

⁸³ Hal Cornish, telephone interview by author, Marshall, Texas, June 11, 2008.

⁸⁴ Tom Kelley, “Sixth team of Soviets in Karnack,” *Marshall News Messenger*, March 19, 1989.

⁸⁵ Gail Beil, “Soviet escort: Kealey understands the historical significance of missile destruction,” *Longview News-Journal*, March 26, 1989, LHAAP Coll., HCHM.

⁸⁶ Mark A. Dimmitt, “Just relaxing,” photograph, *Marshall News Messenger*, July 25, 1990.

students. The team described life in the Soviet Union.⁸⁷ A Soviet delegation visiting J. H. Moore Elementary School brought return letters for Mrs. McClurg's third grade class from the children's Soviet pen pals, whom they had written earlier in the year.⁸⁸

While staying in Marshall, the Soviet inspection teams attended many local sporting events. The foreign visitors enjoyed the Marshall High versus Odessa-Permian football game, played in Marshall on September 10. Dressed in Marshall Maverick red, the Russians cheered wildly whenever Marshall scored and made the hook-'em sign expertly by the end of the game.⁸⁹ Eventually, they even had their own bleachers for the Marshall High School football games, and rooted enthusiastically for the home team.⁹⁰ The Russians also attended a basketball game between Wylie College and East Texas Baptist University (ETBU). To show impartiality, the Soviets sat behind the bench of the Wylie Wildcats for the first half of the game, and then moved behind the bench of the ETBU Tigers for the second half.⁹¹

The Russians were only allowed to travel within a fifty mile radius of the plant, but they toured the area.⁹² The favored site for the Russians to visit was the local Wal-Mart. At first, they could not comprehend the extensive variety of items for sale in a single department store, as the stores in the Soviet Union were limited to only a small number of items available for purchase. They also enjoyed visiting car dealerships and admired the large selection of models and colors

⁸⁷ Michael J. Miga, "Soviets get glimpse of American schools," *Marshall News Messenger*, December 20, 1990.

⁸⁸ Kim Weeks, "Soviet children answer letters," *Marshall News Messenger*, December 5, 1988.

⁸⁹ "Welcome, ya'll," *Marshall News Messenger*, September 7, 1988; Bissinger, H. G., *Friday Night Lights*, New York: Harper Perennial, 1991, 118-121.

⁹⁰ Cornish, "When the Russians came to Harrison County: The rest of the story." Incidentally, this game was portrayed in the movie *Friday Night Lights*, based on the book by the same name. There were several inaccuracies in the film: the game was actually played in Marshall on September 10, rather than Odessa on September 2; the Marshall High School mascot is the Maverick, rather than the "Dawgs;" and Marshall won the game, rather than Odessa-Permian. *Friday Night Lights*, DVD. Directed by Peter Berg, Universal Studios, 2004.

⁹¹ Cornish, interview by author, April 18, 2008.

⁹² Ibid.

obtainable by Americans.⁹³ Various delegations hiked down Stagecoach Road, and attended the Fire Ant Festival, and the Christmas Wonderland of Lights Festival. The Wonderland of Lights Festival in 1990 featured “The Circle of Peace,” a ring of trees encircling the courthouse lit completely in red.⁹⁴

In addition to the tours of the region and other social activities, the Soviets attended the local churches. When a church hosted an inspection team, the church members prepared a dinner in honor of their guests. Although the Soviets were polite, they did not show any emotion or interest in Christianity while attending church.⁹⁵ A Karnack church made arrangements to purchase Bibles translated into the Russian language and placed them in the hotel rooms of the Soviet visitors. It was made clear that the Bibles were gifts to the Russians, and all of the Bibles discretely disappeared when each inspection team went home. The Bibles became prized gifts to the Russians, and when a new team rotated in to the plant, if there were no Bibles present in their rooms they asked the front desk when they would receive them.⁹⁶

The Army rotated commanding officers at the plant every two years, so the facility was under the command of two different men during the three years that the project lasted. Lt. Col. Allen Germain, in charge during the first year, received his orders transferring him from the Longhorn plant to the Industrial College of the Armed Forces in Washington, D.C. in July, 1989.⁹⁷ Germain handled his assignment at LHAAP so well that the Army awarded him the Legion of Merit, the second highest service award offered by the Army.⁹⁸ His replacement was

⁹³ Cornish, “When the Russians came to Harrison County: The rest of the story.”

⁹⁴ Gail Beil, “Peace through destruction: Last Karnack Pershing to be destroyed today,” *Longview News-Journal*, May 6, 1991, Longhorn Army Ammunition Plant Collection, Harrison County Historical Museum.

⁹⁵ Ibid.

⁹⁶ Cornish, “When the Russians came to Harrison County: The rest of the story.”

⁹⁷ Rich Lyons, “Era ends at LAAP: Command change slated Wednesday,” *Marshall News Messenger*, July 11, 1989.

⁹⁸ Gail Beil, “Longhorn commander, family leaving East Texas,” *Longview News-Journal*, July 23, 1989, LHAAP Coll., HCHM.

