Second Edition

EMERGENCY RESPONSE HANDBOOK for CHEMICAL and BIOLOGICAL AGENTS and WEAPONS
Second Edition

EMERGENCY RESPONSE HANDBOOK for CHEMICAL and BIOLOGICAL AGENTS and WEAPONS

JOHN R. CASHMAN
Dedication

Both firefighters and statesmen lost a wonderful friend and a constant worker for the establishment of instrumentation and methodology that would provide improvement for meaningful operating procedures of the fire service. Chief John Eversole died on May 20, 2007. John was a giant in thought, word, and deed; and the fire service in the United States lost a gentle giant when he died. Chief John Eversole was a hazardous materials coordinator for the Chicago, Illinois Fire Department.

He was a member of the department for thirty years and worked on some of the busiest engines, trucks, hook-and-ladders, and squad companies in the western part of the city. Eversole was a member of the National Fire Protection Association standard committee that produced national hazardous materials NFPA-471, NFPA-472, and NFPA-473. He was also chairman of the International Association of Fire Chiefs’ hazardous materials committee.

He was a leader on the street, and in the committee rooms where the nitty-gritty of hazardous materials response in the United States is thrashed out. Chief John Eversole was approachable to all persons and eloquent in expressing his thoughts. He also had a definite command presence on an incident scene gained through long command experience. John, we are going to miss you.
Contents

About the Author xi
Introduction xiii

1 January 6, 2005: A Gas Attack on Home Ground 1

2 The Massacre at Columbine High School 45

3 Guide to Chemical/Biological Agent Response 59

4 Introduction to Biological Agents and Toxins 93

5 Guides for Emergency Response: Biological Agent or Weapon: Anthrax 119

6 Guides for Emergency Response: Biological Agent or Weapon: Botulism 133

7 Guides for Emergency Response: Biological Agent or Weapon: Brucellosis 139

8 Guides for Emergency Response: Biological Agent or Weapon: Glanders (includes Melioidosis) 145

9 Guides for Emergency Response: Biological Agent or Weapon: Plague 151

10 Guides for Emergency Response: Biological Agent or Weapon: Q Fever 157

11 Guides for Emergency Response: Biological Agent or Weapon: Ricin 163

12 Guides for Emergency Response: Biological Agent or Weapon: Staphylococcal Enterotoxin (SEB) 167
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Guides for Emergency Response: Biological Agent or Weapon: Smallpox (Variola)</td>
<td>171</td>
</tr>
<tr>
<td>14</td>
<td>Guides for Emergency Response: Biological Agent or Weapon: Mycotoxins/T-2</td>
<td>177</td>
</tr>
<tr>
<td>15</td>
<td>Guides for Emergency Response: Biological Agent or Weapon: Tularemia</td>
<td>181</td>
</tr>
<tr>
<td>16</td>
<td>Guides for Emergency Response: Biological Agent or Weapon: Viral Encephalitis</td>
<td>185</td>
</tr>
<tr>
<td>17</td>
<td>Guides for Emergency Response: Biological Agent or Weapon: Viral Hemorrhagic Fevers (VHFs)</td>
<td>191</td>
</tr>
<tr>
<td>18</td>
<td>Guides for Emergency Response: Chemical Agents and Weapons</td>
<td>201</td>
</tr>
<tr>
<td>19</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Arsenical Vesicants including Ethyldichloroarsine (ED), Methyldichloroarsine (MD), Phenyl dichloroarsine (PD)</td>
<td>215</td>
</tr>
<tr>
<td>20</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Arsine</td>
<td>223</td>
</tr>
<tr>
<td>21</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Cyanogen Chloride (CK)</td>
<td>229</td>
</tr>
<tr>
<td>22</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Diphosgene and Phosgene</td>
<td>233</td>
</tr>
<tr>
<td>23</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Distilled Mustard (H, HD)</td>
<td>239</td>
</tr>
<tr>
<td>24</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Blood Agent Hydrogen Cyanide (AC)</td>
<td>245</td>
</tr>
<tr>
<td>25</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Blister Agent Lewisite (L), Blister Agent Mustard-Lewisite Mixture (HL)</td>
<td>251</td>
</tr>
<tr>
<td>Page</td>
<td>Section</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Nerve Agent GF (GF)</td>
<td>257</td>
</tr>
<tr>
<td>27</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Nerve Agent Sarin (GB)</td>
<td>263</td>
</tr>
<tr>
<td>28</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Nerve Agent Soman (GD)</td>
<td>269</td>
</tr>
<tr>
<td>29</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Nerve Agent Tabun (GA)</td>
<td>275</td>
</tr>
<tr>
<td>30</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Nerve Agent VX (VX)</td>
<td>283</td>
</tr>
<tr>
<td>31</td>
<td>Guides for Emergency Response: Chemical Agent or Weapon: Blister Agent Nitrogen Mustard (HN-1), Nitrogen Mustard (HN-2), Nitrogen Mustard (HN-3)</td>
<td>289</td>
</tr>
</tbody>
</table>

**Glossary:** Quick Guide to Agents, Drugs, Equipment, Gear, Programs, and Terminology  295

**APPENDIX 1:** Lethal Nerve Agent (VX)  339

**APPENDIX 2:** International Chemical Safety Cards  347

**APPENDIX 3:** Frequently Asked Questions about Smallpox  351

**APPENDIX 4:** Lewisite  363

**APPENDIX 5:** Recognition of Illness Associated with the Intentional Release of a Biologic Agent  371

**APPENDIX 6:** Antimicrobial Prophylaxis to Prevent Anthrax among Decontamination/Cleanup Workers Responding to an Intentional Distribution of *Bacillus anthracis*  377

**APPENDIX 7:** Melioidosis  379

**APPENDIX 8:** Glanders  383

**APPENDIX 9:** Brucellosis  387
About the Author

John R. Cashman, AA, BA, MPA, has been writing about hazardous materials response and control for thirty years. He began his career covering events such as road racing and motocross in the summer, and snowmobile racing in the winter, in his off hours while an employee of the state of Vermont. He became a full-time writer of non-fiction in 1978. To date, he has over 250 magazine articles and six books to his credit. In addition, he has published *Hazardous Materials Newsletter* since April of 1980 (Haznews@msn.com).
Introduction

Definition of topic: An in-depth and complete training manual for first emergency responders and other secondary responders at all levels to incidents involving chemical and biological agents.

This valuable new reference book provides a comprehensive guide that thoroughly and expertly covers the fundamental practices and advanced tactics of emergency response to chemical and biological agents: nerve agents, vesicants, pulmonary agents, cyanogen agents, biological substances (bacteria, rickettsiae, chlamydia, viruses, and toxins), antidotes, pretreatments, vaccines, detectors, decontamination techniques, and medical treatment. In the United States, emergency response to chemical and biological incidents will be done by local hazardous materials response teams (HMRT) and first responders who will be assisted by the federal government. This includes firefighters, emergency medical service personnel, emergency management officials, police and sheriff’s agencies, civil defense employees, nurses/physicians and other hospital personnel, military, health regulatory, commercial response contractors and cleanup forces, industrial Haz-Mat teams and fire brigades, county/local/state/federal governments, the Red Cross, the Salvation Army, consultants, National Guard, Community colleges who train firefighters and EMS personnel, FBI, Coast Guard Haz-Mat Team, OSHA, FEMA, State Police, COBRA Teams, EPA, coroners, and suppliers who provide cleanup and manpower services to scenes of destruction. Since September 11, 2001, the U.S. government has spent vast sums of money for protective equipment and training to deal with chemical and biological agents out of fear of terrorism, industrial accidents, misuse, and criminal activities.

This book focuses on actual response techniques and offers advice to first responders and other government agencies for dealing with chemical and biological agents and weapons. Chapter 1 deals with the worst railroad wreck in the last thirty years in which chlorine, a poison gas in World War I, killed nine persons, sickened 554 others (75 of whom were admitted to hospitals), and caused the evacuation from their homes of 5,400 people for fourteen days. Other chapters focus on the killings at Columbine, Colorado, and biological/chemical agents that can wreak havoc and death on the population. Agents included are: Anthrax, Botulism, Brucellosis, Glanders and Melioidosis, Plague, Q Fever, Ricin, S.E.B. (Staphylococcal Enterotoxin B), Smallpox, Trichothecene Mycotoxins T-2, Tularemia, Venezuelan Equine Encephalitis (V.E.E.), and Viral Hemorrhagic Fevers (V.H.F.), among them: Crimean Congo Fever, Ebola Fever, Lassa Fever, Rift Valley Fever, and other VHF fevers.

Chapters focused on biological agents are presented in the following format: Agent (Introduction), Classification (Broad), Duration of Illness, Probable Form of Dissemination, Detection in the Field, Infective Dose (Aerosol), Sign and Symptoms, Incubation Time, Diagnosis, Differential Diagnosis, Vaccine Efficacy, Persistency, Personal Protection, Routes of Entry to the Body, Transmissible from Person-To-Person, Duration of Illness, Potential Ability to Kill, Symptoms & Effects, Defensive Measures, Vaccines, Drugs Available, Decontamination, Specific Ability to Kill, and Characteristics.
Each biological agent chapter has a Response on Scene by First Responders section that includes Caution, Field First Aid, Drugs, Antibiotics, Medical Management, Fire, Personal Protection, Spill/Leak Control, Symptoms, and Vaccines. Also, spread over other chapters, will include basic duties of various first responders including Fire Departments, Emergency Medical Services, Law Enforcement, and Hazardous Materials Response Teams.

Chemical agents considered include Arsenical Vesicants (including Ethyldichloroarsine, Methyldichloroarsine, and Phenyl dichloroarsine), Arsine, Cyanogen Chloride, Diphosgene, Phosgene, Distilled Mustard, Hydrogen Cyanide, Lewisite, Mustard Lewisite, Nerve Agent GF, Nerve Agent Sarin, Nerve Agent Soman, Nerve Agent Tabun, Nerve Agent VX, and Nitrogen Mustards (including HN-1, HN-2, and HN-3). These chemical agents and weapons will have basic information as follows: Formula, Vapor Density, Vapor Pressure, Molecular Weight, Liquid Density, Volatility, Medium Lethal Dose, Physical State, Odor, Freezing/Melting Point, Action Weight, Physiological Action, Required Level of Protection, Decontamination, Detection in the Field, Use, CAS Registry Number, RTECS Number, and LD50 (oral). Chemical agents will also have a mirror-image of the “Response on Scene by First Responders” questions addressed above for biological agents (i.e., Caution, Field First Aid, Drugs, etc.).

Our federal government has changed completely since the first attacks in 2001 in its manner of providing state governments with federal money for personal protective equipment, assistance, antibiotics, vaccines, grants, medical programs, detection devices, drugs and defensive measures. As a case in point, South Carolina received $90 million dollars in federal money to fight terrorism.

The Chairman of the National Intelligence Council released a report in Washington entitled, “The Global Infectious Disease Threat and Its Implications for the United States.” This report deals with warnings of growing possibilities for American citizens to come down with infections that run rampant in other parts of the world, since the United States is a sizable hub for world travelers, immigration and commerce. Also, we have a high percentage of American military service personnel serving in all sections of the world. The Asian continent has seen steady increases in infectious diseases such as the spread of HIV and AIDS. In addition, an estimated thirty diseases, unknown in the past, have appeared globally since the early 1970s. These diseases include Hepatitis C, Nipah virus that is encephalitis-related, and Ebola hemorrhagic fever, and other diseases that so far remain incurable. In like manner, infectious diseases such as malaria, cholera, and tuberculosis have rejoined our nation since the 1970s. Also, terrorist use of biological agents has increased; there were 140 anthrax hoaxes the United States in the late 1990s and, most recently, actual anthrax attacks in 2001. The report also gives a warning that most infectious diseases originate in other countries and are brought into the United States by travelers, immigrants, imported animals, foodstuffs, and our military troops who have served in far corners of the earth.

The response to chemical and biological warfare weapons, terrorism attacks, and even influenza mini-epidemics can require an immense number of federal/state/county/city/private workers and medical personnel ranging from physicians to registered nurses to emergency medical technicians and paramedics. As an example, the writer has actually seen an incident where thirty-one agencies from all levels of
government responded with an untold number of persons who were assigned at the site.

Any terrorist incident that uses chemical or biological agents is basically a hazardous materials incident. Hazardous Materials Response Teams (HMRT) and first responders to such incidents use the following principles and characteristics. They deal with abatement, action checklists, after-action reports, antibiotics, antidotes, biological agents, blister agents, blood agents, breakthrough time, as well as briefings and critiques. CAMEO (Computer Aided Management of Emergency Operations), case histories, chemical agents, chemistry of Haz-Mat, command post operation, compatibility, computers, and containment are well known to such responders. Containers, contingency planning, databases, decision making, decontamination, detectors, dispersants, disposal, emergency response plans, and evacuation are “must know” information for HMRT. Size-up & evaluation, exposures, funding/cost recovery, hazard analysis, incident command system, incident vigilance & discipline, industrial agents, leak/fire/spill control, and “lessons learned” are daily facts of life. They consider levels of incidents, levels of protection, manuals, material safety data sheets (MSDS), medical surveillance, monitoring, and national and local contingency plans among their standard operating procedures. HMRT members know that nerve agents, neutralizers, no-fight situations, offloading/transfer, patching/plugging, perimeter control can help them or hurt them. They study personnel safety, pH, physics, post-fire residue, protection, reactivity, recon, and resource materials to be better prepared. They also understand responder liability, scene management, secondary emergencies, S.O.P(s) & protocols, sorbent materials, staging areas, standards, storage, tactics, team concept, testing methods, toxicology, training, triage, vaccine, vectors, vehicles, weapons of mass destruction (WMD), and zonal delineation.

We are speaking here of “emergency responders” of all possible types and talents including firefighters, police officers, emergency medical technicians and paramedics, ambulance crews, decontamination crews both in the field and at hospitals and clinics, emergency management officials, military troops, health regulatory personnel, commercial response contractors, engineers and construction employees, industry HMRT and fire brigades, county/local/state/federal government responders, consultants and specialists, specialty teams and mortuary workers. First responders and other interested persons who deal with hazardous materials response and control, chemical and biological agent and weapon control, and the ever-growing number of people who are concerned about the steady growth of terrorism in the United States; are looking for hard facts, rather than theories.

The average lethal chemical agents in storage today are thousands of times less lethal, by weight, than equivalent amounts of biological warfare agents; because of their very high toxicity, the lethal biological agent dose can be far smaller than that required from chemical agents.

Chemical and biological weapons (CBW) have long been called “the poor man’s atomic bomb,” but they are actually weapons of mass destruction that once could be afforded only by a few powerful and industrialized nations; however, during the twenty-first century, a proliferation of technology has now made them readily available to second and third rate powers, as well as terrorists and one man or woman acting alone.

Terrorists have never had so many options to inflict death, injury, and destruction on a large scale as they do today.
Now, we finally know what terrorism is; the unfathomable suddenly became credible. First responders at the local, county, and state levels have been training for Domestic Preparedness defense for at least eight years, but when put to the test, they found they were badly at odds with the reality of terrorism. They had been trained to defend against NBC (Nuclear, Biological, and Chemical) agents, WMD, mass casualty incidents, and secondary explosives. The federal government’s definition of WMD states, “Any explosive, incendiary, or poison gas, bomb, grenade, rocket having a propellant charge of more than four ounces, missile having an explosive or incendiary charge of more than one quarter ounce, mine or device similar to the above; poison gas; any weapon involving a disease organism; or any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.” It never mentions commercial airliners with a minimum passenger load to allow take-over carrying a maximum load of aviation fuel and used as missiles. Our domestic citizens at this time find themselves living in a completely changed world. There were a good many dead at the World Trade Center, but very few injured who could be treated and saved. First responders drilling with mass casualty scenarios before September 11, 2001, expected casualties, not piles of dead bodies. What the hijackers created in New York City was a high death/low treatment scenario put into action—terrible, ghastly, and deadly action. The actual scenario played-out proved that the terrorists were eminently successful in reaching their goals. We were totally unprepared for their attacks or level of skill used to organize an attack to kill an estimated 6,000 Americans and others who came from eighty different countries around the world.

The “missiles” that hit the World Trade Center, a world-wide symbol of financial trade in the Wall Street area of New York City, destroyed much more than the military missiles the United States sent against training camps in the desert set up by Osama bin Laden in the past. Although the World Trade Center required seven years to construct and cost $1.5 billion in current dollars when it had its grand opening in 1973, a structure designed to withstand the damage done if the largest airliner available in 1973 would crash into the buildings, it could not stand the crash of two airliners, one into each tower of Building 1 (the first tower to be hit at 8:45a.m.) and Building 2 (the second tower to be hit just after 9 a.m., the tower with the observation deck 110 stories in the air).

**Nineteen Terrorists from the Middle East**

Mohamed Atta, Flight 11, Boston to L.A., American Airlines, Boeing 767, the first plane to hit the World Trade Center towers.

Marwan Al Shehhi, United Flight 175, Boston to L.A., Boeing 767, the second plane to hit the World Trade Center towers.


Wail Alshehri, American Airlines Flight 11.

Waleed M. Alshehri, American Airlines Flight 11.