Lt. Col. Jeffrey Russell.⁹⁹ Russell served as commander until July 15, 1991. Russell also received the Legion of Merit, although his award was for “outstanding leadership in the production of military supplies for Operation Desert Shield/Desert Storm.”¹⁰⁰ Longhorn also received several awards from the government for their efficient handling of the missile destruction.¹⁰¹

Various U.S. and Soviet military leaders and the media gathered in Karnack for the destruction of the last Pershing IA Missile in existence on July 6, 1989.¹⁰² Bill Huffman, the man in charge of firing the first missile destroyed in 1989, watched the destruction from the viewing stands because of a promotion. The last two Pershing IAs destroyed were assembled at LHAAP in 1964 and 1965. A total of 169 Pershing IA missiles were destroyed, all of them constructed in Karnack.¹⁰³

Finally, in April, 1991 the Longhorn staff scheduled the firing of the last American Pershing II rocket motor in existence. The timeframe for the elimination was from 10:00 a.m. and 2:00 p.m., May 6, 1991, because of the “uncertainty of the Senior Government Official’s schedule.” The confirmation of the schedule would occur between April 30 and May 3 by telephone.¹⁰⁴

The highest ranking American official that attended the final event was Ambassador Ronald F. Lehman II, director of the U.S. Arms Control and Disarmament Agency. Ambassador

⁹⁹ Lyons, “Era ends at LAAP: Command change slated Wednesday.”

¹⁰⁰ James Osborne, “Longhorn gets new commander: Army munitions plant welcomes Col. Bringman,” *Marshall News Messenger*, July 16, 1991.

¹⁰¹ Cornish, interview by author, April 18, 2008.

¹⁰² Rich Lyons, “Final Pershing 1A missile destroyed,” *Longview News Journal*, July 6, 1989, LHAAP Collection, HCHM.

¹⁰³ Gail Beil, “Missiles destroyed at Karnack,” *Longview News Journal*, July 7, 1989, LHAAP Coll., HCHM.

¹⁰⁴ Department of the Army to Mr. Wes Dowdy, Invitation, April 8, 1991, LHAAP Coll., HCHM.

Maynard W. Glitman, chief of the American delegation to the INF Treaty, also attended.¹⁰⁵

General Lieutenant Vladimir Medvedev, the director of the Soviet Nuclear Risk Reduction Center, was the highest ranking Soviet to attend, heading up the twenty-ninth inspection team to visit the Piney Woods. Medvedev made a total of three trips to East Texas. President George H. W. Bush, having attended the elimination of the first Pershing Missile as vice president, had previous commitments and could not attend the final event.¹⁰⁶ About one thousand spectators witnessed the firing.¹⁰⁷

Medvedev felt that the destruction of the final American Pershing missile was important for more than one reason. Not only did it complete the INF treaty's requirements, but the United States and the Soviet Union were negotiating at that time to eliminate Intercontinental Ballistic Missiles (ICBM), a longer range missile than the INF missile. He shared concerns for world peace with Lehman, who felt that the peace process needed to continue.¹⁰⁸

The City of Marshall, which had entertained the Soviets throughout the three year process, threw one final celebration in honor of the destruction of the final American Pershing II missile, cooperating with the Greater Marshall Chamber of Commerce in hosting the event. The 77th United States Army Jazz Combo from Fort Sill, Oklahoma headlined the affair, which also featured local performers. This event marked the end of Marshall's contribution to the INF Treaty and international diplomacy.¹⁰⁹

The INF Treaty allowed short-notice inspections to continue between the two nations until 2001; even though the U.S.S.R. had disintegrated by this time, the terms of the treaty still

¹⁰⁵ Osborne, James, "Blast off: Longhorn, U. S. officials to fire final Pershing missile motors," *Marshall News Messenger*, May 5, 1991.

¹⁰⁶ Beil, Gail, "Missile's destruction fulfills pact," *Longview News-Journal*, May 7, 1991, LHAAP Coll., HCHM.

¹⁰⁷ Wire reports, "Marshall recognizes firing of last missile," May 7, 1991, LHAAP Coll., HCHM.

¹⁰⁸ Osborne, James, "The last Pershing: A soldier fades away," *Marshall News Messenger*, May 7, 1991.

¹⁰⁹ Wire reports, "Marshall recognizes firing of last missile."

held. Seven times, between 1992 and 1994, the Soviets verified that LHAAP maintained the terms of the treaty. These trips were working trips only, and the Russians could not socialize with the locals. Gift exchanges continued between the inspectors and local citizens, however.¹¹⁰

For three years, the Piney Woods figured prominently in international circles, welcoming members of the Union of Soviet Socialist Republics government with typical East Texas hospitality. By the time the visits were over, Marshallites felt that they had contributed to the peace process and had played a small part in the fall of the Soviet Union.¹¹¹ Although a relatively small facility, Longhorn played a significant role in the effort to end worldwide nuclear proliferation.

¹¹⁰ Gail Beil, "Russian inspection complete," *Marshall News Messenger*, July 15, 1994.

¹¹¹ Cornish, interview by author, April 18, 2008.

Chapter Three

When the Longhorn Army Ammunition Plant was constructed in 1942, little governmental regulation existed to protect the environment. Man was not concerned about the damages caused by uncontrolled dumping of chemicals, whether simply on the ground, or in the nation's waterways. Several national events that occurred in the 1960s and 1970s brought attention to the consequences of irresponsible waste disposal, and other significant ways that man impacted the environment, resulting in a change of attitude by the public. Events at LHAAP reflect the greater national movement that challenged man to be more conscious of his stewardship of the planet.