Abdulaziz Alomani, American Airlines Flight 11.
Ziad Jarrahi, United Airlines Flight 93, Newark to San Francisco, crashed in Pennsylvania.
Khalid Al-Midhar, American Airlines Flight 77.
Majed Moqed, American Airlines Flight 77.
Nawaq Alhamzi, American Airlines Flight 77.
Salem Alhamzi, American Airlines Flight 77.
Satam Al-Sugami, American Airlines Flight 11.
Fayez Ahmed, United Airlines Flight 175.
Ahmed Alghamdi, United Airlines Flight 175.
Hamza Alghamdi, United Airlines Flight 175.
Mohald Alshehri, United Airlines Flight 175.
Saeed Alghamdi, United Airlines Flight 93.
Ahmed Alhaznawi, United Airlines Flight 93.
Ahmed Alnami, United Airlines Flight 93.

Although there were some secondary explosions cited just after impact, causing inferences that the hijackers may have hid explosives in the towers before-hand in preparation for the airliner crashes to come, it is more likely that these later explosions were caused by the effect of an estimated 35,000 gallons of jet fuel carried by two Boeing 767 aircraft, as well as structural damage to critical support structures. Building 2 fell first about 10 a.m., and Building 1 imploded and fell at roughly 10:30 a.m. A total of seven buildings at the World Trade Center collapsed and two were damaged.

At least five Kamikaze-like pilots using 14 “soldiers” as their crews hijacked four commercial airlines’ planes with great ease and flew two craft into separate towers of the World Trade Center in New York City, one into the Pentagon in Washington, D.C., and crashed the remaining plane in a Pennsylvania meadow after possibly heading back toward Washington, D.C. The incident was described as, “an act of war by madmen” by one commentator, but this writer does not agree they were madmen. They were exceptionally well trained, equipped, and motivated by a religious cause they expected would lead them to their promised land. Their carefully laid plans went off without a hitch, and resulted in an estimated death count of over six thousand U.S. citizens, responders, and foreigner visitors. In the material that follows, readers will be led through the attack and introduced to nineteen young men, both pilots and “soldiers” who were essential for the attack but probably did not plan, organize, or finance the venture. They proved what terrorists from the Middle East could do to the most powerful country in the world by studying our weaknesses, strengths, immigration laws, communications systems, and goodwill. They provided, in turn, evidence to us of disastrous weaknesses in our antiterrorist programs and domestic defense systems that we have spent billions of U.S. dollars on over the last seven years. Such weaknesses need to be corrected at once, or they can be utilized again.

American Airlines Flight 11, a Boeing 767 en-route to Los Angeles, California with ninety-two passengers aboard, left Logan International Airport in Boston, Massachusetts, lifted into the air and headed west. Before the passengers could even get accustomed to the early morning trip, the hijackers took over the plane by using knives and box cutters to stab two flight attendants and a business-class passenger before bursting into the pilots’ compartment and taking over the plane with their own pilot trained in the United States. Immediately after taking over the cockpit, the aircraft changed direction and began to lose
altitude. The hijackers aboard Flight 11 were named, or had selected names for this attack, Mohamed Atta, Abdalaziz Alomari, Waleed M. Alshehri, Wail Alshehri, and Satam Al Sugami. On September 11, 2001, Mohamed Atta and Abdalaziz Alomari had their photograph taken by a twenty-four-hour security camera as they exited the screening area at Portland, Maine, International Jetport. By 8:10 a.m., they were in control of a Boeing 767 “missile” loaded with 20,000 gallons of aviation fuel headed toward the World Trade Center on lower Manhattan Island. The airliner would write a new page in the history books of the United States. At 8:45 a.m., the hijacker pilot prepared to meet his maker and crashed his missile into the north tower of the World Trade Center. At first, bystanders thought it must be a freak accident, like the plane that crashed into the Empire State Building in 1947. Employees went into the hallways or sought solace from friends nearby, but it was reported that a public address system announcement told them it was all right to return to their offices. Some did not believe this seemingly official word, and started down the stairs. Some who tried to take the elevators down to the lobby of this massive building were burned by fireballs in the elevator shafts. The wonder is that so many survivors were actually able to make it down from as high as the eightieth floor by trudging down the stairs while they watched firefighters, emergency medical technicians, and police officers fight their way up on the same stair wells.

Another Boeing 767 missile, United Flight 175, left Logan Airport in Boston at 8:14 a.m. en-route to Los Angeles, California with fifty passengers and nine crew members. It was taken over in minutes, and later hit the south side of the south tower just after 9 a.m. American Airline Flight 77 using a Boeing 757 took off from Dulles International Airport located in Washington, D.C., a little after 8 a.m. carrying fifty-eight passengers and six crew members bound for Los Angeles, California. After a roundabout flight, Flight 77 hit the southwest side of the five-sided Pentagon at about 9:20 a.m. A Boeing 757, United Airlines Flight 93, took off from Newark, New Jersey, a few seconds after eight in the morning with thirty-eight passengers and seven crew members. This flight ultimately crashed in Shanksville, Pennsylvania, at 10:00 a.m., apparently after a battle between passengers, who had learned by cell phones calls of the attacks on the World Trade Center and the hijackers. The Boeing 767 and the Boeing 757 are reportedly so similar in performance and characteristics that pilots of such aircraft can fly one if they have been trained in the other.

The American Dream came crashing to earth when the World Trade Center’s north and south towers collapsed. Domestic terrorism by foreign troops, and the tremendous loss of life involved, led to a new awakening in American citizens of fear, uncertainty, revulsion, anger, awareness, and dedication. The Federal Aviation Administration shut down airports and ordered all flights airborne at the time to land at the closest, feasible airport. The City of New York closed all bridges and tunnels, causing a great walking migration of Manhattan workers to their homes in other locations. Buildings were evacuated near the collapsed Trade Center, as well as the United Nations buildings facing the East River. The New York Stock Exchange, the American Stock Exchange, and NASDAQ had to close. In Washington, D.C., just about everything was either evacuated, shut-down, or guarded after American Airline Flight 77 hit the Pentagon. U. S. borders with both Canada and Mexico were placed on highest alert. Two aircraft carriers and five smaller ships were alerted at Norfolk, Virginia, and ordered out to protect East Coast cities. By mid-afternoon, Urban Search and Rescue Teams and trained canines were alerted around the country from as far away as Sacramento, California, by the Federal Emergency Management Agency who sup-
ports a total of twenty-six such teams for area emergency response. Americans, and view-
ers around the world, began watching television hour-after-hour with rapt attention. They
could not tear themselves away from TV sets and radios. Do you remember where you
were on September 11, 2001? Do you remember what your first thought was at that time?
Was your first thought, ‘How could this happen in the World of the Free?’ This answer
should be provided by our federal government to all citizens in due time, but the writer
will try to provide some early idea of Who, What, Why, How and How Much. The reader
should be aware that the material that follows introducing the hijackers should be read
with caution. First of all, some of these men were probably “sleepers” who laid low in the
United States for months, even years, before being ordered to accept this assignment. With
just a few mistakes, they were able to hide themselves and their mission — once they were
informed what it was — until the mission was successfully completed. Some, responding
to orders, may never have revealed the real names they used in their home countries; they
may have had driver’s licenses, receipts, addresses, cell phone/Mail Boxes Inc. bills, and
other matter used for personal identification that provide totally false information regard-
ing correct name, address, and status. The names used in this document are the names
and ages that investigators came to know them by on or subsequent to September 11, 2001.
The names may have come from stolen identities, complete fictionalization, or use of a
dead person’s actual identity.

Mohamed Atta, who probably was the pilot of American Airlines Flight 11 that crashed
into the World Trade Center towers first, reportedly thirty-three of age, was born in the
United Arab Emirates, but had an Egyptian driver’s license. After obtaining a bachelor’s
degree in 1990 in Cairo, Egypt, he studied urban affairs for eight years at the Technical
University in Hamburg, Germany, and reportedly was connected to an Islamic fundamen-
talist group according to German investigators. Atta said he was a “cousin” to Marwan Al-
Shehhi, one of hijackers who died in United Airlines Flight 175 that also left from Boston.
Whatever the form of their relationship, they were always together in both Germany and
the United States until their death in separate planes on September 11, 2001. Atta came
from wealthy and successful parents and siblings. His parents lived in a nice apartment
that had a broad view of Cairo, and they had another home for holidays by the Medi-
terranean Sea. His father was a well-known lawyer and both his sisters had gone to advanced
schooling and had been awarded Ph.D. Mohamed Atta was never a poor young boy and
never lacked a good education. He wanted for nothing, yet until he became a terrorist he
never was able to develop a constant ideal and a vision. He was a bit intense and derided
other persons. His parents tried to get Atta to marry a number of times, but their plans
did not work out. After a final attempt by his father to arrange a marriage, Atta demurred
that he had to go back to Germany to study for his Ph.D., but then left for Florida to enter
flight school in quest of a higher goal. In Germany, Mohamed had joined an Islamic funda-
mental cell that planned and organized terrorist actions on American targets where he
maintained close relationships with his superiors, whoever they may have been. He would
disappear from school for long periods of time, but at Huffman Aviation in Venice, Florida,
and while practicing in rental planes and taking flight simulation training at SimCenter
Inc. in Opalocka, he was all business and attitude, some good and some bad. An FAA
flight examiner tested both Mohamed Atta and Marwan Al-Shehhi. The examiner tested
each man separately in several flights in a twin-engine Piper Seneca and sent his findings
to the Federal Aviation Administration. Then, the examiner issued both terrorists tem-
porary pilot certificates. The soon-to-be suicide pilots then moved to a rented apartment
in Hollywood, Florida. While in Florida, the two terrorists changed their stories several times, saying they were from Saudi Arabia, Pakistan, or Germany.

Mohamed Atta entered the United States in May of 2000, a man with a short temper who had a suicide assignment and a lot of luck. If his difficult personality got in his way, it did not betray him. He left few signs that he would be involved in terrorism in the United States. Apparently, he was the leader of the cell that took over American Airlines Flight 11, and he might have had some control over the United Airlines Flight 175 as well. On May 20, 2001, Mohamed applied for and received a Florida state driver’s license even though he had owned and driven a red Pontiac Grand Am since July of 2000, and moved into the Tara Gardens condominiums in Coral Springs, Florida. One week before getting his Florida driver’s license, he had been stopped by a Broward County “County Mounty” for driving without a license, and ordered to appear in court on May 28, 2001. When he did not appear in court, a bench warrant was issued for his arrest. That is, one of the subleaders of the Boston hijackers was supposedly being sought by police since May 28, 2001, when he crashed into the World Trade Center. At times, the terrorists living in Florida changed their living quarters, thus changing their address record every few weeks or months. However, they seemed to have a lot of meetings no matter where they were living. They kept in touch with others in various terrorist cells or their suppliers by visiting libraries or readily available Internet facilities. Federal investigators have retrieved hundreds of e-mail written in both English and Arabic from as far back as forty days before the actual attack. They also have a list of the addresses where the e-mails were sent throughout the country and abroad which could possibly be extremely helpful in identifying contacts, assistants, supporters, suppliers and payment routes.

Mohamed Atta took a trip to Spain from Miami Airport the first week of July 2001, and returned to Atlanta, Georgia, on July 19, a period for the trip of roughly twelve days. Marwan Al-Shehhi traveled from Amsterdam, Holland, in early May, but it is not clear where else he may have traveled. While enrolled at Huffman Aviation, Atta was warned by school officials to change his attitude or get out. During his stays in the United States, Atta lived in Venice, Coral Springs, and Hollywood, Florida. A rather handsome man, Atta is presently judged one of the main operatives in this conspiracy but not the ringleader in the total effort, not the guy behind the dream but willingly cooperative in the overall effort where he was only a part. Atta was certainly well trained and resourceful, a true believer! His training included learning how to fit into American society without making waves. Like Marwan Al-Shehhi, he went through pilot training at Huffman Aviation in Venice, Florida and continued on towards his goal by taking a couple of three-hour stints of air flight simulations in a Boeing 727 airliner at SimCenter Inc. located at Opalaka, Florida. Late in August of 2001, Atta filled out an American Airlines Frequent Flyer form, although he knew well that his mission was a suicide mission with no free airline mileage involved.

Marwan Al-Shehhi, who died in the second airliner to hit the World Trade Center, was twenty-three years old and lived in the United Arab Emirates. While in the United States taking flight training with Atta, he lived in Venice and Nokomis, Florida. Al-Shehhi spent a year studying electrical engineering at the Technical University in Hamburg, Germany. At the time he lived in Venice, he shared an apartment with Atta. They also lived together while in Germany.

Hani Hanjour died aboard American Airline Flight 77 that left Dulles Airport bound for Los Angeles, California, but was taken over and executed a large circle and ended up crashing into the Pentagon just outside the Capital at 9:40 a.m. Hani may have lived in
Phoenix, Arizona, and San Diego, California. He had received a commercial pilot’s license in 1999. At that time, he stated his home address as a post office box in Saudi Arabia. Hani Hanjour had attended CRM Airline Training Center in Scottsdale, Arizona in 1996, and in December, 1997. Due to personality problems, he tended to be argumentative; Hanjour tried to receive a certificate as a qualified pilot two times but failed each time.

Wail Alshehi, twenty-eight years old, also a pilot, died on American Airlines Flight 11. Some of the “sleepers” among the terrorists had been in the United States for years. An example could be Waleed Alshehri, a Saudi national who received a United States Social Security card in 1994. Another example could be Hani Hanjour, the pilot who crashed into the Pentagon, lived in Arizona where he received pilot training for five years before September 11, 2001. Alshehri, while in the United States, may have lived in Hollywood, Florida, and Newton, Massachusetts.

Waleed M. Alshehri, twenty-five years of age, was also a qualified pilot on American Airlines Flight 11. He graduated from Embry-Riddle Aeronautical University located in Daytona Beach, Florida, in 1997 with a Bachelor’s Degree in aeronautical science and the university’s commercial pilot license degree. He had a four-year scholarship paid for by the Saudi Arabian government. At Embry-Riddle, students represent more than one hundred nations, with many students being from the Middle East. Waleed also had a commercial pilot’s license, permitting Waleed to fly multi-engine planes. While at Embry-Riddle, he lived at 1690 Dunn Avenue in Daytona Beach. He paid about $290 a week for a room at the budget Homing Inn placed along U.S. Route 1 in Boynton Beach, Florida. At one time or another, Satam Al-Suqami, and Wail Al-Shehri also claimed the Homing Inn as their home address when acquiring Florida state photograph I.D. cards. These three men had late evening meetings with Mohamed Atta and Marwan Al-Shehri at a nearby Denny’s restaurant.

Abdulaziz Alomari who boarded American Airlines Flight 11 in Boston, was thirty-eight years of age and was rated as a private pilot and flight engineer by the Federal Aviation Administration. For a time, he lived in Vero Beach, Florida, accompanied by his wife and four children. Abdul told the owner of the apartment in Vero Beach he would be out of the house by the end of August, 2001, but actually stayed there until September 3, 2001. Alomari appeared outside the Virginia Department of Motor Vehicles located in Arlington on August 2, 2001, where he located a go-between inside a nearby parking lot to help him to obtain a Virginia identification card. Abdulaziz really needed some type of “good” identification to fulfill his mission. In the parking lot was a man named Herbert Villalobes who was happy to meet his needs. They got a form filled out and had the form signed by a notary public. Villalobes signed the form as “Oscar Diaz” and certified that Abdulaziz Alomari lived in Virginia. At least five of the nineteen hijackers received state of Virginia I.D. cards during the month before the attack on the World Trade Center and the Pentagon. Alomari told the owner he was going home, but made his way to Boston. At an earlier time, he listed his previous employers as Saudi Flight Ops which handles aircraft maintenance for Saudi Arabian Airlines at Kennedy Airport in New York.

Ziad Jarrahi was aboard United Airlines Flight 93 where the passengers, who knew about the crashes into the World Trade Center from what others passengers on this flight had learned from calling their loved ones on cell phones, apparently attempted to rush the hijackers when the plane crashed into a meadow in Pennsylvania. The Federal government has a Hamburg, Germany, pilot’s listing in the name of “Ziad Jarrah.” At the U.S. Fitness Center in Dania, Florida, there is a record for club member # 5887, Ziad Jarrah, who had
a membership for two months from May 7 to July 7, 2001. Ziad Samir Jarrahi did actually take self-defense lessons in Dania. Of Lebanese extraction, Jarrahi was mainly interested in martial arts instruction while in Dania. He seemed to want to learn “street-fighting” techniques like karate and how to control a bigger man with strictly his hands.

Others not identified as “pilots,” are treated below. These may include non-military “soldiers” who surfaced in the United States for this single suicide assignment.

Khalid Al-Midhar was aboard American Airlines Flight 77, a Boeing 757 from Dulles Airport. It was reported that he possibly had lived in San Diego, California, and New York, and that he had a B-1 visa good for one-year for business dealings. In December 1999, Khalid Al-Midhar and Nawaf al-Hazmi (see below) were photographed by the security service of Malasia at Kuala Lumpur alongside a man named Tawfiq bin Atash, better known by his terrorist moniker of “Khallad.” Khallad was a member of Osama bin Laden’s terrorist group, Al Qaeda who had been involved in planning the attack on the U.S.S. Cole in Yemen harbor. In mid-August of 2001, both Midhar and Hazmi were already in the United States living undercover preparing for some type of terrorism incident, and Federal Bureau of Investigation agents were looking for them without success. After they landed at Los Angeles National Airport, carrying Saudi passports sometime in the year 2000, Al-Hamzi rented a room in San Diego from September to December, 2000, with Al-Midhar sharing the room. On September 11, 2001, they both were in the airliner that crashed into the Pentagon just outside of Washington, D.C.