In 1962, Rachel Carson published *Silent Spring*, drawing attention to the damages caused by unrestricted use of chemical pesticides on the environment. Prior to the publication of *Silent Spring*, the little protection to the environment came at the behest of President Theodore Roosevelt, and was limited to land, water, and forestry conservation and the creation of national parks.¹¹² Carson's book, however, pointed out the damage done to the environment by the unrestricted use of pesticides, such as dichlorodiphenyltrichloroethane or, as it is more commonly known, DDT.¹¹³ The publication of Carson's book resulted in a grass-roots movement to protect the environment from damages caused by man's unrestrained exploitation of the planet.

Although Carson's book was published in 1962, the federal government failed to recognize the effects of industrial misuse of natural resources until the Cuyahoga River caught fire in 1969. The fire was caused by the unregulated dumping of toxic waste in the river by

¹¹² Rogina L. Jefferies, *About Theodore Roosevelt-26th President and much more*. . . Theodore Roosevelt Association, April, 2009. <http://www.theodoreroosevelt.org> (accessed Oct. 28, 2009).

¹¹³ Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962), 8.

industries situated on the banks, and was the first in a string of man-made disasters. Congress began passing legislation in 1969 that created the Environmental Protection Agency (EPA) in 1970. Although initial legislation to protect water was passed in 1898, and further legislation passed in 1948, it was not until 1972, when Congress instituted massive changes to the Federal Water Pollution Control Act, that regulations governing the protection of the nation's waterways were strengthened. Then, in 1977, further amendments were passed, creating what is now known as the Clean Water Act (CWA). Not only did the CWA regulate the discharge of pollutants into bodies of water, it gave the EPA the authority to set standards in relation to pollution control.¹¹⁴

During the 1960s, international attention was drawn to the rapid loss of wetlands, needed as habitat by migratory waterfowl. Multiple governmental organizations from various countries, and non-governmental entities negotiated an international treaty, known as the Ramsar Treaty, designed to protect those wetlands. A convention was held in Ramsar, Iran, in 1971, and seven countries signed the treaty, which took effect in 1975. The United States, the forty-first nation to ratify the treaty, did not do so until 1987. Two departments are involved in the enforcement of the treaty: the Department of State, which deals with international diplomatic matters; and the Department of the Interior, as the treaty designates protected sites within the boundaries of the United States.¹¹⁵ The convention defines "Wetlands of International Importance," usually so-designated because of the wetland's importance to migratory species, and brings diplomatic pressure to bear upon countries with sites so designated, in order to protect the habitat of migratory, internationally shared species.¹¹⁶

¹¹⁴ United States Environmental Protection Agency, <http://www.epa.gov/epahome/aboutepa.htm> (accessed Oct.25, 2009).

¹¹⁵ Roy Darville, interviewed by author, Marshall, Texas, June 10, 2009.

¹¹⁶ Ramsar Convention on Wetlands, <http://www.ramsar.org>. (accessed Oct.25, 2009).

Off the coast of Santa Barbara, California, a natural gas “blowout” occurred on an off-shore oil rig, leading to multiple fractures in an east-west fault line. These fractures leaked approximately 200,000 gallons of crude oil, which drifted up to the ocean’s surface, and spread out into an eight hundred square mile oil slick. The slick devastated marine life in the area. Dolphins’ blowholes became clogged with oil, which caused hemorrhages in the lungs of the sea mammals. Corpses of dead seals and dolphins washed up on the beaches in the areas, and birds dependent on diving for sustenance became coated with tar. The ruptures leaked for more than eleven days before platform workers plugged the leaks; however, another rupture occurred and leaked oil into the ocean for several months after the initial accident. The oil spill’s devastation led to tighter restrictions on off-shore drilling off the California coast.¹¹⁷

The next significant environmental disaster occurred at Love Canal, in the community of Niagara Falls, New York. The Hooker Electrochemical Corporation used an abandoned canal in which to dump toxic wastes; more than twenty-one thousand tons of two hundred different chemicals were dumped in the canal over a period of approximately ten years. The Niagara Falls school board asked Hooker Chemical if it could purchase the land on which the canal was situated. Although Hooker Chemical claims that the company notified the school board that the property was not suitable for school construction, the corporation sold it to the school board for one dollar when the board threatened to take the property through eminent domain. After the community built an elementary school over the site, a construction company built a neighborhood around the school. In 1958, city officials were notified that three children had suffered chemical burns, from a black substance that leached into basements of homes, and in water puddles that stood after a rain. After many years of wrangling over the issue, the area was

¹¹⁷ Jeffrey J. Hemphill, “1969 Oil Spill,” University of California in Santa Barbara, Department of Geography. http://www.geog.ucsb.edu/~jeff/sb_69oilspill_articles2.html (accessed February 11, 2010).

fenced off, the homes were purchased from the homeowners by the state, and the immediate neighborhood was condemned in 1978.¹¹⁸

As a result of this event, Congress created the Superfund list, designed to prevent land contaminated by chemicals and toxic waste from being sold for use by the public in various ways without the party responsible cleaning up the area. Corporations that damage the environment are required to pay for the clean-up of such areas, wherever possible, or if the culprit cannot be found, the contaminated area is cleaned at the expense of the American taxpayers. The Environmental Protection Agency (EPA) designates the requirements (see Appendices A and B) for the Superfund site list and monitors the clean-up of contaminated areas.¹¹⁹

Early in the history of LHAAP, then Longhorn Ordinance Works, few federal regulations existed to control the disposal of toxic waste. According to Gail Biel, a retired reporter for the *Marshall News Messenger* and local historian, local legend has it that Monsanto disposed of chemicals used in the manufacture of TNT by pouring them on the ground.¹²⁰ Whatever the method of disposal used by the early contractor, by the late 1960s and early 1970s, federal guidelines regulated toxic waste disposal, and efforts to protect the environment at Caddo Lake were underway.

However, legend may not be correct. According to Max Lale, the public information officer of LHAAP, the facility practiced environmental protection long before the establishment of federal guidelines for protecting the waters of areas such as Caddo Lake. Since the plant was located on the shores of the lake and part of the Cypress Bayou System, which supplied water to Shreveport, simply dumping waste water from the plant with the high concentrations of

¹¹⁸ Beverly Paigen, "Controversy at Love Canal," *The Hastings Center Report* 12, no. 3 (June, 1982), 29. <http://www.jstor.org/stable/3561826> (accessed May 10, 2009).

¹¹⁹ Environmental Protection Agency, Superfund, Oct. 19, 2009. <http://www.epa.gov/superfund/>. Oct. 25, 2009.

¹²⁰ Gail Biel, interviewed by author, Marshall, Texas, August 16, 2009.

chemicals contained in those waters could have been catastrophic for both the environment and the people of the region.¹²¹

The Federal Water Pollution Control Administration conducted a survey of the site in 1968. The findings of this survey led Thiokol to implement new personnel training programs, purchase new equipment, and monitor water samples more closely than had previously been the case. The survey report, prepared by Lyman P. Houghton, recommended that the water produced by the plant be tested both at the point it entered grounds of the facility, and at the point that it exited the grounds. The report also recommended testing for a number of contaminants, including: fecal coliform, cyanide, and hexavalent chromium (for complete list and values, see Appendix C). Other guidelines included testing for suspended solids, dissolved solids, and pH determination.¹²²

By 1969, the federal government further tightened restrictions on LHAAP. New guidelines required that the facility test weekly for a total of twenty-six contaminants, although the required testing for both total coliform and fecal coliform was lifted. The chemical laboratory tested five points weekly, in compliance with its directive. As a result of the federal mandate, LHAAP investigated the purchase of equipment needed to comply, the needed training for its lab employees, and the purchase of chemicals needed to test the water properly. The total cost estimate for the required equipment and training needed to meet the guidelines for the first year was \$612,785.60.¹²³

Thiokol continued efforts to protect the environment throughout the 1980s. The Greater Caddo Lake Association commended LHAAP for its efforts in preserving what was called “the

¹²¹ Max S. Lale, *Basic Installation History: Longhorn Army Ammunition Plant, December 15, 1941-December 31, 1967* (Marshall: Thiokol Chemical Corporation, Longhorn Division, July 18, 1968), 32.

¹²² Lale, *First Annual Supplement to Basic Installation History*, 8-9.

¹²³ Lale, *Third Annual Supplement to Basic Installation History*, 12-15.

last remaining virgin hardwood forest of northeast Texas,” which covered three hundred acres of the Harrison Bayou.¹²⁴ This image, however, was contradicted by a news report of rumors that the facility wanted to drain two water reservoirs “full of toxic waste” into Caddo Lake. These rumors were denied by J. C. Hartt, the public affairs director at Thiokol, and no evidence exists to substantiate them.¹²⁵

The Army chose LHAAP as the designated site for the destruction of the Intermediate-Range Nuclear Missiles, in accordance with the Intermediate-Range Nuclear Forces (INF) Treaty in 1988. This designation caused some initial concern over air quality control, as the method chosen for the destruction of the missiles involved static firing of the missiles, until the solid rocket fuel had burned off. But the static fire method proved to have fewer emissions than the open burn method, the original choice of the Army. In addition, the Texas Air Control Board and the Texas Water Commission worked closely with Thiokol to provide the necessary permits, and sent representatives to monitor the first static firings.¹²⁶

The EPA added the site to the National Priorities List (NPL) in 1990, following a preliminary assessment and site inspection, which is used to identify sites that pose a hazard to the environment through the disposal or release of toxic substances to the environment.¹²⁷ The initial process took approximately a year, and led to an agreement between the Army, the EPA, and the State of Texas (in the form of the Texas Water Commission), which defined the specific toxins involved, the scope of the clean-up, and who was to monitor the operation. The

¹²⁴ “Longhorn commended for Caddo preservation,” unknown author and newspaper, October 21, 1983, Harrison County Historical Museum, Longhorn Army Ammunition Plant Collection.

¹²⁵ “Thiokol leader denies rumor about dumping,” *Marshall News Messenger*, September 20, 1984.

¹²⁶ Kim Weeks, “Army has major role in contract,” *Marshall News Messenger*, September 7, 1988; Weeks, “Rocket motor eliminated: Soviets see historic event,” *Marshall News Messenger*, September 8, 1988; Lauren Tedesco, “Longhorn gets contract: Plant to destroy missiles,” *Marshall News Messenger*, June 10, 1988.