Majed Moqed was listed as a passenger on American Airlines Flight 77.

Nawaf Al-Hamzi on Flight 77, while in the United States may have lived in Fort Lee and Wayne, New Jersey and San Diego. Al-Hamzi and Khalid Al-Midhar purchased airline tickets in their own names on American Airlines Flight 77 that crashed into the Pentagon.

Salem Alhamzi on American Airlines Flight 77, while in the United States may have lived in Fort Lee and Wayne, New Jersey.

Satam Al Suqami on Flight 11, stated he was from the United Arab Emirates. He was positively identified as one of the Flight 11 hijackers only after his passport was found during a foot-by-foot search of the debris and rubble from the World Trade Center done by first responders.

Sayez Ahmed on United Airlines Flight 175, while in the United States may have lived in Delray Beach, Florida.

Almed Alghamdi was on United Airlines Flight 175. While in the United States, he was said to have lived in Vienna, Virginia and may have lived in Delray Beach, Florida.

Hamza Alghamdi was also on Flight 175, and while in the United States he lived at the Delray Beach Racquet Club (Florida) located at 755 Dotteral Road with a few other people. Since this condominium complex hosts the Rod Laver Tennis Academy, they had to get the “look” worn by others around them so they often carried tennis rackets and carried small bags supposedly for storage of their tennis shoes and street clothes. The three men left the racquet club sometime around September 9, 2001. Hamza was only twenty years old, and looked about seventeen or eighteen.

Mohald Alshehi was also on Flight 175, and while in the United States may have lived in Delray Beach, Florida.

Saeed Alghamdi was on board United Flight 93, and while in the United States may have lived in Delray Beach, Florida.
Ahmed Alhaznawi is listed as twenty years old and was aboard United Airline Flight 93. While in the United States, he probably lived in Delray Beach, Florida.

Ahmed Alnami was also on United Airlines Flight 93 and while in the United States may have lived in Delray Beach, Florida.

The hijackers had been trained and counseled to keep them from attracting attention in American society. Particularly for the “sleepers” who stayed in the U.S. for longer periods of time, a guide was produced, one that could easily be duplicated at any copy or print shop, that instructed the men to shave any full-face beards, live in newly constructed areas of town where people do not know one, and drink alcohol, and chase women. They are encouraged to be “social,” open, and friendly with people — apparently, this was a tough requirement for the hijackers who had other thoughts on their minds. They are also taught to get and use a cell phone, go to a ballgame, coach a soccer team, and wear a proper “American” hairstyle. They learned how not to use traditional Muslim greetings — a “Peace be with you” or a “May Allah reward you” — could ruin all their planning; not to cause trouble in their adopted neighborhoods, and not to park in “No Parking” zones. The men from the Middle East had absolutely no trouble in securing state driver’s licenses or other seemingly acceptable photo identification, obtaining fake addresses at various Mailboxes Inc. facilities, or buying airline tickets with various VISA cards or even buying one-way tickets for cash — supposedly a warning sign for airlines and travel agents. They freely rented cars with questionable identification, rented a variety of apartments and/or rooms, and paid their ever-present U.S. dollars for bar bills. Whether or not they chased women is open to question. They were free spending without having gainful employment, used cell phones with abandon, and sent e-mail at library facilities to confer or report to others. They lived quietly in a very successful fashion, *almost* like citizens of the United States.

“Sleepers” or undercover members probably had training similar to that expressed in the so-called “Al Qaeda Handbook” (actual title in English, “Military Studies in the Jihad Against the Tyrants”) U.S. officials referred to in the recent trial of suspects in the 1993 bombing of the same World Trade Center in lower Manhattan. This handbook contains a number of directions on how to set-up clandestine meeting locations. It covers methods of operations, such as “The matters of arming and financing should not be known by anyone except the commander. The apartments should not be rented under real names. They should undergo all security measures related to the military organization’ camps. Prior to executing an operation, falsified documents should be prepared for the participating individuals. The documents relating to the operation should be hidden in a secure place and burned immediately after the operation, and traces of the fire should be removed. The means of communication between the operation and participating brothers should be established. Reliable transportation means must be made available. It is essential that, prior to the operation, these means are checked and properly maintained.”

The nineteen hijackers even got very explicit instructions when they began their trip to the Magic Kingdom. Below are excerpts from such instructions the terrorists received before their final flight. The language below is a translation from Arabic to English, and provides excerpts from copies of the messages that were found in three different places.

"On Their Last night: 1. Pledge of allegiance. 2. Review the plan carefully. 3. Reading a verse from Quran that calls for endurance (try to train yourself and understand the meaning of this verse). 4. Reading a verse from Quran, which says obey God, his Prophet, and don’t hesitate so
that you will fail. 5. Night prayers and call to God for help. 6. Reading from Quran. 7. Purify your heart and forget the world, because the time to play has passed and be ready for Day of Judgement. 8. Be happy, because the distance between this life and your joyful new life is short. 9. Close your eyes and remember that you have been done injustice, but will eventually triumph. 10. Remember God's saying, You were waiting for death before you met it. And, how many small groups were able to triumph over large ones? 11. Remember to pray for yourself and your brothers. 12. Drive out the evil. Check your weapon. 14. Tidy up you clothes. 15. Pray the morning prayer with your brothers."

"Stage 2: When the taxi takes you to the airport. When you arrive, say your prayers. And smile, be satisfied, because God is with the faithful and He is guarding you, although you don't feel it. Say your prayers, God made us triumph ... Try not to have others watch you while you are uttering your prayers. Don't be confused, and don't be nervous. Look cheerful and satisfied, because you are doing a job which is loved by God, and you will end your days in heavens where you will join the virgins ..."

Stage 3: When you board the plane and before you step in, read your prayer and repeat the same prayers we mention before, when you take your seat. Read this verse from Quran: 'When you meet a group, be steadfast and remember God, you will be triumphant.' Give a priority to interests of the group and the job. Don't take revenge for yourself and make everything for God. Apply the rules of the prisoners of war. Take them prisoner and kill them as God said; No prophet can have prisoners of war. If everything goes well, each one of you will touch the shoulder of his brother. At airport, at plane and at cabin, remember that what you are doing stands for God and don't confuse your brother. But encourage them and remind them of the saying of God. Open your chest welcoming death in the path of God and utter your prayer seconds before you go to your target. Let your last words be, There is no God but God and Mohammed is his messenger. Then, God willing, you will be in heavens. When you see the infidels, remember that the enemies of Islam were in the thousands, but the faithful were victorious."

The excerpts above will give both Americans and citizens of the world an idea of what they are up against in the War on Terrorism. We are now engaged in a Holy War as far as our enemies are concerned, and it may be a very dirty war. World War I was called The Great War, World War II was called The Good War. What do we call this new war? We don't even know who our enemies are.

Using their own names in some instances, the hijackers left a paper trail of receipts. This would be a plus for them since their identification would make them heroes for all time in the Middle East. Planning for the hijackings may have begun as early as 1996, while reconnaissance of the Logan International Airport/Massport in Boston, probably commenced six months before the actual attack. At least five of the ten terrorists who took over two airliners operating out of Logan International Airport received extensive flight training in United States aviation training facilities.

The terrorists did not work at any jobs besides setting up the most ruinous and deadly terrorist event to yet take place in the United States, yet they had spent an estimated $500,000 for travel around the world, rental cars, fake addresses, martial arts books and tapes, apartments, motel rooms, tuition at pilot training schools, and the high price of Business Class airline travel. However, shortly before the end of their story, they sent a package to a contact abroad. Investigators theorize that the package contained additional money that they were returning. Did the CIA, the FBI, the Department of State, the Department of Justice, and all politicians fail to protect American citizens from the worst terrorist attack to yet hit the United States? Historians will answer “Yes,” while many of us will demure since we ourselves never really had any idea that the strongest country in the entire
Introduction

world could ever be victimized by this particular type of attack. People may be thinking CIA and the FBI managers should start working at their jobs a bit harder and do away with the constant embarrassment their employees have caused by leaking secret information over recent years. There were previous intelligence reports, in hind-sight, that should have given a clue to those in authority as to what was going on. The terrorists did make some mistakes that could have botched their entire assignment, but nobody reported their mistakes, or if they did, no one in authority did anything about such a report. After the World Trade Center collapsed, some intelligence reports seemed far more significant than before. That is one problem that will cure itself in no time. The American people will now know what terrorists can do, and how well they can do it in the United States in spite of all the money that has gone into Homeland Defense, WMD, and NBC training. As one example, one intelligence report concerned itself about a member of Osama bin Laden’s family who had supposedly been warned by a contact to leave Saudi Arabia for a safer location, possibly Afghanistan, before a certain deadline. In addition, bin Laden had a well-known desire to shift his attacks on U.S.-related targets outside the United States to inside the country; that is, to domestic terrorism. Still the people, and the authorities, had no warning at all. Hundreds of firefighters, police officers, and emergency medical technicians died in the World Trade Center because they had insufficient knowledge about the real situation or the method of construction of the towers.

Osama bin Laden is the big, bad bogey-man who has fear and loathing etched into the faces of all Americans, yet his many relatives love the United States; it is estimated that forty of them were living here on September 11, 2001. Most of them left the country within two days, and the United States just let them go rather than taking them into custody as material witnesses. The family is all-important in Saudi Arabian culture as it is in Arab and Muslim populations around the world. Osama secrets himself in the mountains and poverty of Afghanistan, although it is not well known to the American public is that in Boston two of his uncles and one of his sons are wealthy businessmen; Harvard University was given $2,000,000 by the bin Laden family.

Perhaps our government does not really understand that they have a religious war on their hands, rather than a political war. Religious wars have been continuous over the centuries until one side is triumphant and the other side is deceased, whereas political wars come and go as one demagogue follows another and neither one has enough troops to kill everybody on the other side. Religious wars are vastly different than political wars — a lesson that we must learn. Terrorism is directly related to the news media. Terrorism cannot exist without media attention. A high body count of innocent people is most important, but only if the media is there to take pictures and do news reports. Religious terrorists are much more fearful than political terrorists. They know no bounds to destruction. They will not be stopped until they reach their goal, whatever their goal may be.

“A fact that is particularly surprising is that some of the few fathers among the terrorists in New York City and Washington, D.C. brought their families and children with them to the United States. The families went shopping in the malls, the children attended local schools, played with the neighborhood kids, and ate a lot of pizza and other treats. All in all, they appeared to lead ordinary “American” lives, although the fathers among them meant to cause the destruction of America and American citizens.

On September 6, 2001, a white Mitsubishi automobile driven by one or more of the two hijacking groups that were to start their attacks over Boston entered the garage at Logan International Airport and remained there for almost two hours according to surveillance
photos taken at the garage. In addition, the white Mitsubishi made two visits on September 9 — two days before the attacks that changed the world — lasting about forty-five minutes for the first visit and over an hour for the second. September 10 saw the same Mitsubishi back at the Logan garage for about one-half hour. The Mitsubishi made its last journey to the Logan garage the morning of the September 11.

Mohamed Atta and Marwan Shehhi felt confident enough to let down a bit at Smukums restaurant in Hollywood, Florida, the Friday before their scheduled meeting with death. They had cocktails (five drinks of vodka for one and rum and coke for the other), and, when the waitress presented the bill for $48 because she was going off shift and wanted to get her tip, Atta took it as an affront to his pride. He became incensed, thinking he was being billed early because restaurant employees thought he did not have any money. Atta reportedly flashed a stash of $50 and $100 bills, and said something about being an American Airlines pilot (which he would be, at least until he died crashing his plane into the World Trade Center four days later) and asked, “Why would I have any problem paying a $48 bar bill?”

In late August of 2001, Waleed M. Alshehri and Wail Ahshehri, who may have been bothers, used a Visa card to purchase tickets on American Airlines Flight 11, and Mohald Alshehri and Fayez Ahmed bought seats on United Airlines Flight 175. A couple of days later, Ahmed Alghamdi and Hamza Algham arranged for seats on United Airlines Flight 175 as well; while Mohamed Atta and Abdulaziz Alomari used a Visa card to secure two seats together in the Business Class section of American Airlines Flight 11. Satam Al-Suqami purchased his ticket with cash. There were absolutely no problems caused by the purchase of these tickets, and nobody asked any questions. On September 10, Mohamed Atta and Abdulaziz Alomari rented a Nissan Altima in Boston, drove north to Portland, Maine, and stayed one night at the Comfort Inn near the Portland International Jetport. Another two terrorists on the same evening probably took their rest at the Milner Hotel in downtown Boston. Ahmed Alghamdi and Hamza Alghamdi had a room at Days Hotel in Brighton, near the Massachusetts Turnpike in the Watertown area, and Waleed Ashehri and Wail Alshehri probably stayed at the Park Inn Hotel in Newton, Massachusetts. Except for Portland all these locations are within easy driving distance from Boston’s Logan International Airport. Why Atta and Alomari went to Portland is a mystery. The trip must have been very important to them, but why? Did they have to pick-up a person or persons who entered the United States from Canada, or did they just want to keep the number of terrorists hiding in the Boston area that evening to a minimum number. Mohamed Atta and Abdulaziz Alomani were late in arriving from Portland via a U.S. Air commuter flight the morning of September 11.,and Atta’s suitcases did not reach the death plane in time for take-off. From the luggage, and a white Mitsubishi automobile that had visited Logan airport a number of times during the prior week, investigators found two videotapes apparently made by Intelligent Television & Video of cockpit simulation videos depicting commercial jet flight with one video showing in-flight training for both the Boeing 757-200 and the Boeing 747-400. These videos were similar to the Microsoft Flight Simulator 2000 software that enable a commercial jet pilot or flying buff to do simulated flying of a number of different planes including the Boeing 737-400 and the Boeing 777-300. Also included was a training booklet for using flight simulators for both the Boeing 757 and the Boeing 767, the planes actually used to bring down the World Trade Center and to attack the Pentagon.
Student and Other Visas

On September 11, 2001, six of nineteen hijackers were recognized by airline passenger profiling systems and received special handling. Two more were recognized because of problems with their identification, while another one was keyed for special evaluation because he was traveling with a man who had questionable personal identification. That is, nine hijackers of nineteen (47.4%) were recognized as needing special evaluation and scrutiny as a result of a profiling test. The nine had their checked baggage checked for explosives (all passengers have their carry-on baggage and themselves checked). They took over the four planes with box cutters and small knives, which we not considered weapons on September 11, 2001. Two of the hijackers were also on a Federal Bureau of Investigation (FBI) watch list of potential terrorists, but nobody told the airlines of this fact.

On Monday, March 11, 2002 — six months to the day of the September 11 terrorist attack on America — the Huffman Aviation flight school (Venice, Florida) received student visa approval forms for Mohamed Atta and Marwan Al-Shehhi from the U.S. Immigration and Naturalization Service, a part of the United States Justice Department, permitting the pair to live and study at a flight school six months after they had flown two separate commercial airliners into the World Trade Center killing upwards of 3,000 people. Is that horrific mistake justice, or incompetence for the more than 3,000 America citizens who died in this single attack or incompetence?

Student and regular visas allow entry into the Land of the Free with no checks and balances, where seemingly no one seems to be held accountable. Terrorists have used the freedom allowed by our immigration laws to kill United States’ citizens and visitors from other countries. The reader should be aware that the United States has no reliable, national system for controlling or even monitoring immigrants who overstay a student or regular visa. It seems that many immigrants who have a U.S. visa just melt into American society. They have very little chance of being caught; our present laws and routines almost guarantee that none will be caught. By the simple fact that they have an U.S. visa, they then have same legal protections that American citizens have. North America, in both the United States and Canada, is entirely the land of the free sought out by everybody in the entire world. The number of illegal immigrants within U.S. borders tallies at about 11,000,000. As of January of 2002, four months after the September 11, 2001, tragedy, 314,000 illegal immigrants were denied the right to remain in the United States for crimes or actions, and have been sentenced to be deported, yet the federal government has no information at all as to where in the country they are. A Taliban official could come to the United States with a student or regular U.S. visa, answer a few questions correctly at the U.S. embassy in whatever country he called his home, and, like other terrorists who recently used this gimmick, he would never have to attend a single class. He would be completely free to go underground and set up any program he wanted to conduct against the freedom of the United States or any country in the entire world. The situation, at present, is entirely out-of-hand.

There is some talk among politicians in the Bush administration about broad measures to restrict and control immigration of aliens who have no love or respect for the United States, and have a record to prove it. The central question seems to be, will our federal government respond with security arrangements to keep the terrorists out and be accountable for the success of such methods. Is our federal government actually aware that a whole new
world began on September 11, 2001? Can the United States handle the challenge of terrorism? In the past, U.S. immigration policy has been a sieve. Most of the nineteen terrorists who hijacked four airliners on September 11 entered the United States legally on student, business, or tourist visas. They were not citizens of the United States, but because they have U.S. visas they had the same rights and protections as United States citizens.

As an example, Hani Hanjour was a pilot traveling as a passenger aboard American Airline Flight 77 that left Dulles Airport in the early morning on September 11. Hanjour later appeared to be a pilot, trained in the United States, who flew Flight 77 into the Pentagon. Hani Hanjour used a student visa to enter the U.S. in a legal manner. *Time* magazine (October 1, Vol. 158, No. 15) reported, “He had been accepted for an intensive English course at Holy Names College in Oakland, California. When classes actually began, Hani did not show.” He resurfaced in American society on September 11, 2001, after learning how to fly commercial airliners in San Diego, California and in Maryland. Mohamed Atta was allowed to enter the United States when immigration authorities noted he had an application for a student visa pending.

Almost anyone can get a visa to visit the United States. Fifteen out of nineteen hijackers received their visas legally in Saudi Arabia. Unrelated as far as is known, a Saudi citizen, Abdulla Noman, worked for the U.S. Commerce Department issuing visas in Jeddal, Saudi Arabia. Noman was arrested in early November of 2001 for selling U.S. visas in Las Vegas, Nevada. A government witness stated to the FBI that he had paid a little over $3,000 to Noman for an U.S. visa in 1998. A wealthy person can actually buy an U.S. visa in a number of cases, and it is all perfectly legal. Our immigration laws are totally out of sync relative to the safety of American citizens.

Does the United States believe in complete tolerance to border control problems, or national security in the face of repeated terrorist attacks? Our government’s top priority is, or should be, to protect the rights of American citizens. Some legislative moves have been made by the administration to control and contain student visas, but educators are furiously fighting such measures for a very good reason: although foreign students account for 3.4 percent of total enrollments in 2000, they paid 7.9 percent of tuition and fees. In 2000, foreign students brought $11 billion of outside money into the United States. Students from middle-eastern countries are only a small percentage of foreign students attending school in the United States. A much higher percentage of students from China, India, Japan, South Korea, Taiwan and Canada existed in 2001.
January 6, 2005: A Gas Attack on Home Ground

You have to go back to February 24, 1978, for an incident that brought hazardous materials to the attention of the national media like the 2005 incident in Graniteville, South Carolina. Hazardous materials spattered upon the public consciousness of our nation with incredible force on February 24, 1978, when a single jumbo tank car carrying 27,871 gallons of liquefied petroleum gas (propane) ruptured with a Hiroshima-like fireball in downtown Waverly, Tennessee, killing sixteen persons and leaving scores more to stumble through the business district, skin dripping from their bodies like runny Saran-wrap. Two days earlier, a high-carbon wheel on a gondola car, its incompatible brake shoes overheated by a handbrake negligently left in the applied position, broke seven miles outside of Waverly allowing the damaged wheel-truck to bounce across cross-ties through deserted countryside and finally derail twenty-four cars in downtown Waverly. Within its 25/32-inch-thick steel envelope, tank car UTLX-83013 carried roughly twice the weight and three times the volume of compressed, flammable gas permitted in a single tank car prior to the late 1950s. The benign-appearing yet massive bomb became an attraction, a curiosity luring townspeople into the area. When the liquid propane leaked from that fragile container forty hours after the derailment, it would instantly expand 270 times to highly flammable gas waiting for an ignition source, and the story of Waverly would be etched in 1,700 degree heat.

In Waverly, the hazardous material was propane; in Graniteville, South Carolina on January 6, 2005, the hazardous material was a chemical agent named chlorine, one of the chief toxic weapons used during World War I. Nine persons died needlessly from a First World War chemical agent. It was not the first rail horror to haunt Graniteville. On November 10, 2004, in Graniteville, five workers at a textile mill driving home after working all night were killed at a railroad crossing. A Norfolk Southern train engine pulling two cars hit their car doing 45 M.P.H. in a stretch of track with a maximum speed allowed of 49 M.P.H. Three automobiles tried to beat the train to the crossing, according to witnesses; but only two won the race. The third car was struck by the train engine. All five occupants in the car were killed.

In the 2005 incident, a freight train operated by Norfolk Southern in Graniteville, with three tank cars of chlorine plus two cars loaded with other hazardous materials, ran a switch that crashed the moving train into an unoccupied train on a siding at a textile plant. Nine people were killed by inhaling chlorine gas. The crash happened at about 2:30 a.m., while about 400 people were working the night shift at Avondale Mill, a textile plant. At least 511 persons were examined by emergency departments after exposure to chlorine gas, 69 persons were admitted to seven hospitals throughout the area, and 18 persons were treated in doctors’ offices. In addition to nine dead, at least eight people were in critical condition. The dead bodies in the textile mill amounted to five, plus a very unlucky truck driver from Quebec, Canada, who was apparently sleeping in his truck on mill property, and never work up. The body of a man was found in his home. The engineer of the occupied
train either died in the train wreck or from ingestion of chlorine. Another body was found later. Officials ordered all 5,400 people within one mile of the incident to evacuate the scene. Employees in the textile mill right on scene had to run for their lives and evade the green haze of chlorine gas that stayed near the ground since chlorine is heavier than air. One of three chlorine tank cars was leaking, and a second one was apparently questionable. When the chlorine liquid leaked from the one car, it expanded at a 460-to-1 ratio and became a chlorine gas.

Many Graniteville residents were directed towards decontamination stations located at the University of South Carolina at Aiken, and Midland Valley High School. There they had their contaminated clothes confiscated, and after they went through a bath with soap and water they were treated with oxygen if necessary. Roughly twelve persons decided to avoid the evacuation order and stay at home, after initially being told to do just that. A dusk to dawn curfew was put into place within two miles of the wreck site in response to a feeling the cool night air would cause them chlorine to settle close to the ground. Two days after the wreck, about forty tons of crushed lime was dropped near the leaking car to start neutralizing the chlorine. Norfolk Southern paid for hotel rooms and given $100 Wal-Mart gift cards or checks to people who were forced to evacuate. Investigators were trying to determine why the manned locomotive carrying chlorine in three tank cars and two other hazardous materials left the main track and hit a Norfolk Southern train parked in a siding. There seemed to be some suspicion that the crew who had parked the train a few hours earlier had left the switch in the wrong position.

As of January 14, 2005—eight days after the wreck—twenty-two patients remain hospitalized. The Aiken County Sheriff’s Office holds warrants for the arrests of fifteen individuals who changed the address on their driver’s license to a Graniteville address and later were reimbursed by Norfolk Southern Railway for expenses. The Graniteville-Vaucluse-Warrenville Fire Department has relocated its headquarters to the former Community Services building, and the fire service and Haz-Mat returned today to an all-volunteer force. Animal control officers reunited 287 pets with their owners, and two dead dogs were sent to Columbia for autopsy to determine the cause of death. Six pets have died since being returned to their owners. At 1500 hours on January 19, 2005—thirteen days after the rail wreck, death, and injuries—the chlorine purging process was complete. Air monitoring readings of 0.0 ppm (parts-per-million) were detected at the intake and outtake of the rail tank car. A hole was cut in the tank to allow Norfolk Southern contractors to pressure wash the tank car. The car will be loaded onto a flatcar and transported to Altoona, Pennsylvania, where it was impounded, subject to further investigation by the National Transportation Safety Board.

On February 6, 2005—a month after the Graniteville wreck—the three-man crew accused of failing to switch the railroad track back to the main line before disaster hit were fired by Norfolk Southern Railways. A railroad spokesman stated that the workers were terminated because they “failed to perform their duties properly.” Union officials said the three men will appeal, and each man had at least twenty-five years experience. The accident on January 6, 2005, killed nine people and injured hundreds more.
A Senate Resolution

South Carolina General Assembly

TO EXPRESS THE DEEPEST SYMPATHY OF THE MEMBERS OF THE SENATE TO
THE FAMILY AND MANY FRIENDS OF WILLIE CHARLES SHEALEY OF GRANITE-
VILLE WHO DIED AS A RESULT OF THE TERRIBLE FREIGHT TRAIN ACCIDENT
ON JANUARY 6, 2005, IN GRANITEVILLE WHICH SUBJECTS HUNDREDS OF
PEOPLE TO DEADLY CHLORINE GAS.

Whereas, the members of the Senate were deeply saddened to learn of the death of Mr.
Willie Charles Shealey of Graniteville at the age of forty-three who died as a result of expo-
sure to deadly chlorine gas which was released as a result of a freight train accident in Gran-
itiveville earlier this year; and

Whereas, Charles Shealey was an employee of Avondale Mills at the Woodhead plant,
was third shift supervisor, and one of the top managers at this facility; and

Whereas, his recent promotion and receipt of corporate awards signified that he was a
person who was rapidly moving up in the Avondale ranks; and

Whereas, he was a person who cared deeply about his job, about the quality of the prod-
ucts he helped produce, and about his family and fellow associates; and

Whereas, Charles Shealey was a devoted husband and father of three sons. He kept pho-
tographs of his sons at all stages of their lives on his locker at the Woodland plant; and

Whereas, he served the Graniteville community in a number of different ways and also
served his country as a member of the South Carolina National Guard 122 Engineering Bat-
talion in Graniteville; and

Whereas, the train accident in Graniteville is one of the worst disasters ever to have
occurred in South Carolina which has had many tragic consequences, the most significant of
which is the loss of many fine South Carolinians like Charles Shealey; and

Whereas, the members of the Senate, by this resolution, would like to extend their heart-
felt condolences to his widow, Mrs. Sherry Randle Shealey and their three sons, Chad, Travis,
and Brent, and to other members of his family upon the death of this truly wonderful man.

Now, therefore,

Be it resolved by the Senate:

That the members of the Senate express their deepest sympathy to the family and many
friends of Willie Charles Shealey of Graniteville who died as a result of a terrible freight train
accident on January 6, 2005, in Graniteville which subjected hundreds of people to deadly
chlorine gas.

Graniteville was one of the last “company towns” in the United States. In its past history,
Graniteville was wholly owned by the “company” including buildings, schools, layout of
the land that comprised the town, streets, and houses where employees of the firm lived
and paid rent to the company. Everything was provided by the company. As with many
company towns, there was no city council, no mayor, and no governing structure whatso-
ever. As the only landlord in town, Graniteville provided the town’s security, sewage treat-
ment, water, power, and town maintenance buildings and structures. Best of all, almost
every adult, except retirees, had a job with the company. There was almost no unemploy-
ment during most of Graniteville’s history.
A Pictorial Timeline of Graniteville, South Carolina (1845–1996) was written by Jean Clark Boyd and produced by the Horse Creek Historical Society: Branch 1 of Vaucluse, Graniteville, Warrenville, and Stiefeltown. According to this source, William Gregg was the founder of Graniteville and the Graniteville Manufacturing Company. He was elected the company’s first president on March 7, 1846. Gregg designed his own mill as well as sawmills that created lumber for worker housing and the interior portions of the mill. Granite on the company property was used to shore up the walls of the canal and to construct the exterior of the mill. By November of 1848, Gregg had built forty cottages for his workers, all the same color. About twenty-two of these buildings still remain on Gregg Street.

In June of 1848, two bales of cotton were purchased to christen the new Graniteville factory, and to start the machinery in the new water-driven, turbine-powered mill. By September of 1848, advertisements were taken in the local paper for an additional 300 workers for the Graniteville Manufacturing Company. By November of 1848, the village of Graniteville was a going concern consisting of one hotel, an academy, a post office, five stores, twelve boarding houses, eleven supervisors’ houses, and forty cottages for workers. A year later, the village had 325 workers in a population of 900.

On June 3, 1861, the Civil War came to Graniteville, South Carolina. Company F, 7th Regiment of the South Carolina Volunteers was enlisted that date in Graniteville with 121 men and boys. By the close of the war, fifteen had been killed in battle, thirty-one had been wounded, and ten died while in service (46.3 percent killed, wounded, or died in service). In April of 1862, Graniteville got hit with a scarlet fever epidemic; while in October of 1862 with a shortage of workers due to the Civil War, Graniteville Manufacturing Company drew up an advertisement seeking twelve or fifteen “Negro men” to work for wages. By January of 1864, the railroad was coming to Graniteville, and 500 Negroes were working on that stretch of tracks. In June of 1865, William Gregg was pardoned for providing supplies to the Confederate Army by the President of the United States, Andrew Jackson. By mid-1867, the railroad through Graniteville village was completed (currently known as the Norfolk Southern Railway Company).

In the years that followed the Civil War, the Graniteville Manufacturing Company prospered by purchasing the Vaucluse mill, and a new 20,000-spindle mill, known as the Hickman Mill, which meant that additional housing for the mill workers had to be built. One hundred residences were constructed on a hill west of the mill complex that required three new streets to be built. In 1921, the Sibley Mill of Augusta, Georgia, which is located about twelve miles from Graniteville, South Carolina, was added to the Graniteville Manufacturing Company. In December of 1936, the Gregg Dyeing Company merged completely with the parent company. By 1935, Graniteville village consisted of 178 acres of land, 325 company houses, a number of store buildings, a school, community house, ball park with grand stand, ice plant, garages, street lights, fences, saw mill, and farm property. In 1938, the parent company added Enterpriser Mill of Augusta, Georgia to Graniteville Manufacturing Company. In the period of 1943 to 1947, the same company overhauled every worker home in Graniteville, Vaucluse, and Warrenville and provided new slate roofs, brick foundations, indoor plumbing in kitchens, and indoor bathrooms. The Woodhead Division was constructed in 1944 as a coated fabrics mill specializing in awnings. The final construction of houses occurred in 1945 for ten houses. The new, larger Gregg Dye plant was built on Marshall Street in 1950, and the old building was reused by the Corduroy Department and the Research Laboratory.
Additional construction continued with another textile plant in 1963 when the Swint Division was built on Ascauga Lake Road; and in 1966, the Townsend Division was constructed on the same road. In 1969, village houses in Graniteville were sold to Graniteville Manufacturing Company workers who had formerly paid rent for living there. The Graniteville Company in 1974 bought three more mills in South Carolina; in 1976 the original mill, the Graniteville Canal, Gregg Street, and assorted houses on Taylor and Canal Street were placed on the National Register of Historic Places. Graniteville was selected as a National Historic Landmark in 1977, and from 1983 to 1986 the company operated as a wholly-owned subsidiary of GWD, a former cigar company now investing in a wide variety of businesses. In 1984, all public services including the village's thirteen-man police force, trash collections, street maintenance and lighting, and recreational services ended after 161 years.

The Steven Steam Plant began operations in 1943 during the Second World War to provide power to the Granite, Hickman, and Gregg Dye plants. Sixty-two years later, death would visit the Stevens Steam Plant and other mills in what used to be the Graniteville Manufacturing Company with a chlorine weapon, a poison gas that is a common hazardous material throughout the world. This incident killed nine, sickened 554 persons who were decontaminated at the scene, while 75 of those were admitted to various hospitals, and about 5,400 people within a mile radius of the derailment site were evacuated for a number of days. One tank car of chlorine gas leaked into the night air; it was not a pretty way to die or be ravaged with serious respiratory difficulties caused by chlorine gas inhalation. Some victims and others became heroes, some ran like hell, others climbed onto roofs since they recognized that chlorine gas was heavier than air, and a few lucky souls never realized that there was a poisonous gas in Graniteville village. All the dead, and most of the injured, inhaled, and were sickened. Captain Hugh Pollard, in *The Memoirs of a VC (Victoria Cross)* in 1932 remembers in the battle at Ypres where chlorine gas was used. “Dusk was falling when from the German trenches in front of the French line rose that strange green cloud of death. The light north-easterly breeze wafted it towards them, and in moment death had them by the throat. One cannot blame them that they broke and fled. In the gathering dark of that awful night they fought with the terror, running blindly in the gas-cloud, and dropping with breasts heaving in agony and the slow poison of suffocation mantling their dark faces. Hundreds of them fought and died; others lay helpless, froth upon their agonized lips and their racked bodies powerfully sick, with tearing nausea in short intervals. They too would die later—a slow and lingering death of agony unspeakable. The whole air was tainted with the acrid smell of chlorine that caught at the back of men's throats and filled their mouths with its metallic taste.”

In The National Archives, Lance Sergeant Elmer Cotton described the effects of chlorine gas in 1915. “It produces a flooding of the lungs—it is an equivalent death to drowning only on dry land. The effects are these—a splitting headache and a terrific thirst (to drink water is instant death), a knife edge of pain in the lungs and the coughing up of a greenish froth off the stomach and the lungs, ending finally in insensibility and death. The color of the skin from white turns a greenish black and yellow, the color protrudes and the eyes assume a glassy stare. It is a fiendish death to die.”

Both the survivors and the dead at Graniteville, South Carolina, shortly after 2:39 a.m. on January 6, 2005, learned very quickly how disastrous chlorine gas can be. Chlorine gas is a respiratory irritant with a distinctive odor similar to household bleach. Chlorine gas is detectable at extremely low concentrations, as low as 0.2-0.4 parts per million (ppm). If
you inhale chlorine gas at even minor concentrations, you will likely be bothered by tears, a runny nose, and breathing problems as chlorine combines with moisture in the eyes, other body parts, and lungs to form a weak acid. At the first whiff in any concentration, you will know you have to leave the area, if you can. Children, Senior Citizens, and the handicapped can suffer more from such symptoms than active, in-shape adults. It is important to realize that you can die in even small amounts of chlorine gas if you do not vacate the area. Just remember, chlorine gas, also known as bertholite, was first used as a weapon against human beings in World War I on April 22, 1915 at the battle of Ypres.