¹²⁷ United States Environmental Protection Agency, “Superfund: Clean-Up,” <http://www.epa.gov/superfund/cleanup/index.html> (accessed November 3, 2009).

investigation identified twelve areas of concern, including an “unlined evaporation pond/rocket motor washout lagoon” and two “suspected TNT burial sites.” Traces of thirteen hazardous toxins, including arsenic, barium, and 2, 4, 6 trinitrotoluene (TNT) were found, in levels that suggested a “release or potential release” of the substances.¹²⁸ Eventually, the EPA chose no action on some of the sites originally suspected of contamination, but several sites required extensive decontamination.¹²⁹

The Army closed the plant in 1994, during one of several rounds of base closures during the 1990s. The local communities of Karnack and Marshall held multiple town meetings, making recommendations for the mothballed plant. One suggestion seriously considered by the Army was to turn the more than eight thousand acre site into an industrial park. This idea also met with approval by the business leaders of the surrounding area, as it would continue to provide much-needed jobs and tax revenue for the county.

Coincidentally, two years before the plant was closed, Don Henley, a founding member of the country-rock band the Eagles, and an East Texas native, decided to explore ways in which to protect and preserve Caddo Lake, and as a result, founded the Caddo Lake Institute jointly with Dwight Shellman, an environmental lawyer and close friend of Henley’s. East Texas Baptist University (ETBU) held the first organizing conference for the Caddo Lake Institute, and one of ETBU’s biology professors, Roy Darville, was an active participant from the beginning. According to Shellman, the initial role of the Caddo Lake Institute was as a science group, rather

¹²⁸ United States Environmental Protection Agency Region 6 and the United States Department of the Army And the State of Texas, In The Matter of: The U. S. Department of the Army, The Longhorn Army Ammunition Plant, “Federal Facility Agreement Under CERCLA Section 120,” (October 16, 1991): 13-14.

¹²⁹ United States Environmental Protection Agency, *EPA Superfund Record of Decision: Longhorn Army Ammunition Plant, (No Further Action at LHAAP 13 and 14) Karnack TX February 14, 1996* (March 1997); *EPA Superfund Record of Decision: Longhorn Army Ammunition Plant, (Burning Ground 3), TX 5/12/1995* (March, 1996); *EPA Record of Decision: Longhorn Army Ammunition Plant EPA ID: TX6213820529 OU 2 Karnack, TX 09/27/1995* (1995).

than an advocacy organization. The major question debated at the first conference was “what science could be brought to bear” upon the lake, in order to protect its unique ecosystem.

Scientists from Louisiana State University at Shreveport, Wylie College, and ETBU attended the first conference, as well as representatives from the United States Fish and Wildlife Service (FWS) and the State of Texas Parks and Wildlife Service; in addition, environmentalists from all over the state of Texas had been invited to participate. At this point, LHAAP was still an operational facility, so little discussion involved the facility, in relation to the rest of Caddo Lake and the Wildlife Management Area. Dr. Carroll Cordes, a federal scientist and chief of the National Wetlands Research Center (NWRC) in Lafayette, Louisiana, a part of the United States Geological Service (USGS), suggested the possibility of designating the area as a Ramsar site as a Wetland of International Importance.¹³⁰

To fund the process involved in attaining the designation, a federal budget was needed. As a result, the area, including Longhorn, was designated as a bioregional biodiversity center, qualifying it for the needed monies.¹³¹ To receive the classification as a Wetland of International Importance, the organization required certain criterion to be met. Caddo Lake met the eligibility requirements due to the migratory waterfowl which use the region as habitat, both during the winter and the summer.¹³²

Although scientists and environmentalists from all over the country attended the first planning meeting of the Caddo Lake Institute, the next decade belonged to bureaucracy. The Army closed LHAAP in 1994 and looked for new tenants or owners. The Army preferred to transfer responsibility for the property without being required to finance the clean-up. The FWS

¹³⁰ Dwight Shellman, telephone interview, conducted by author, May 4, 2009.

¹³¹ Shellman interview.

¹³² Texas Parks and Wildlife, “Great Texas Wildlife Trails: Prairies and Pineywoods Wildlife Trail-East,” July 21, 2006. http://www.tpwd.state.tx.us/huntwild/wild/wildlife_trails/pineywoods/piney_east/caddolake/ (accessed Oct. 28, 2009).

and the Texas Parks and Wildlife Department controlled much of Caddo Lake, because of its status as a state park and Wildlife Management Area (WMA). Both governmental entities had heard that the LHAAP area “glowed in the dark” and was reluctant to take control of a hazardous area that might not ever be clean enough to turn into a family recreational site. Finally, Caddo Lake Institute hired an engineer and a scientist to explore exactly what areas were contaminated and how difficult it would be to eliminate that concern. After consulting together and mapping the site, the Institute demonstrated to the FWS that over seven thousand acres of the site were not contaminated. This process took several years. It used a geographic information system (GIS) that combined known data with maps, and engineers used this information to calculate the areas that were clean. “It is a classic example of making something really complicated become really simple by mapping properly,” according to Shellman. Once it was established that only a small portion of the area in question was of concern, the FWS and the Parks Department agreed to take control of the rest of the facility. Although the property was federally-owned, Henley personally funded much of the research and mapping and occasionally contacted people in power to remind them of the benefits of turning the former munitions plant into a wildlife refuge.¹³³

Once the EPA and the Army had established what areas needed to be cleaned up, the Army contracted a company that specialized in environmental decontamination, or remediation. Scott Beesinger, employed by Thiokol from 1982 through 1997, when Thiokol pulled out, went to work for the remediation (environmental clean-up) company contracted by the Army. Beesinger was hired by the first company involved in the decontamination, Radion International, after Thiokol left because, according to him Thiokol had not completed cleaning up the contaminated sites and simply pulled out. The Army contracted Radion International initially to