The Agency for Toxic Substances and Disease Registry (ATSDR) states that persons exposed only to chlorine gas pose little risk of secondary contamination to others (contamination that occurs due to contact with a contaminated person or objects rather than direct contact with agent aerosols; cross contamination). However, clothing or skin soaked with industrial-strength chlorine bleach or similar solutions may be corrosive to rescuers and may release harmful chlorine gas. ATSDR also notes that chlorine is a strong oxidizing agent and can react explosively or form explosive compounds with many common substances.

Chlorine is heavier than air, and tends to concentrate in lower areas on an incident site. It is also highly corrosive as residents, employees, and Avondale Mills—the present owner of the mills in Graniteville—found out to their great disgust (when this writer spent ten days in Aiken County and Graniteville, South Carolina, in mid-June of 2006—roughly seventeen months after the actual incident—Avondale Mills was just completing the work of the contractor that was brought in to do cleanup work on corrosion and other matters). Because of certain reactions, water substantially enhances chlorine’s oxidizing and corrosive effects.

Chlorine is often shipped in steel cylinders as a compressed liquid. The standard rail tank car is a 90 ton capacity, Department of Transportation, 105A500W for Chlorine Service (Post 1982). It is a pressure car (those tank cars which are built for transporting liquid commodities with a vapor pressure greater than 40 psig at 105 to 115 degrees F), as differentiated from a non-pressure car (those tank cars which are built for transporting liquid commodities with vapor pressure less than 25 psig at ambient or 40 psig at 105 to 115 degrees F).

According to Field Guide To Tank Car Identification put out by the Association of American Railroads/Bureau of Explosives, a guide for firefighters and all other first responders, the DOT 105 tank car, a pressure car, is used to transport liquefied gases and other high hazard or environmentally sensitive materials. Such cars are insulated with foam, fiberglass, ceramic fiber, or cork and have an exterior metal jacket to protect the insulation. They can be distinguished from non-pressure cars since all the loading and unloading fittings are in one location on the top of the car and all are covered by a protective housing. DOT 105 pressure cars are equipped with a spring-loaded safety relief valve or combination device no less than (incorporating a valve and a frangible disc or breaking pin) which is usually set to function at 75 percent of the test pressure of the tank. The liquid and vapor valves may be equipped with excess flow valves to stop product flow if they are sheared off in a derailment. Bottom outlets are not permitted nor are any fitting outside of the protective housing. The DOT 105 cars are typically used to transport such commodities as chlorine, carbon dioxide, sulfur dioxide, and anhydrous ammonia.

“Human error is the largest single factor in train accidents, accounting for 38 percent of all accidents over five years,” according to the Honorable Norman Y. Mineta, the Sec-
Secretary of Transportation, in remarks on May 16, 2005, relative to the deadly Graniteville incident. He noted that few of these types of human errors are actually addressed by Federal Railroad Administration regulations. Some leading causes include improperly lined switches, and leaving train cars on operational track, two human factors that contributed to the Graniteville tragedy.

The National Transportation Safety Board (NTSB) states the railroad brakeman at Graniteville the evening before the tragedy could not remember setting the track switch in a safe position when he quit work about 7 p.m. on January 5, 2005.

Misaligned switches are one of the leading causes of train wrecks. The Federal Railroad Administration (FRA) did report that between January 2001 and December 2003, there were 751 incidents in which switches were not aligned properly and 74 incidents in which the switches were not locked. Hand-operated track switches left in the wrong position caused eight other serious train wrecks since the Graniteville incident. Ten people died and more than 600 were injured in these crashes.

Many reports, photos, videos, personal interviews, publications, and other materials were given to this writer, either with or without comment. Written “After-Action Reports” were provided by the local fire department, the Graniteville-Vaucluse-Warrenville Fire Department, locally known as the GVC Fire Department; the Aiken County Sheriff’s Office; and the Aiken County Government. The objectives of each of these reports is not exactly the same for each agency reporting, since the agencies tend to have slightly different responsibilities.

The following report focuses primarily on the actions and observations of the Aiken County agencies involved in the initial response. Strengths and improvement ideas will be identified for each responding department, so that they will gain ability to recognize, respond to, and control a hazardous materials emergency, as well as to coordinate an integrated response that will protect the health and safety of emergency response personnel, the general public, and the environment. Strengths are those areas in which responders demonstrated exceptional ability or knowledge, or other areas of programmatic solidity. An improvement item by itself does not degrade the response, but demonstrates ways in which the emergency response could be more effective if alternative measures were used. Strengths and improvement items will be identified utilizing objectives that are applicable to the agency’s response authority.

Graniteville-Vaucluse-Warrenville Fire Department After Action Report

Objective 1: Safety

Strength: GVW personnel provided specific directions to responders reporting to the command post (CP). Safety officer appointed at CP per established department policy.

Objective 2: Protective Actions

Strength: Response personnel were instructed to clear the area by GVW Fire Chief upon realization of imminent danger. Access/Egress zones implemented through quick establishment of roadblocks. Immediate area evacuated (300 yards) shelter-in-place for within 1
mile radius; roadblocks established in timely manner. Savannah River Site provided periodic weather updates for Protection Action consideration.

**Improvement Item:** Reverse 911 was not activated in timely manner due to access available only by Emergency Management personnel. This weakness has been corrected so that Reverse 911 can now be activated through direction from Dispatch supervisor or authorization of Incident Commander.

**Objective 3: Mitigation**

**Strength:** Responders were thoroughly debriefed when they returned to the CP from operations in the hot zone. Logistical support was timely in processing requests once they were established. Additional maps were available at the CP within the first hour. Railroad consists received at the CP within the first hour. Written preplans were used for searches of mill facilities; GVW Fire Department walks down all Avondale facilities annually.

**Improvement Item:** GVW Fire Department did not have adequate resources to conduct decontamination activities for mass casualty situation.

**Strength:** Logistical support was timely in processing requests once EOC (Emergency Operation Center) was established.

**Improvement Item:** Activation and full operation of the EOC was a slow process due to early hour and lack of a dedicated facility.

**Strength:** Internal Fire Department communications were successful. Nextel was used as backup communication for privacy of command staff conversations. Primary fire department communications occurred via E-Tower which was restricted to GVW Fire Department use. Dispatcher initiated all-call page for other county fire departments to be on standby. State of South Carolina provided additional communications capabilities through 800 MHz radio. Faxes, phones, etc. available on Haz-Mat units was a key factor in good communications. Twice a day briefings with written objectives were conducted at UCP (Unified CP); status of previously established objectives were updated at each briefing.

**Improvement Item:** Dispatch should provide more detailed information on location of victims requesting assistance. Dispatch should coordinate received information between positions for distribution to all agencies.

**Strength:** Recorder position for fire department implemented upon activation of the UCP. Assistant Chief/Chief was available on the scene throughout the event.

**Improvement Item:** Fire Department should establish recorder position to assist and document IC (Incident Commander) activities; Court recorders were provided but not coordinated with IC. No coordination between Fire Department and EMS during initial incident response. Incident Command System (ICS) process was not followed by all responding agencies.

**Strength:** South Carolina Firefighter Mobilization plan activated and well staffed. Unified Command provided access to all needed agencies. Federal agencies well-integrated and supportive; EPA continually provided maps once the Unified Command Post (UCP) was established. Mutual aid agreements were in place with SRS (Savannah River Site) and Aiken County. Fort Gordon Haz-Mat resources were briefed to GVW Fire Department.
approximately six weeks prior to incident through a Fort Gordon community support training activity.

**Improvement Item:** Formal mutual aid agreement needed with Richmond County. GVW Fire Department personnel need to be briefed on County Emergency Operations plans and procedures. Entry teams from other agencies not coordinated with FDIC (Fire Department Incident Commander) during early hours of the incident. Buses used for transport of evacuees were not coordinated with FDIC. Better integration of law enforcement and EMS personnel into Fire Department ICS (Incident Command System) was needed.

**Strength:** CP relocated due to wind direction considerations (flag provided visual confirmation of wind direction). Initial responders notified subsequent responders of danger involved.

**Improvement Item:** Initial Fire Department accountability weak for first thirty minutes due to response from multiple locations; control was regained through radio roll call and telephones. Lack of credentials caused some problems with movement of volunteer responders; county produced generic badges with names, but no photos.

**Objective 4: Chemical Monitoring**

**Strength:** Habitability surveys conducted at CP (command post) upon arrival of Haz-Mat team. EPA conducted surveys at CP upon their arrival. SRS (Savannah River Site) and Richmond County Haz-Mat resources arrived on scene within a timely manner and were designated by FDIC (Fire Department Incident Commander) to be responsible for Haz-Mat operations. Haz-Mat personnel assisted in CP location determination. EPA utilized Coast Guard Gulf Coast Strike Team to provide monitoring and on scene response. By comparing consist (a list of all the cars in the train which describes their position in the train, type, contents, destination, etc.) to entry team visual inspection, chemicals involved were accurately identified. Written response plan and safety procedures implemented for Haz-Mat operations. Briefings provided to Haz-Mat responders by Safety Officer on entry considerations; maps were covered for responders unfamiliar with the area.

**Strength:** SRS (Savannah River Site) and Richmond County Haz-Mat personnel were familiar with Aiken County personnel and integrated seamlessly into Fire Department operations. During UCP (Unified Command Post) meetings, a CTEH scientist explained plume models in such a manner that everyone was comfortable. Ascauga Lake/Bettis Academy Road decontamination unit established and vital signs recorded. Multiple decontamination centers established on perimeter of affected area.

**Improvement Item:** Decontamination logs were not accurate due to chaotic state at the scene. Gross decontamination performed but quickly overwhelmed; Fire Department did not have adequate resources to conduct decontamination activities for mass casualty situation.

**Objective 5: Staff & Activate**

**Strength:** Dispatcher initiated all call pages for other fire departments to be on standby without consulting IC (Incident Commander). Specific directions were provided to responders reporting to CP. Community support to provide facilities (Honda Cars/Johnson Motors, Baptist Church) was very beneficial to command and response operations.
Objective 6: Public Information

Improvement Item: GVW Fire Department should establish PIO (Public Information Officer) position for adequate representation at joint press conferences. This would allow for better coordination between ACSO (Aiken County Sheriff’s Office) and the Fire Department Incident Commander.

Objective 7: Medical

Strength: Initial evacuees treated and vital signs monitored at decon check points established by Fire Department; additional treatment station established at GVW Fire Department Station 2. Medical communications regarding signs/symptoms were clear and accurate. Haz-Mat/EMT/First Responder training conducted by GVW Fire Department now includes discussion of appropriate actions to this event.

Improvement Item: Development of checklists for mass casualty incidents to record patient information. There was no coordination between fire department and EMS during initial event response; effective coordination between fire department and EMS occurred several hours into incident.

Objective 8: Recovery

Strength: There was good coordination with Avondale plant officials in developing recovery plans. GVW representative attended daily NTSB (National Transportation Safety Bureau) briefings.

Improvement Item: Development of a recovery checklist may be beneficial for future incidents to address issues such as CIS debriefings, vehicle recovery, and temporary department facilities. Designated individual should be identified to coordinate donations and volunteers.

Aiken County Sheriff’s Office After-Action Report

Objective 1: Safety

Strength: ACSO (Aiken County Sheriff’s Office) personnel had Personal Protective Equipment (PPE) in their vehicles and were directed to utilize it. ACSO Sheriff contacted neighboring county Sheriff’s directly via cell phone to coordinate safe arrival direction to the staging area. ADPS (Aiken Department of Public Safety) Staging officer directed rescue personnel through specified safety routes. US-OSHA representatives offered support on Day 2 and identified no safety concerns for responders.

Improvement Item: Habitability surveys were not conducted initially at Command Post or Forward Operations. Safety Officer was not initially assigned for the incident, however one was appointed when Command Post (CP) relocated to Kmart parking lot.
Objective 2: Protective Actions

Strength: Access controlled early through traffic control points established quickly and efficiently due to recent training. Locations determined based on major intersections and information received from 911 distress calls within first fifteen minutes. Roadblock placement reevaluated within first thirty minutes, and determined to be adequate based on wind direction and Haz-Mat input. ACSO/GVW FD/ACEMD agreed to recommend shelter-in-place through utilizing Reverse 911. Air monitoring at checkpoints discussed at 03:00 Command Post meeting.

Improvement Item: Reverse 911 was not activated in a timely fashion due to access available only by Emergency Management personnel. This weakness has been corrected so that Reverse 911 can now be achieved through direction from Dispatch supervisor or authorization of Incident Commander.

Strength: ACSO shift supervisor performed running roll call for those on-duty. Personnel were ordered to go to staging (per their Incident Command System training) and reported to Aiken Department of Public Safety for accountability. ACSO appointed Staging officer to coordinate incoming law enforcement resources. To aid in accountability efforts, an employee roster was developed by plant supervision (from Avondale Mills).

Improvement Item: No formal accountability procedure was utilized; however, handwritten logs were maintained as a result of previous training. Staging checklist would be helpful if individual who normally fills position is unavailable.

Strength: Personnel initially isolated the incident scene and surrounding area through conservative estimation by the ACSO shift supervisor. DOT Emergency Response Guide was used to determine 1.5 mile radius as initial protective isolation distance. Electronic version to be added to CP (Command Post) laptops. Key representatives of fire, law enforcement and emergency services at Command Post actively discussed evacuation versus shelter-in-place.

Objective 3: Mitigation

Strength: Evacuees were aided by ADPS and ACSO on Aiken/Augusta Highway and other traffic control points. Due to scope of the event, continuity of daily operations was identified as an issue to be addressed in planning. Decontamination stations were set up early at multiple locations outside of hazard area. Federal Homeland Security assets requested to supplement rapidly exhausting resources. GIS relationships previously utilized to aid criminal investigations and fire response resulted in early use of maps. Evacuation for 1 mile based on information obtained early on (grid maps, etc.); populations had already been determined through GIS (Geographic Information System) data. School closures were planned at 03:00 meeting. Plan was developed for safe shutdown at Avondale Mill plant operations. ADPS (Aiken Department Public Safety) personnel utilized at hospitals to conduct triage, treatment and security.

Strength: County-GIS personnel supported operations through continuous production of maps that were distributed to all agencies. EOC (Emergency Operations Center) staff worked to procure buses for initial evacuation and for transport from decontamination
sites to hospitals. Salvation Army/Red Cross response implemented through plans developed by Emergency Management staff.

**Improvement Item:** Credibility of EOC (emergency operation center) hampered by lack of a designated, adequate facility. EOC staff was not available until approximately 09:00–10:00 due to set-up and activation. Many issues the EOC could have helped with were handled at staging.

**Strength:** 800mz radios were brought in to make sure a common radio frequency was utilized among agencies. Because of the familiarity with State and Homeland Security assets, this request was initiated early on. Aiken County communications center dedicated one channel for fire units operating at the Graniteville incident. IC had constant communications with Haz-Mat, EPA and DHEC personnel.

**Improvement Item:** Initial incident information was not adequately shared among responding agencies due to incompatible radio frequencies. This issue is being addressed through acquisition of 800 MHz radios for responding agencies command staff. Radios are being obtained through Homeland Security funding.

**Strength:** The Incident Command System and key positions were implemented early in response. Routine briefings were conducted for participating agencies. When Sheriff left the CP, command was transformed to other ACSO staff.

**Improvement Item:** Key agency representatives responding to the CP should be clearly identified and remain in the CP throughout the incident to support the IC (Incident Commander).

**Strength:** Additional emergency response agencies reported to Staging and sort out Sheriff for briefing. Agencies were logged in and a directory of contacts was developed. Private contractors were staged apart from the responder’s staging area. Haz-Mat entry team provided video at first light; SLED helicopters utilized for search and rescue and for scene status. Federal/state response agencies integrated into Unified Command and participated in briefings.

**Strength:** ACSO (Aiken County Sheriff’s Office) SWAT (special weapons and tactics) team activated per pre-developed plan, to address possible additional terrorist events at critical infrastructure locations in the county. Due to possible hostile incident indicators, State Homeland Security resources activated by Sheriff upon receipt of initial call, bringing the South Carolina Law Enforcement Division (SLED) on board. FBI responded quickly due to pre-established relationship. Current Mutual Aid Agreements in place for additional response agencies. Curfew implementation was discussed in the early morning and planned. Council Chairman signed a county ordinance to give the Sheriff the authority to impose a curfew prior to Governor declaring a State of Emergency. Sheriff was in contact with Governor’s Office and the Attorney General’s office to coordinate declaration of State of Emergency. Attorney General arrived at the scene to discuss legal ramifications of declaration.

**Strength:** Rescue, curfew and evacuation operations were initially planned for a 7-day period. Issues identified and addressed included: food/hydration/shelter/sanitation barriers/shift rotation. ADPS and ACSO provided hurricane stock of bottled water for responders.
January 6, 2005

Improvement Item: Accountability system (Haz-Mat wristbands) implemented by Fire Department was not communicated to all responding agencies. Coroner had no PPE for entering Haz-Mat zone. This issue is being addressed through acquisition of PPE through Homeland Security funding. Accountability badge system needs to be developed for private vendors that respond to incident with no official identification.