¹³³ Shellman, interview by author.

build a groundwater treatment plant, but after Thiokol left, the Army proposed that the company also decontaminate the soil.¹³⁴

The clean-up process for soil is a simple one. It involves baking the soil at extremely high temperatures, eight hundred and fifty degrees. Once that was complete, the soil, still considered hazardous waste, is dumped into a landfill, and the landfill is capped with fresh, uncontaminated soil, trucked in from elsewhere. The soil was primarily contaminated with volatile chemicals; methylene chloride and trichlorethene were the most common, although there were trace amounts of other contaminants, such as acetone.¹³⁵

Water treatment is more elaborate, and has evolved on site since the initial treatment plant was constructed. The evolution is due to testing procedures detecting new and different contaminants in the water. Pumps that are used to draw up groundwater and send it to the treatment plant are also pulling in toxins that were once too deep in the ground to be detected. There are several steps to water treatment, and those steps utilize acetic acid, carbon, and microscopic organisms. The organisms, or “bugs” as Beesinger refers to them, feed on one specific type of toxin, aluminum perchlorate, but only after all of the other contaminants have been removed by the acetic acid, leaving them with only the aluminum perchlorate to feed on. The organisms also assist with pH control, as they are very sensitive to imbalance in acid levels. The ideal oxidation reduction potential (ORP), a measurement at which contaminants are oxidized, is -300 and -400. As the organisms emit a strong odor of rotten eggs from the gas that they produce as a by-product of their work, it is used by Beesinger as an indicator that all of the conditions are met for the organisms to properly remove the aluminum perchlorate. Once treated, the water is removed to wells that are used specifically for the storage of the water, which

¹³⁴ Scott Beesinger, interviewed by author, Marshall, Texas, April 16, 2009.

¹³⁵ Beesinger, interviewed by author.

formerly was released into Harrison Bayou. The water is still considered contaminated, even though it has been treated extensively for toxins, and cannot be released into the lake.¹³⁶

Although the remediation process has lasted for more than ten years, it is not complete. The area of contamination has been reduced by more than half, but there are still several hundred acres that require treatment and will not be released by the Army to the FWS until they are safe for public use. The rest of the facility is in the control of the FWS and the Texas Parks Department, who developed the area on the banks of Caddo Lake as a wildlife refuge, home to “224 species of birds, 22 species of amphibians, 46 species of reptiles, and 93 species of fish.”¹³⁷

As America turned from war to environmental issues, the Longhorn Army Ammunition Plant became a significant symbol of that change. Once a producer of weapons designed to annihilate others, it is now a protected site for man’s fellow residents of the planet.

¹³⁶ Ibid.

¹³⁷ Friends of Caddo Lake, “News Release: Caddo Lake National Wildlife Refuge to Open Soon,” September 2, 2009, <http://www.caddofriends.org/openingpressrelease.html>. November 7, 2009.

Conclusion

Following the bombing of Pearl Harbor, the industrial might of the United States turned its attention to the production of war materiel necessary to defeat the imperialistic aggression of the Axis Powers. The Longhorn Ordnance Works, later the Longhorn Army Ammunition Plant, although a small part of the war effort, nevertheless contributed essential ordnance to World War II, as well as the Korean, Vietnam, and the Persian Gulf Wars. The facility contributed to the economy of East Texas, leading to economic stability for many residents of the region, just as a post-war economic boom improved the lives of many Americans. The 1950s appeared idyllic, but discontent soon intruded. Social unrest resulted in the Civil Rights Act of 1964, leading to extensive changes in everyday life, including the work place. LHAAP exemplifies the evolution in hiring policies, as the federal government forced its contractors to employ more minorities and women, and place them in positions of greater responsibility. Events at the facility during the latter half of twentieth century also reflect social scientists' and historians' theories on racism during the era of radical change.

The elimination of social inequities alleviated many Americans' concerns about their fellow man and woman. This gave them time to turn their attention to less urgent, but still pressing issues, such as man's abuse of the planet. Various environmental organizations urged changes in corporate policies, and governmental entities instituted regulations designed to ensure that industries were good stewards of the environment. LHAAP followed the newly-introduced regulations, but prior to the establishment of those guidelines, the operating contractor of the plant did not necessarily concern itself with protection of the environment, an attitude replicated by industries across the nation. However, a grass-roots organization, Caddo Lake Institute,

founded by rocker Don Henley and environmental lawyer Dwight Shellman, made a concerted effort to save the unique ecosystem of the largest remaining stand of virgin hardwood forest, and in the process, turned the site into a federally-protected wetland in accordance with an international treaty, the Ramsar Treaty. Today, the Longhorn Army Ammunition Plant, now a part of the Caddo Lake National Wildlife Refuge, stands as testament to the determination of the American people to right injustices done to people and to the environment.

The events at the Longhorn Army Ammunition Plant during the second half of the twentieth century mirror national social movements and events associated with those movements. The Civil Rights movement and the environmental movement changed how people viewed the world around them, and the end of the Cold War and the nuclear arms race made the world safer. Although a small facility in a rural corner of Texas, the events at Longhorn Army Ammunition Plant are noteworthy when placed in the perspective of greater national developments.

Appendix A¹³⁸

Environmental Protection Agency Definitions and Abbreviations

Abbreviations

ATSDR—Agency for Toxic Substances and Disease Registry

CDC—Centers for Disease Control

DOC—Department of Commerce

DOD—Department of Defense

DOE—Department of Energy

DOI—Department of the Interior

DOJ—Department of Justice

DOL—Department of Labor

DOS—Department of State

DOT—Department of Transportation

EPA—Environmental Protection Agency

FEMA—Federal Emergency Management Agency

GSA—General Services Administration

HHS—Department of Health and Human Services

NIOSH—National Institute for Occupational Safety and Health

NOAA—National Oceanic and Atmospheric Administration

OSHA—Occupational Health and Safety Administration

RSPA—Research and Special Programs Administration

¹³⁸ Environmental Protection Agency, *Protection of Environment* (Washington D. C.: GPO, 2003). http://edocket.access.gpo.gov/cfr_2003/julqtr/pdf/40cfr300.4.pdf (accessed February 12, 2010).

USCG—United States Coast Guard

USDA—United States Department of Agriculture

NOTE: Reference is made in the NCP to both the Nuclear Regulatory Commission and the National Response Center. In order to avoid confusion, the NCP will spell out Nuclear Regulatory Commission and use the abbreviation “NRC” only with respect to the National Response Center.

(b) Operational Abbreviations:

ACP—Area Contingency Plan

ARARs—Applicable or Relevant and Appropriate Requirements

CERCLIS—CERCLA Information System

CRC—Community Relations Coordinator

CRP—Community Relations Plan

DRAT—District Response Advisory Team

DRG—District Response Group

ERT—Environmental Response Team

ESF—Emergency Support Function

FCO—Federal Coordinating Officer

FRERP—Federal Radiological Emergency Response Plan

FRP—Federal Response Plan

FS—Feasibility Study

HRS—Hazard Ranking System

LEPC—Local Emergency Planning Committee

NCP—National Contingency Plan

NPFC—National Pollution Funds Center

NPL—National Priorities List

NRC—National Response Center

NRS—National Response System

NRT—National Response Team

NSF—National Strike Force

NSFCC—National Strike Force Coordination Center

O&M—Operation and Maintenance

OSC—On-Scene Coordinator

OSLTF—Oil Spill Liability Trust Fund

PA—Preliminary Assessment

PIAT—Public Information Assist Team

RA—Remedial Action

RCP—Regional Contingency Plan

RD—Remedial Design

RERT—Radiological Emergency Response Team

RI—Remedial Investigation

ROD—Record of Decision

RPM—Remedial Project Manager

RRC—Regional Response Center

RRT—Regional Response Team

SAC—Support Agency Coordinator

SERC—State Emergency Response Commission

SI—Site Inspection

SMOA—Superfund Memorandum of Agreement

SONS—Spill of National Significance

SSC—Scientific Support Coordinator

SUPSALV—United States Navy Supervisor of Salvage

USFWS—United States Fish and Wildlife Service

Definitions

Terms not defined in this section have the meaning given by CERCLA, the OPA, or the CWA.

Activation means notification by telephone or other expeditious manner or, when required, the assembly of some or all appropriate members of the RRT or NRT.

Alternative water supplies as defined by section 101(34) of CERCLA, includes, but is not limited to, drinking water and household water supplies.

Applicable requirements means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.

Area Committee (AC) as provided for by CWA sections 311(a)(18) and (j)(4), means the entity appointed by the President consisting of members from qualified personnel of federal, state, and local agencies with responsibilities that include preparing an area contingency plan for an area designated by the President.

Area contingency plan (ACP) as provided for by CWA sections 311(a)(19) and (j)(4), means the plan prepared by an Area Committee that is developed to be implemented in conjunction with the NCP and RCP, in part to address removal of a worst case discharge and to mitigate or prevent a substantial threat of such a discharge from a vessel, offshore facility, or onshore facility operating in or near an area designated by the President.

Bioremediation agents means microbiological cultures, enzyme additives, or nutrient additives that are deliberately introduced into an oil discharge and that will significantly increase the rate of biodegradation to mitigate the effects of the discharge.

Burning agents means those additives that, through physical or chemical means, improve the combustibility of the materials to which they are applied.

CERCLA is the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986.

CERCLIS is the abbreviation of the CERCLA Information System, EPA's comprehensive data base and data management system that inventories and tracks releases addressed or needing to be addressed by the Superfund program. CERCLIS contains the official inventory of CERCLA sites and supports EPA's site planning and tracking functions. Sites that EPA decides do not warrant moving further in the site evaluation process are given a "No Further Response Action Planned" (NFRAP) designation. This means that no additional federal steps under CERCLA will be taken at the site unless future information so warrants. Sites given a NFRAP designation are placed in a separate archival data base. Inclusion of a specific site or area in the CERCLIS data base does not represent a determination of any party's liability, nor does it represent a finding that any response action is necessary.

Appendix B¹³⁹

Environmental Protection Agency Determinations to Initiate Response and Special Conditions

(a) In accordance with CWA and CERCLA, the Administrator of EPA or the Secretary of the department in which the USCG is operating, as appropriate, is authorized to act for the United States to take response measures deemed necessary to protect the public health or welfare or environment from discharges of oil or releases of hazardous substances, pollutants, or contaminants except with respect to such releases on or from vessels or facilities under the jurisdiction, custody, or control of other federal agencies.