Objective 4: Staff & Activate

Strength: Dispatch conducted recall by alpha-numeric pager (all-call) to respond to Staging. Initial Command Post (CP) was at Honda Cars of Aiken for thirty to forty-five minutes before being relocated to Kmart. CP setup was conducted through the on-call Communications Officer from procedure in place. Briefings were conducted at least six times daily with formal two-hour notice; more often if needed. All response agencies were informed of briefing times. Uninterrupted dispatch communications at the CP accomplished by mobile communication vehicle and aided response communications. Hard phone lines were run to the CP by noon on Day 1. Initial access controls were put into place via cones/tape/patrol officers. Day 3, decision makers moved to the antique mall and restricted access through twenty-four-hour security procedures that were implemented.

Objective 5: Public Information

Strength: Initial news release was issued within an hour of the event and contained accurate information. Briefings were scheduled to accommodate newspapers/radio/television deadlines. Community meetings were conducted to provide information on housing, food, and progress on cleanup operations. Mental health agencies were present at these meetings. Issues included pets and re-entry concerns. Rumor control—211 information telephone line was coordinated by the EOC (Emergency Operation Center); rumors were also addressed during news briefings. Spanish interpreter used to provide emergency information to public. EPA and SCDHEC (South Carolina Department of Health and Environmental Control) produced for citizens with information regarding housekeeping and food handling upon return to homes. Public Service Announcements were produced and broadcast regarding housekeeping and food handling upon return to homes. Quarterly media relations meetings conducted by local law enforcement to develop pre-crisis relationships resulted in effective communications.

Strength: ACSO Public Information Officer (PIO) coordinated media through implementation of a media staging area that was clearly identified to media.

Improvement Item: Responding agencies should pre-identify a PIO and participate in Joint Information Center (JIC) briefings.

Objective 6: Recovery

Strength: Law enforcement met with fire, school representatives, EPA and DHEC (South Carolina Department of Health and Environmental Control) on school re-openings. Requested a visible DHEC/SLED/FBI support on re-opening days. Open house conducted
day prior to re-opening. Maps were updating in reverse showing reduction in impacted areas. Re-entry was coordinated with DHEC/EPA and companies contracted to perform cleanup. Detailed discussion conducted with cleanup contractor regarding re-opening of roadways, and possible equipment located on Aiken/Augusta Highway. Meetings were held to discuss financial implications of a plant shutdown and other issues of affected businesses and utilities (meeting payroll, phone communications, etc.).

**Improvement Item:** Recovery plan not formally documented in a written plan. Reimbursement needs should be included in recovery plan (supplies, hours, equipment, etc.). Utilization of business cards or other “quick reference” needed to assist in identifying major players involved in recovery planning. Recovery plan should include animal control/consideration of animal welfare.

**Objective 7: Facilities & Equipment**

**Strength:** Command staff made arrangement to utilize nearby vacant building for Unified Command Operations.

**Improvement Item:** Arrangements need to be made for copy machines/printers/pin boards/grease pencil boards/current maps. Early identification needed to resolve issues with generator smell and noise at CP/UCP. Pre-determined arrangements should be made for potential fuel needs during disasters. This issue has been addressed and agreements have been secured to meet this need. Consideration should be given to developing capability of mobile mapping and GIS capabilities. UCP (Unified Command Post) setup should include rapid setup of Internet capabilities for more effective communication and data sharing between responding agencies.

**Aiken County Government After-Action Report**

**Objective 1: Safety**

**Strength:** ACEMS (Aiken County Emergency Medical Services) personnel experienced no injuries during the response.

**Improvement Item:** Habitability surveys were not conducted initially at Command Post or Forward Operations. First ACEMS unit responded directly to the scene and had to leave the area due to fumes. Entry should be coordinated with IC (Incident Commander). Safety officer was not designated for EMS operations. Safety Officer responsibilities were defaulted to ACEMS Shift Manager.

**Objective 2: Protective Actions**

**Improvement Item:** Reverse 911 was not activated in a timely manner due to access available only by Emergency Management personnel. This weakness has been corrected so that Reverse 911 can now be activated through direction from Dispatch supervisor or authorization of Incident Commander. Capability will also be established at North Augusta Public Safety and Aiken Public Safety dispatch centers. The database used to initiate calls was five years old. This was identified post incident, and updated information is now available.
January 6, 2005

for input into the system. Public was unaware that unlisted phone numbers results in not being on 911 call list.

Strength: Key representatives of fire, law enforcement and emergency services at Command Post actively discussed evacuation versus shelter-in-place.

Improvement Item: ACEMD had to contact SC Emergency Management Division (SCEMD) to initiate the Emergency Alerting System (EAS) which only works if radio station is in auto position. ACEMD did not have (EAS) monitoring capability to determine if EAS message had been transmitted to citizens. SCEMD resource issues can impact initiation of EAS. Procedure to confirm dissemination of public protective action notifications should be developed.

Objective 3: Mitigation

Strength: U.S. Environmental Protection Agency (EPA) stated that Geographical Information System (GIS) maps in place when they arrived were very beneficial to planning mitigation activities.

Improvement Item: Plume models and GIS mapping need to use same coordinates.

Strength: ACEMD initiated early request for assistance from SC Emergency Management Division; 75 percent of State Emergency Support Functions were activated. ACEMS equipment was quickly met, once requested through the EOC (Emergency Operations Center). Shift turnovers were pre-planned and worked well. School District representatives notified at approximately 3:30 a.m. and decision was made to close schools prior to EOC activation.

Improvement Item: Credibility of EOC hampered by lack of a dedicated, adequate facility. Lack of coordination between EOC and CP affected logistics, food deliveries, housing, etc. CP was duplicating effort, and information was not being shared effectively. Formal status briefings need to be conducted for EOC staff on a regular basis.

Strength: The Incident Command System and key positions were implemented early in response.

Improvement Item: Better communication between response personnel would have resulted in pertinent information sharing. Unified CP was in place when EPA arrived. Clear lines of authority had not been established, but the right things were occurring, although maybe not as smoothly as they could have.

Strength: SC Department of Health and Environmental Control were well-informed of incident by time of arrival at CP.

Improvement Item: ACEMS supervisor was not present at initial Command Post (CP). Local/National Red Cross point of contact needed at the CP to coordinate food for personnel in outlying areas. National Red Cross may be needed in the EOC (Emergency Operation Center). EPA personnel were initially unaware that the Aiken County EOC was operational. Aiken County GIS resources were not involved in UCP planning meetings. ACEMS observed additional EMS support arrive from outside Aiken County. Additional units were not coordinated with ACEMS. Large numbers of individuals at the CP did not
have a reason to be there. Better identification of key command staff would have helped. State Fire Marshals were contacted through SC Firefighter Mobilization Plan without the knowledge of the Damage Assessment Chief in the EOC. A Mutual Aid Agreement is in place with the Building Officials Association of SC, but was not utilized initially. Shelter staffing issues arose when a shelter was opened without EOC coordination and/or knowledge of DSS (Aiken County Department of Social Services)/Red Cross. There is a potential for county liability and financial responsibility if the Red Cross has not been involved with shelter opening.

**Strength:** EMS Supervisor relayed information to arriving units within ten minutes to stay clear of the incident scene.

**Improvement Item:** ACEMS access was restricted after first entry due to lack of PPE availability, and to fit incomplete testing on equipment received from the Department of Homeland Security. Accountability system (Haz-Mat wristbands) implemented by Fire Department was not communicated to all responding agencies. Pre-determined accountability system needed for Aiken County emergency response agencies. Agency accountability was being maintained, but not with other agencies.

**Objective 4: Chemical Monitoring**

**Strength:** ACHMT (Aiken County Hazardous Materials Team) staged at parking lot near Line Log/Silverbruff Road for safe-area accountability and to determine number of responders available. Staging Haz-Mat at Kroger negated the need to provide specific entry routes to responders unfamiliar with the Graniteville area.

**Improvement Item:** LEL (lower explosive limit) and standard O2 levels monitored by ACHMT, indicating crash scene impact only. Chlorine could have been indicated with proper monitoring equipment. ACHMT was not effectively integrated into Haz-Mat operations. Decontamination areas were not monitored due to lack of Haz-Mat support at decontamination locations.

**Improvement Item:** LEL (lower explosive limit) and standard O2 levels monitored by ACHMT (Aiken County Haz-Mat Team), indicating crash scene impact only. Chlorine could have been indicated with proper monitoring equipment. ACHMT was not effectively integrated into Haz-Mat operations. Decontamination areas were not monitored due to lack of Haz-Mat support at decontamination locations.

**Objective 5: Public Information**

**Improvement Item:** EOC did not have press releases prior to distribution at CP. Hard copies of press releases were not initially distributed at press conferences. Unmanned radio stations limited ability for local alerts to be made. Initial notification did not go out through NOAA Weather Radio, although it was utilized later in the day. EOC (Emergency Operation Center) PIO (Public Information Officer) could not get response from PIOs at CP (Command Post) to coordinate messages for media at EOC. Citizens in shelters had no official information source.

**Strength:** Salvation Army provided interpreters for Hispanic population.
January 6, 2005

**Improvement Item:** 211 (Aiken County Help Line) received calls immediately but had no information to provide initially. 211 received updated information via television news report. As a result, 211 personnel did not learn key information such as the shelter-in-place message that had been transmitted to residents. 211 was not accessible via cell phone. Additional number needs to be provided. EOC was receiving updated information via television news reports. Media staging area was located too close to CP.

**Objective 6: Medical**

**Strength:** ACEMS (Aiken County Emergency Medical Services) utilized PPE from Aiken County COBRA team which allowed EMS personnel to re-enter scene for rapid rescue.

**Improvement Item:** ACEMS attempted to medical monitor other responders, but they were entering incident area without EMS coordination. Triage tags were not utilized, although they were available. The on-duty EMS supervisor must relinquish control of outside incidents and focus on major incident being responded to.

**Strength:** ACEMS supported three separate decon sites with medical monitoring. Due to overwhelming number of calls for assistance being received from Graniteville area, decision was made to enter with Level-B suits by Haz-Mat technician-level EMS personnel. Decision to not transport patients prior to decontamination was made by ACEMS Shift Supervisor.

**Improvement Item:** EMS entry into the hot zone was coordinated through ACSO (Aiken County Sheriff Office) Dispatch who contacted the EMS supervisor at USCA (University of South Carolina at Aiken). There was no coordination with the GVW Fire Department.

**Strength:** Local hospitals were contacted early on by EMS supervisor informing them of patient potential.

**Improvement Item:** Mass casualty plan was not implemented initially due to communication difficulties. Communication of patient status at decontamination was not well-coordinated with Red Cross shelter representatives. Persons at shelters were registered, but if they were sent to the hospital or left with friends/family, their status was unknown.

**Objective 7: Recovery**

**Strength:** EPA led recovery effort to re-open schools and area businesses. Coordination occurred through UCP (United Command Post). A school representative was onsite for all entries. The County finance office implemented an hour code to assist in tracking costs.

**Improvement Item:** Not all agencies attended Critical Incident Stress Debriefing (CISD); this needs to be added to the recovery plan checklist. EOC had some difficulty obtaining some resources due to weekend hours. Commercial disaster recovery resource books may be useful in the EOC, as well as emergency contacts for local suppliers. County Damage Assessment official initially left out of planning loop for re-entry. All support agencies (Salvation Army, Red Cross, DSS (Department of Social Services) etc., were not kept informed of recovery status. Although daily status meetings were held at the UCP (United Command Post), the information was not communicated with the EOC.
Objective 8: Facilities and Equipment

Strength: SC Department of Social Services called in individuals to staff shelter at USCA (University of South Carolina at Aiken) campus who had not been previously designated in planning.

Improvement Item: Generator noise made it difficult to communicate at or with the CP. Electric capabilities earlier on would have proven helpful. Ladders were available for phone setup in EOC, but due to the chaos people were standing on chairs to connect the lines. There was difficulty in obtaining contracts for telephone installation; however, once SCEMD (South Carolina Emergency Management Department) became involved, it went smoothly. Procedure is now in place to obtain phones in emergency situations. Field charging capabilities are needed for portable radios and cell phones. Mobile Command Center is obtaining additional radios/batteries. Web EOC communications and tracking system was not utilized due to time consuming effort to set up basic needs in EOC. Lack of copiers at CP significantly hindered information distribution. GIS map plotters being used were 1 mile away at County planning office. Portable plotter capabilities need to be addressed. EOC printing capabilities were limited.

On January 21, 2005, Motley Rice LLC and W. Mullins McLeod, Jr., announced that they had filed a lawsuit seeking relief from persons with property damage resulting from the Graniteville train disaster. Named as defendants is the railroad Norfolk Southern, the Union Tank Car Company which manufactured the tank cars carrying the chlorine in the deadly train crash; the Olin Corporation which manufactured and shipped the deadly chlorine; and the Norfolk Southern employees, who allegedly failed to set the switch after they left their train on an active track. Motley Rice LLC has also been retained to handle a number of the personal injury and death cases as they relate to this catastrophe and those claims are being handled in separate lawsuits. Explained Ron Motley, a founding member of Motley Rice, “We believe this lawsuit will encourage the defendants to accept responsibility, and provide the property clean-up, replacement or payment as they are obligated to do under the law.”

According to Mary Schiavo, another member of Motley Rice and a former Inspector General of the U.S. Department of Transportation, “Railroads are entrusted with vast access and right-of-way in our communities and our nation, but they hold such rights only insofar as they comply with the regulations governing safe operations of both rail and hazardous materials transport. Norfolk Southern and others failed to comply with these laws, regulations, and standards, and failed to put in place known and recommended practices which absolutely would have prevented this deadly crash.”

Terrence Collins is the Thomas Lord Professor of Chemistry at Carnegie Mellon University who contends that the dangers of chlorine chemistry are not adequately addressed by either academe or industry, and alternatives to chlorine and chlorine processors must be pursued. He notes, “Many serious pollution episodes are attributable to chlorine products and processes. This information also belongs in chemistry courses to help avoid related mistakes. Examples include dioxin-contaminated 2,4,5-T, extensively used as a peacetime herbicide and as a component of the Vietnam War’s agent orange; chlorofluorocarbons (CFCs); polychlorinated biphenyls (PCBs; the pesticides aldrin, chlordane, dieldrin, DDT, endrin, heptachlor, hexachlorobenzene, lindane, mirex, and toxaphene; pentachlorophene-
nol for wood preservation; and dioxins-producing wood pulp bleaching with elemental chlorine" (Chemical & Engineering News, October 18, 2004, 82(42), pp. 40-45).

It is very easy to create a daily record of conditions on scene in the tragedy known simply as "Graniteville." People in Graniteville and Aiken County were easy to talk to; and provided much information, reports, photos, commentary, newspaper, and television news features, and sadness. There is an old saying that “Time Heals All Wounds,” but people in Graniteville recognize they suffered on Thursday, January 6, 2005, and are still suffering today. However, they do feel that the situation could have been much worse; an untold number could easily have killed and many more injured.

The National Transportation Safety Board (NTSB) has found much evidence to indicate the probable cause of the January 6, 2005, collision and derailment of Norfolk Southern train 192 in Graniteville, South Carolina, was the failure of the crew of Norfolk Southern train P22 to return the main line switch to the normal position after the crew completed work at an industry track. Contributing to the severity of the accident was the puncture of the ninth car in the train, a tank car containing chlorine, which resulted in the release of poison gas.

At 2:39 a.m. on January 6, 2006, one of three tank cars carrying 90 tons of chlorine was ruptured and released 65 percent of its load, which immediately turned from liquid in the tank car to a mass of poison gas because of a 47-to-1 expansion ratio. Some 183 night shift workers in five buildings at Avondale Mills with no warning of a tragedy, before retreating from the mill or waiting for rescue as the poison gas became more severe. Neither the residents of Graniteville, nor the night shift workers in the mill, had any idea what was going to happen. Later, five night shift employees were found dead, and many were injured.

**Survivor Number One**

A number of Graniteville people called “911” to report that they were trapped and terrified that early morning. Many mill employees were still bothered of the fact that they had lost five mill workers to a train/auto accident just weeks before. Maggie Adams appears to be the first person to dial “911” from the mill. She had worked at the Graniteville mills for more than twenty-two years and loved her job prior to the chlorine wreck. “I was laid off from the mill on May 31, 2006, and I was glad to get out of there because there are a lot of memories of that night of the train wreck. Having to go to the data processing building, where I used to work, is just a reminder of how close to death I came the night of the wreck. I was a computer operator in that building for twenty-one years, and always worked alone at night. That night I heard the screeching of the brakes like thunder when it rolls across the ground. I just held on to my desk and waited for the screeching to stop. I could feel the train like it was in my office, because I work in a large computer room and the wall behind me is only about 30 to 40 feet from the train tracks where the train is now derailing. Rail cars are now rolling around, coming apart, and crashing into each other as they were being shuffled into the spur track which is located in our parking lot.

“After a few minutes of being actually involved a few feet from a train wreck, I left the computer room and went down the hall towards the end door to the parking lot. Opening the door where the wreck occurred, my car was parked right outside the door. Suddenly, a smell almost floored me. This black asphalt, smoke, burning, stinking smell just hit me! I
slammed the door, and retraced my steps to the computer room and called 911. I told the operator there had been a train wreck, that I was there all by myself, and I needed someone to come and get me, and they said, ‘Okay.’ I then told the operator I would be at the lobby door waiting for someone. I got my purse, and for some reason I picked up a little jacket with a hood on it because the computer room is kept cool for the equipment there.

“I got to the front door of the building, was kept waiting and waiting for a long time, and nobody came. All this time, I kept inhaling this burning air, and water started coming out of my nose and my eyes; it was like the air was coming out of my lungs. I kept looking down the hallway and everything was yellow, and the lights were dimming. The air from outside the building was being brought into the building by the air conditioning system, and I was sucking it in. I realized I had to get away from that smell. I called 911 again, and I was told if I would get off the phone they would send help. I knew they would not, and they never did.

“I next called a guy I work with, just because I remembered his telephone number. ‘Steve,’ I said, ‘You have got to come and get me!’ He says, ‘Give me a moment, and I’ll come and get you,’ this being about 3:00 a.m. Then I called my supervisor, Doug, woke him up, and he warned me to get out of the building if I could since I thought at that time the building had caught fire. At the same time, the lights went out, and then the generator kicked in, and all this time the poison gas just kept spreading and getting thicker. I then telephoned my sister, plus a lot of other persons.

“About this time, I decided I would have to save myself,” remembers Maggie Adams, a good-looking woman in her early fifties. “I took the hood on my jacket and put it over my head, then took my lab coat and wrapped it around the bottom of my face. I had my cell phone in my hand; I could not see since I had to take off my glasses for I am near-sighted, and I was praying hard. Mucus was just pouring out of me as I felt my way down the stairs. My thought was maybe if I stay in the middle of the road, someone will see me. Since I could not see, I was afraid of tripping over a curb, or possibly another body. On my way proceeding very slowly up Main Street where the wreck occurred, I found two abandoned automobiles with their doors hanging open. I walked up and started beating on the doors, and screaming, ‘Can somebody help me? I can barely see light.’ However, nobody appeared, so I continued my slow walk on Main Street. My boss started calling me, and I sat down at times and rested. It took me about two-and-a-half hours to walk less than a mile.

“Everybody was calling me on my phone. My boss, Doug, called me again, and he asked me if I could make it to a funeral home on Main Street, and I said I would try. He said he knew someone that lived behind the funeral home, and he would try to wake them up by a telephone call, so they could get me out. In any event, I made it to the funeral home and the home behind it. Doug called me again, and told me he could not get anyone in the house to answer the phone. I told Doug I had to get out of this area, because I kept spitting up stuff from my lungs.

“I then made my way out of Graniteville until I reached Route 1. I may have walked a bit more, but I kind of blacked-out for a while. Eventually, I walked underneath the bridge and traveled like I was going to Aiken. At one point, I thought everybody in Graniteville might be dead. I met two guys coming down the road who asked me if I was okay; I told them no, I am not all right. There’s been a train wreck and there’s a toxic smell in Graniteville. One of the men told me they had heard that news, and said I had better get out of the area. I kept thinking why weren’t people evacuated? The rail wreck happened about 2:40 a.m., I had left my office about 3:15 a.m., and had been walking for a long time before
eventually reaching Abare’s Paint & Body Shop. I remember clearly there was a big mailbox there, and I was just standing there holding on to the mailbox.

“Finally, a friend called the cops, and they let him into the enclosure area that had been established around Graniteville, to guide the police to where I was at the present time. I saw one car come down the road, and waved to beat the band, but the car went right by me. My sister called me, telling me she was going to run the road block, she was coming after me. I asked my sister to tell my kids and grandkids that I loved them all, and my sister is screaming, ‘Please don’t leave.’ Then Steve, my co-worker, called and said, ‘Please tell this officer exactly where you are!’

“I made my peace with God, and just lay down on the ground with my head on my lab coat for a short time period. I saw a blue light coming towards me, and the cops were really flying. The police car crossed the median, and two officers got out dressed in camouflage Haz-Mat-type suits. They picked me up, and put me in the back seat of their vehicle, turned around, and sped back to the campus of the University of South Carolina at Aiken, where a decontamination area had been established. At the campus, they sat me on the ground and someone came with a stretcher and an oxygen tank, and asked who I was. I told them, and someone said, ‘This lady needs help,’ and they put me on the stretcher to remove most of my clothing. They left my socks and panties, and I was scared as well as freezing. I went through the decontamination showers twice, and then was taken to a trauma unit just up the road in Augusta, Georgia.

“At the hospital, I probably went into shock as the doctors looked me over. All I remember is there were tubes going down into my body, and I didn’t know anything from Thursday until Saturday. The doctors put me into a coma so they could rest my lungs and breathing. I started coming out a little bit on Sunday, and went home on Tuesday. However, the breathing tubes irritated my esophagus, and I had to go through pulmonary treatments to clear that condition. I have been seen by psychologists or psychiatrists that put me on a very mild antidepressant drug because I was having very bad dreams. The nightmares featured yellow smoke coming through my room at night. My doctor says I am doing fine.

“While in the hospital, the doctors kept me full of medicine to keep my muscles strong with which I had some trouble. I don’t remember anything except I was told I was coughing, flirting with the doctors, and having affairs with their wives. Well, I just said I could not help it; I was full of drugs in the hospital, but I never took drugs before the rail wreck. But my best experience in the hospital was in seeing my boss, Doug. He sat by my bedside to see my face, and I talked to him. He cried because he could not get to me when the freight train went off the tracks and crashed near my building. He tried several times to rescue me, but could not succeed in the confusion apparent just after first responders realized they had had a poison gas to deal with [armed roadblocks were installed throughout Graniteville at once].

“We do not know anything about the long-term effects of my experience with chlorine gas. I was out of work for three months working on days, but they were going to put me on night duty again. I can’t go back to work at night! I can’t even pass by the building where I used to work; I’ll dodge it, I just won’t go that way. My car got totaled, but I had to force myself to go look at the car months later. The shocks were corroded, green stuff was just flowing out of coins in my console, and I had to break the window because the lock was broken. I signed my car over to Norfolk Southern Railway Company. Basically, the railroad company said, ‘How much do you want,’ and I told them, and they sent me a check.”
Maggie Adams went back to work on April 1, 2005. “The company started me out on half-days every other day, got me working every other day full time, then I went to five days a week. When they tried to put me on nights, I said, ‘That’s it! I cannot be here by myself working at night.’ The company said there will be security guards on duty at night, but I responded, ‘I don’t care; they can’t stop the train.’ One day I got stuck in a thunder storm at work, and I almost lost it because it sounded just like the train. I got to the point where I would not go anywhere. Seventeen months later I still do not drive, and I don’t like going anywhere after dark. My doctor told this was normal; she said I would eventually get past that. But they also told me I could be doing great, and I would take three steps back. I was a strong person, very independent and progressive before the rail wreck. After the wreck, I did not have any energy for months; I was just dragging and sluggish in whatever I tried to do.

“I used to love my job. For one year I worked days, and then I worked twenty-one and one-half years at night in the computer room by myself. However, after the train wreck, the job was getting to me. It was just so much pressure, and they were laying people off. I once had the perfect job for twenty-something years when I worked three-nights-a-week and then was off work for three days. Suddenly, after the chlorine gas experience, I was working five days a week, and did not have enough time for personnel commitments. I had housework to do, appointments to keep, clean the house every Saturday, cook dinner on Sunday, and then back to work on Monday. There was no time off, and I was unable to get things done. However, on the good side, I do have a wonderful, large family with eight brothers and one sister.”

At the end of the interview, Maggie Adams reported how her office looked after the chlorine had done its work on her building.

“They had photographs in the break room when I returned to work. The water fountain was orange, and anything that had water or metal in it was orange. The orange color was running down the walls like blood, and in the bathroom sinks and commodes were completely orange due to corrosion. In my office, the chlorine destroyed the computer printers and servers. They said it still stinks in there. Somebody got the folders off my desk and out of my drawers so I could look at them. My hands became orange and yellow, and I started coughing.”

Survivor Number Two

Charles Reyes is an American Indian. His mother is a Cheyenne from the Green River Reservation, and his father is a Comanche, a member of a Shoshonean tribe, formerly ranging from Wyoming to Texas, but now based in Oklahoma. Reyes belongs to two tribal groups and two reservations; and speaks a number of languages; including Apache, Navajo, Cherokee, Comanche, Iroquois, Spanish, English, and German. Charles Reyes, seventeen months after he went through a poison gas attack in his own home town, still shows clear signs of what chlorine gas did to a formerly healthy man. At certain times, his breathing is labored and scratchy, and he has to will himself to speak normally. Sometimes, his speech is reduced to that of a young child. At other times, he scratches himself endlessly, even picking up objects off the ground to get a better scratch. The itching goes on, and on, and on. Charles Reyes, and his wife, Brenda Reyes, have learned much about chlorine, but they sincerely worry about what comes next.
Nowadays, Charles does a lot of volunteer work, although he is still employed fulltime as an electrician for a federal hospital. “I had three tours in Vietnam, the first time with the Fifth Division, the second time with the 82nd Airborne Rangers, and the third time with the 14th Division. For the past twelve years, I have been an officer with the Graniteville-Vaucluse-Warrenville Fire Department. I am also a volunteer interpreter for the Sheriff of Aiken County, as well as the South Carolina Highway Patrol. My wife inspired me because she has been a firefighter as a lady first responder, nurse, emergency medical technician (EMT), and a Public Safety Officer. She has done all of that; and I told myself, ‘If she can do it, I can do it.’ We were a husband and wife team for years.

“I also travel to Indian powwows where I now play the drums and dance, but since my voice was messed up, I don’t sing like I used to. I help the Boy Scouts to become Eagle Scouts, and I am a puppeteer. I also go to schools, churches, Veteran Administration and other hospitals, and colleges where I put on my presentation for the Native American Indian. I just turned sixty years old, but in the weekend of June 10, 2006, for three days I qualified for rope rescue in water rescue operations. I don’t really feel sixty years old because the Lord gave my life a purpose.

“Early in the morning of the sixth of January, 2005, I was sleeping soundly. My wife sometime can not sleep at night, and sometimes she gets to clean the house when this happens. However, at 2:39 a.m., I did hear the freight train hit the work train that had been parked on a siding the day before. That crash shook our entire house. I heard the crack and bang of thundering metal, wheels and products slithering everywhere, amid my wife yelling and screaming; I thought I was back in Vietnam for another tour. I picked up my keys, jumped out of my pajamas and into my clothes, and headed for the firehouse just down the street. I always make it the fire station between 38 and 42 seconds, from the house to the firehouse, and my wife always follows me because she is also a first responder. So I took off running, and I only live about a half block away. When I approached the fire station, I had no idea I might be dealing with a poison gas. The only thing I had on my mind was the train derailment, how many people were injured, and what we had to do as first responders. On the way down, I was praying because I always pray.

“When I got to the tree and fence in front of my house, I saw this green cloud coming toward me with a gold and white mist. I thought, ‘Oh No. Gas,’ so I dropped my gear, and by the time I turned around, the poison gas went through my nose, my eyes, my throat, my lungs, and my heart. The gas felt as though it was burning my body, and I thought what I learned with the Green Berets in Vietnam. I thought, ‘chemical agent, water, and dirt.’ I was trying to find dirt because it had rained the day before, but the more I moved the more I was burning. My heart and brain seemed ready to explode.”

Charles Reyes saw the gaseous cloud, and it poisoned him right away. At this point, he fell down in the road, and may have had an out-of-body experience. “I went on the ground, but I do not know how long I was there, but I saw three angels around my body, like a bubble protecting me. I turned to God, and poured my guts out to him. I saw my body, and I saw the angels. I did not know what was going on, but a voice came out of nowhere and comforted me. It seemed like I stole time, like I robbed time. Those seconds were an hour with my God, and it was the most beautiful thing I ever experienced in my life. When I was talking to him, I felt that he was leaving me, and I didn’t really want to come back to my body. I wanted to go home with him. All of a sudden, I felt a vacuum in my body, and an angel picked me up. I ran about a mile-and-one-half, knocking on doors to try to get people out. My head still hurt very much; and I was still gagging, coughing, could not see
straight, and was bouncing all over the street and sidewalk. I was just trying to do my job, think about my wife, hoping my wife survived the poison gas because I knew she was right behind me when I ran to the fire department.

“About this time, I was on Main Street in Graniteville and borrowed a telephone to call our dispatcher to dispatch our fire department. He told me that 306 was looking for me, which is my wife’s call number with the fire department. I told him to tell her I was fine; but we have gas in the area and we need control, sheriffs, and fire departments. I told the dispatcher I could not breathe, I need help, I can’t do this by myself. I added I was trying to get control, but there were people dropping left and right in this area. So after that exchange, I collapsed.”

When he came to, Charles Reyes found that first responders had him in a shower bath trying to get rid of any contamination that he might have on his clothes or skin. “They took off my clothes, and I became embarrassed as the guys were scrubbing me. I guess I passed out again, and they put me in an ambulance that took me to University Hospital in Augusta, Georgia. I was released the next afternoon, although I was still having problems. I wanted to get back with the group, but still did not feel very good, so I cannot know why they released me at this time. We were given an apartment to stay in, since our home was probably contaminated. That day or later, I started spitting blood, and my wife had blood coming out here nose and rectum. Subsequently, a man’s body was found near our home. The man had run away from the mill where he worked at night to get away from the gas, but he tried to go through the woods, where he died. His body was not found immediately.”

Seventeen months after the gas attack in Graniteville, it is easy to tell that Charles Reyes still has symptoms of the poison gas attack he lived through. “My legs hurt, and my heart is enlarged. Recently, I went through a day-and-a-half physical, and told the doctors I can’t eat. Every time I eat, it hurts in my belly. It hurts so much that I get upper and lower cramps, so I eat soup and other very light foods. I did go back to firefighting fifteen months ago. I finally got back, was able to pass the physical, because I am the type of guy that does not make excuses; I want to get back in action. I still have ‘bubbles,’ although I do my exercises and everything my doctors tell me to do.”

When asked if he had a suit against the Norfolk Southern Railway Company (NS), Charles Reyes said that he did for himself and his wife. “We are not settled with the railroad on any aspect of the suit. I am not going to sign anything, and not going to release them from anything. Every time I go to the doctor, I get copies of all my reports; the whole thing is a hassle with the amounts of paper work. I have to go to a lawyer, and the lawyer goes to the railroad to get them to pay my medical bills. In the same manner, the railroad has to go through my lawyer to get to me. I end up with a stack of paperwork which I break down month-by-month. At least, I’m not afraid of dying any more because I know what’s on the other side.

“My ‘day job’ is as a civil service electrician for the last thirty-four years at the Veteran’s Administration hospital. March 5, 2006, I had thirty-four years with civil service. After duty at the VA hospital, all the rest is a volunteer as a firefighter, rescue worker, or helping the county sheriff and the State Highway Patrol as an interpreter. Basically, I stay pretty busy. The federal government gave us three fire vehicles after the chlorine gas incident because our old equipment was done-in by corrosion caused directly by poison chlorine gas. This gas took the paint and chrome off our fire vehicles so it was unusable for any other purpose; what do you think it did to my lungs and body at the same time?”
Survivor Number Three

Brenda Reyes, the wife of Charles Reyes, could not get to sleep during the early morning hours of January 6, 2005. “I had been up for two days since I have insomnia, so instead of just lying about, I got up and cleaned the house. About 2:30 that morning, I was just finishing up with the house when I thought I could go to sleep, so I was heading for the bedroom when I heard this awful sound of metal hitting metal. It was like thousands and thousands of fingernails coming down the chalk board. I figured that the express freight train had hit another vehicle at the crossing because about five weeks earlier a special train had hit a car with five people from the mill, and they were all killed. I was already dressed, so I told my husband to get up, and I would meet him at our car. The incident had not been called in because it had just happened. I went out the back door, and I stood there looking around. I said to myself, “This is very odd!” The mist was up to my knees, and it smelled awful, a heavy smell that resembled household bleach. We have been through hazardous materials training with the GVW Fire Department (The Graniteville-Vauchuse-Warrenville Volunteer Fire Department), and I knew that the smell could mean poison. All of a sudden, I knew we should leave the area, and not go to the fire station just down the street; we should go in the opposite direction.

“I don’t think the chlorine was meant for our area; it was just on a train going through our area, to the best of my knowledge. However, the mist was so pretty, basically green, a beautiful green with gold specs in it. However, I could smell the bleach at once; like somebody was cleaning his pool and put in too much chlorine into to the pool. I got to thinking that nobody had a pool in our neighborhood. I told my husband to come out of our house; we did not need to go to the fire station because nothing was broadcast yet over our little monitors. We needed to go in the opposite direction to find out what was going on. This is poison, and it’s going to kill us. He said, ‘No, I am going to the fire station.’ I had no other thing to do but follow him. By the time I got out front without the car, the poison gas had already come up to my chest, and I was having breathing problems, hacking and coughing. I went and got in the car, turned it around, and headed for the fire house. I made it only to the convenience store a short way from our house. I couldn’t see anything since the mist covered my car; the poison gas covered everything on the street. I could actually see about two feet ahead of my car, and I was having difficulties because of the gas, and I could not see my husband. I called him on my cell phone, but he did not answer.