(b) The Administrator of EPA or the Secretary of the department in which the USCG is operating, as appropriate, is authorized to initiate and, in the case of a discharge posing a substantial threat to public health or welfare of the United States is required to initiate and direct, appropriate response activities when the Administrator or Secretary determines that any oil or CWA hazardous substance is discharged or there is a substantial threat of such discharge from any vessel or offshore or onshore facility into or on the navigable waters of the United States, on the adjoining shorelines to the navigable waters, into or on the waters of the exclusive economic zone, or that may affect natural resources belonging to, appertaining to, or under exclusive management authority of the United States; or

(c) The Administrator of EPA or the Secretary of the department in which the USCG is operating, as appropriate, is authorized to initiate appropriate response activities when the Administrator or Secretary determines that any hazardous substance is released or there is a threat of such a release into the environment, or there is a release or threat of release into the

¹³⁹ Ibid. http://edocket.access.gpo.gov/cfr_2003/julqtr/pdf/40cfr300.130.pdf (accessed February 12, 2010).

environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare of the United States.

(d) In addition to any actions taken by a state or local government, the Administrator of EPA or the Secretary of the department in which the USCG is operating may request the U.S. Attorney General to secure the relief from any person, including the owner or operator of the vessel or facility necessary to abate a threat or, after notice to the affected state, take any other action authorized by section 311 of the CWA or section 106 of CERCLA as appropriate, including issuing administrative orders, that may be necessary to protect the public health or welfare, if the Administrator or Secretary determines: (1) That there may be an imminent and substantial threat to the public health or welfare of the United States or the environment of the United States, including fish, shellfish, and wildlife, public and private property, shorelines, beaches, habitats, and other living and nonliving natural resources under the jurisdiction or control of the United States, because of an actual or threatened discharge of oil or a CWA hazardous substance from any vessel or offshore or onshore facility into or upon the navigable waters of the United States; or (2) That there may be an imminent and substantial endangerment to the public health or welfare of the United States or the environment because of a release of a CERCLA hazardous substance from a facility.

(e) Response actions to remove discharges originating from operations conducted subject to the Outer Continental Shelf Lands Act shall be in accordance with the NCP.

(f) Where appropriate, when a discharge or release involves radioactive materials, the lead or support federal agency shall act consistent with the notification and assistance procedures described in the appropriate Federal Radiological Plan. For the purpose of the NCP, the FRERP (24 CFR part 2401) is the appropriate plan. Most radiological discharges and releases do not

result in FRERP activation and should be handled in accordance with the NCP. However, releases from nuclear incidents subject to requirements for financial protection established by the Nuclear Regulatory Commission under the Price-Anderson amendments (section 170) of the Atomic Energy Act are specifically excluded from CERCLA and NCP requirements.

(g) Removal actions involving nuclear weapons should be conducted in accordance with the joint Department of Defense, Department of Energy, and FEMA Agreement for Response to Nuclear Incidents and Nuclear Weapons Significant Incidents (January 8, 1981).

(h) If the situation is beyond the capability of state and local governments and the statutory authority of federal agencies, the President may, under the Disaster Relief Act of 1974, act upon a request by the governor and declare a major disaster or emergency and appoint a Federal Coordinating Officer (FCO) to coordinate all federal disaster assistance activities. In such cases, the OSC/RPM would continue to carry out OSC/RPM responsibilities under the NCP, but would coordinate those activities with the FCO to ensure consistency with other federal disaster assistance activities.

(i) In the event of a declaration of a major disaster by the President, the FEMA may activate the Federal Response Plan (FRP). A FCO, designated by the President, may implement the FRP and coordinate and direct emergency assistance and disaster relief of impacted individuals, business, and public services under the Robert T. Stafford Disaster Relief Act. Delivery of federal assistance is facilitated through twelve functional annexes to the FRP known as Emergency Support Functions (ESFs). EPA coordinates activities under ESF #10—Hazardous Materials, which addresses preparedness and response to hazardous materials and oil incidents caused by a natural disaster or other catastrophic event. In such cases, the OSC/RPM should coordinate

response activities with the FCO, through the incident-specific ESF #10 Chair, to ensure consistency with federal disaster assistance activities.

Appendix C¹⁴⁰

<u>Constituent</u>	<u>Value (PPM)</u>
Arsenic	0.05
Barium	1.0
Biochemical oxygen demand	20.0
Chemical oxygen demand	20.0
Cadmium	0.01
Chloride	150.0
Chromate	0.05
Copper	0.025
Cyanide	0.025
Dissolved oxygen minimum value	5.0
Fluoride	1.0
Iron	0.3
Lead	0.05
Nitrate	2.0
Oil	free of floating oil
Phenols	4.0
Phosphate	0.01
Selenium	0.01
Silver	0.05
Solids, dissolved	500.0

¹⁴⁰ Max S. Lale, *Third Annual Supplement to Basic Installation History: Longhorn Army Ammunition Plant, July 1, 1969 to June 30, 1970* (Marshall, TX: Thiokol Chemical Corporation, July, 1970), 13.

Solids, suspended	25.0
Sulfate	200.0
Zinc	5.0
Total heavy metals	5.0
Acidic/basic (pH units)	6.5-8.5
Temperature maximum value	(°F) 90.0

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