“I used my cell phone to call all my neighbors and tell them to get out of Graniteville. One was a paraplegic, another an eighty-five-year-old person, and a third, seventy-six years old, and the fourth was a forty-five-year-old person. I told them I did not know the whole story, but we have a toxic gas in town, and it can kill you. I got two other people awake, but I could not get the eighty-five-year-old person across the street because that person has put on to much weight for me to lift. So I called 911 to have somebody come in and help this person. I then drove over to Warrenville to get my breath because I was really coughing, my nose was burning, the same with my throat; everything seemed like it was on fire. Then I drove back to Graniteville, and at every rut I hit in the road I had to get out of the car and look under the car to see if I had hit my husband or another person. I could not see a thing, and was unable to get by the convenience store near our home. The odor and the fog were still on our street, and I had mucus coming out or my nose. I would rub the mucus off, and I had no napkins or tissue paper in the car, so I would rub it off on my shirt and pants. I could not find my husband, so I left Graniteville again to get some fresh air.
“I came back in a second time, and in the fog and mist that made it impossible to see, I hit a big rut in the road just before the funeral home, and I felt sure I had run over my husband. I got out of the car and shined my flashlight under each wheel, but Charles was not there. Visibility was about zero, and my car started acting up like it was out of gas, although I had plenty of gasoline. Again, I made it no further than the convenience store. I did this routine a total of four times, with more mucus, hacking and coughing each time. I looked in the rearview mirror, saw myself, and my image scared me. I seemed to have white blood smeared all over me. I had thought it was just plain mucus from the chemical, but I knew then I had more problems.

“About this time,” according to Brenda Reyes, “Warrenville-Langeley Fire Department radioed on the pager, ‘We have your husband down here.’ I went where they told to go, and both my husband and I got decontamination showers. They took off all our clothes. We had no clothes on whatsoever which can be very embarrassing; just those little, thin sheets. This was something we had to do by fire regulations for some chemicals, including chlorine gas. They also flushed out our eyes because they were red, irritated, and just weeping away; and I washed my own hands and face. We were then taken by ambulance to University Hospital.

“At the hospital, I got all kinds of treatments for my lungs and to keep me breathing, but I told the doctors my husband should be treated first. The doctors then treated him and gave him a shot to open his lungs, then gave me another shot. After we got discharged from the hospital, my husband went to the Station Two fire department on Lake Road, well away from any lingering chlorine gas. I still did not have any clothes on. They wanted us to wear scrub gowns out of the decontamination site, but sometimes scrubs don’t work if you do not have underwear on. I called my son who picked me up, and his wife gave me a shirt to wear. It looked like an evening dress hanging down around my ankles. We then learned about a church in Aiken, on Laurens Street, that was helping people in distress due to the poison gas situation. We went there because I didn’t want to stay at my son’s house since he and his wife needed their privacy, and I needed time to heal. The railroad company provided motels, food vouchers, and necessary medicines to eligible people. I signed up for a motel, actually a Guest House in Aiken, and to get food three-time-a-day. I had to buy nebulizers (an atomizer equipped to produce an extremely fine spray for deep penetration of the lungs) and other medications since all my regular medications were at home. I take a lot of medication since I have a bone disorder, and because of the chlorine incident, doctors had me on 27 different medications. That’s a lot of chemicals to mix together.

“I had to go to an eye doctor because the thin membrane covering my eye was burned, plus I coughed so hard and so violently during the gas attack that I developed a deviated septum. My lungs were burned, my esophagus (a tube connecting the mouth or pharynx with the stomach gullet) was burned, and I had to go into the hospital to get cauterized because my stomach was bleeding. In addition, I had to go to a heart doctor to slow my heart down because they said I had post traumatic stress disorder from what I experienced. I had to get more medicine for that to calm me down. Six months later, I told the doctors that I was done with all that medicine. I wanted to get off all the medicine because I felt that it was doing me no good. I asked them to let me go and heal on my own. At this time, I could not eat solid foods, so I had to drink a lot of chicken broth. Milk shakes were good, since they cooled the throat very well, and the doctors gave me a spray for my tongue and mouth because I had blisters inside my mouth even seventeen months later. I still have my nebulizer and my inhaler. I take a pill three times a day to keep me from freaking out
when I hear a train coming down the track. We have a train about every two hours, even on Sundays. Thirty years ago, you wouldn’t hear tell of a train on Sunday coming through Graniteville; now Sunday does not mean anything, they come and they go!”

Brenda Reyes commented about the increase in hazardous materials the railroads are now hauling. “It’s definitely a problem. Seventeen months later, I am still in need of my lungs to be cleaned, but they will never be healed. My lungs are scarred, and they are going to be scarred for the rest of my life. My esophagus got burned, and I have to absolutely take medication daily because the poison gas did so much damage to my stomach. I was just lucky it did not get my larynx. Now I have a deviated septum because a little membrane burst in the back of my nose, which gives me apnea (temporary suspension of respiration). When I sleep, I cannot lie on my back, but have to lie on my side. I also have to see a psychologist for traumatic stress disorder.”

Brenda Reyes started out with a fifth-grade education, but in 1979 when her kids were raised and out of the house, she decided to go back to school. She started at Aiken Tech, studying to get her GED certificate which she obtained in three months, then entered a class for nurses attempting to qualify as L.P.N. (Licensed Practical Nurse). After she graduated from that class, and was working as a licensed nurse in the local nursing program, she noticed there was an Emergency Medical Technician (EMT) class which she entered. In 1980 the City of Aiken Police and Fire Department had an opening for a Safety Officer/Medical Officer, and Brenda Reyes was hired. Brenda readily admits she had a little extra pull in getting this job; the wives of two senior officers told their husbands to get Brenda and put her in the fire division, so they could feel better having somebody who’s licensed and an EMT to go with to their fires. Brenda was voted into the position a couple of months later as a Lieutenant. The police duty was a bit more dangerous than the firefighters had been. As she notes, “You know, in a burning building, you can run out of the building; but if you have a 38 pistol pointed between your eyes, you cannot do much at all. The guys always kidded me because I was the third woman on the police department. I preferred fire fighting, and for the City of Aiken I worked as an engineer (truck driver/operator). I didn’t have to fight many fires, but I had to make sure I had enough water for the guys at the fire. I drove all the fire trucks, the ladder trucks, and whatever they had for emergency vehicles. Later, it got too dangerous for a woman to do police duty, so I went back to nursing at the federal Department of Nursing where I worked in the psychiatry ward. I’ve had a good life. The Lord was with me the night of January 6, 2005; without him that night, I would be dead.”

Chief Phillip A. Napier of the GVW Fire and Rescue Department, who also runs Napier’s Hardware Store in downtown Graniteville, South Carolina remembers, “We received a call that the train had possibly hit a building in Graniteville. Upon our response, I told the men to report to the station, and I would try to locate the incident site and find out what was involved. And evidently, by listening to the tapes at a later date, it is evident I was already beginning to be disoriented. I couldn’t see. I called for an ambulance, and I couldn’t say what I wanted it for. When I pulled up to the man on the railroad track, and rolled the window down, he told me they had had a head on collision with the train, they had a chemical leak, and he couldn’t breathe. Then he fell to the ground, and later died.

“He was the engineer of the wrecked train. Immediately, just like something cut off my wind, the chlorine hit me. I vaguely remember making a u-turn at a rail-crossing less than 50 feet from where I was, and headed north. At this time, there was probably a five to eight minute time span when I lost my memory. When I came back to my senses, I was on
Number 1 Highway at a cross street calling for hazmat teams to assist us. I told them I could not breathe in this area, and that we were going to have a major evacuation in this area.

“So we just went in from there as far as setting up. The first two gentlemen that came in, I put them in charge of hazmat response. One of these men was also Fire Chief with the Augusta Regional Fire Department just down the road in Georgia. Early-on, the rest of the first responders I secured worked under my and their direction. The law enforcement officers started securing the area by blocking off the streets coming into Graniteville. We also had to send some teams in to shut down the mills. People had run out leaving the mill with the steam plant boilers still running, so we had to send teams in to shut them down. It wasn’t long before the railroad company gave us information on the chemicals from the train cars that we would have to deal with, basically and possibly chlorine and sodium hydroxide. However, at this time, we did not know what cars had breached. A clean up company hired by the railroad came to the scene, suited-up, went in, and attempted to patch the car to stop the leak. The next morning, we received a call, probably around five in the morning, that there was a victim trapped in an automobile, and we sent teams in to rescue this person. A man was rescued, and to my knowledge, health-wise, he is okay.

“In the days that followed, we had different agencies coming in; including EPA, Federal Railroad Agency, National Transportation Safety Agency, and many others. We started setting up as far as what to do and what not to do. We basically went to a Unified Command situation, which was the best thing that could have happened with this incident. The Sheriff's Department knew they were in charge of law enforcement, the Fire Department knew they were in charge of fire and hazmat, and Emergency Medical Services knew that that they were in charge of triage and medical care. Everybody had their phases of what they needed to do.

“Shortly after daylight on the first day, we were notified that there was a fire in the steam plant. We had to start sending teams in to extinguish the fire in the steam plant. We found the boilers were fed by coal, and fire got into the coal chute, and there was hardly any way to extinguish the fire. We set up deluge guns and automatic monitors to keep a constant flow of water to try to contain it to keep it from getting into the silo. Had we not tried to contain the fire, then the whole town would have been covered with black smoke and soot. It was just one thing after another the entire day. We started receiving calls of natural gas leaks. Just about anything that could happen, happened within that twelve-day span. Worst of all, we started receiving confirmation of fatalities. In the beginning, we started receiving calls that people were trapped in buildings and couldn’t get out. Then a long-haul truck driver from Canada sleeping in a mill parking lot waiting for either a pickup or a delivery was found dead from chlorine inhalation. We have put up a fine memorial in town to honor him as well as for eight other workers and residents who were killed by chlorine gas.

“I and other members of the GVW Fire and Rescue Department have been to eleven states to provide information about the rail wreck and the deaths of our citizens and workers. We have made a Power Point presentation, and last week I and the GVW Assistance Chief were in Baltimore, Maryland to appear before the National Association of Fire Chiefs Haz-Mat Technical Conference. We have also been to Traverse City, Michigan; Cincinnati, Ohio; the FDIC in Illinois; the State Firemen Convention at Myrtle Beach, South Carolina; Fairfax, Virginia; and other cities. We probably put on our show on 150 times.

“In the early minutes of this incident, we had people begging for help,” explains Chief Philip Napier. “We needed good information of what we were actually dealing with, so
we sent in a hazmat team made up of firefighters from the Savannah River Site and the Augusta-Richmond County hazardous materials response teams. The railroad company, Norfolk Southern Corporation, was very cooperative through the whole event. Anything we needed, they would assist us. The clean-up companies they brought in were very good to work with, and a medical doctor and a chemist were provided. If you read the National Transportation Safety Board’s report of this incident, you can tell the clean-up went well. Overall, probably the best thing that could have happened was when we went to a unified command set-up. That way, it puts every organization in their correct place with their normal duties. By federal law, the fire chief is the incident commander. However, my stance from the get-go is you work together as a team for the good of the people. It is not, ‘Who is in Charge;’ you need to work together. But the bottom line is the fire chief is in charge, not an elected official. I would always suggest that you try to go into unified command as soon as possible. That way it will put every organization in their place. It probably was two days after the rail wreck when it was decided to go into unified command.”

Chief Napier was asked about survivors who say they still have health problems even eighteen months after the train derailment. His answer was, “Nobody really seems to know. We still have people who say they have health problems and are having effects from it. People have basically an on-going damage to their homes in close proximity within Graniteville village. They see the damage to their town, their homes, and loss of good employment which can be a definitely emotional experience. The textile industry says that the train wreckage has caused them to have to close their business. American Textiles was in trouble before the train wreck. It started laying off people and closing different facilities. Now, whether or not the train derailment forced them to close the mill because of down time and the later clean-up processes, is a question that I cannot answer. Once the clean-up company finished their work, the mill company said they were shutting down.”

Regarding the people in town that were injured, did they get any long-term help for their suffering and injuries? “I don’t know if they or did not,” said the Chief. “A lot of them have personal lawsuits with the railroad, and a lot of that is pending. There was a class action suit filed. Also, the railroad company paid everybody within a mile radius of the train wreck $200 a day for every person for every day they were evacuated plus, $2,000 for the household. Some are still seeking legal attention. In addition, the State of South Carolina appropriated $340,000 for Graniteville Disaster Relief, and some of our politicians tried to use it to buy police cars for the county. A lot of the people in the community found out, stood up, and protested the use of that money in such a fashion. Our desire is for the money to come to Graniteville for continued health screening of the people who live or work in the town. At the present time, it looks like we are going to win that battle. If we don’t win, we are going to sue. But that’s how politics gets involved in everything. They try to use the suffering and pain of poor people to benefit somewhere else. At the present time, as far as state and federal help directed to injured persons, this community have received nothing. During the actual incident, however, the Federal Homeland Security Agency sent transfer trucks to us loaded with all sorts of equipment, including all kinds of Haz-Mat suits and air packs, keeping us in business for a number or days. I believe the transfer trucks came from Columbia in South Carolina, and they appeared in less than one-and-a-half days after the wreck.”

When asked about the payment of damages to the GVW Fire and Rescue Department, Chief Napier responded, “Our fire station was within 250 yards of the train derailment. We lost our fire station, two fire engines, a service truck, a First Response vehicle, and all
equipment within the station. We had to completely gut the building, rewire it, sheetrock it, and redo the floors. The chlorine gas just penetrated the building; and as a matter of fact, the second door down from the fire station is where there was a fatality in a residence.

“I’m not sure how many people were injured in Graniteville, and no one can tell how long it’s going to take for them to get better. It’s really an uncertainty for all of us. We don’t know what effect this chlorine is going to have on us in the long-term, as far as the environment here, and as far as our health. Personally, I was exposed to chlorine gas which basically took five to ten minutes away from my life. I have no memory of that short time period, no memory at all. Yet, to the best of my knowledge, I seem to have no lasting effects from the chlorine after seventeen months as I talk to you. It was a short, momentary memory loss from the gas, except I know I headed north but I ended up in the south portion of town. It was a lot to put on your plate at one time. I called my home and told my daughter to get her mother and just get in the car and go toward North Augusta. Also, I called a brother and told him to get our mother who lives within a block of the train wreck, probably within a 100 yard dash. Thank God, they’re all okay today, with just some long term effects.”

When Chief Napier was asked if he had any information where the leaking chlorine gas traveled through Graniteville, he responded, “In the beginning we’d had reports a deputy sheriff saw a green cloud rolling down Main Street toward the fire station. The deputy turned around in the fire station yard, and it seemed like the chlorine gas was on the ground as it passed Dale’s Convenience Store. You can tell by the vegetation that was peeled and blistered, and then the gas moved to the creek, and it followed the creek which was on lower ground to the north. When it reached the mill buildings where more deaths and injuries were noted, the deadly gas seemed to follow the creek and the railroad track to the north. You could see across the pond that the blistering effect of the trees was continued. “Everybody says chlorine sticks close to the ground, but it does not in all cases; even the cross on that steeple of the church had to be replaced for it was terribly tarnished. On pine trees 70, 80, 90, 100 feet tall, the needles were completely bleached. There were reports that behind Woodhead mill building, when the U.S. Coast Guard team came in and checked the swamps, they said there were snakes there that were bleached white.”

November 10, 2004:  Graniteville, SC. Five workers at a textile mill driving home after working all night were killed at a railroad crossing in Graniteville. A Norfolk Southern train engine pulling two cars hit their car doing 45 M.P.H. in a stretch of track with a maximum speed allowed of 49 M.P.H. Three automobiles tried to beat the train to the crossing, according to witnesses; but two won the race, leaving the third car to get hit with the train engine. All five occupants in the car were killed. Fire Chief Philip A. Napier remembers this incident very well. “I was sitting here at my store one morning and I looked out and I saw the train going by. I thought to myself ‘that train is flying,’ it’s an engine and two passenger cars (this train was testing the rails for safety, yet it killed five people). About a minute or two later, we got a call that the train had hit a vehicle. When I responded, I told the men in the fire department on the radio that it was going to be a bad incident because the train was really moving and there were five fatalities. It was just like it knocked the life out of them. That was in November, and in December I went before Aiken County Council with a presentation. I asked them to try to do something to slow the trains coming through this town before we had a derailment. On January 6, 2005, less than eight weeks later, we had a colossal derailment that killed nine persons from inhalation of chlorine gas and injured many more. I’ll always believe that had the chlorine train been going 25 mph, there
would have been a derailment and there would have been a collision but I don’t think it would have reached the chlorine car. Since then, the train does come here at approximately 25 mph.

“All nine fatalities were from chlorine inhalation,” says Napier. “They might have received minor damage from the train derailment, but chlorine inhalation is what killed them. It’s amazing how some people were affected differently. Like me, to my knowledge it hasn’t bothered me. But we have one gentleman in the fire department that was exposed and was put in the hospital. He had a lung collapse, and he’s still out on disability. Within the first few minutes, we were dispatched because a train had possibly hit a building; but within the next few minutes we received another call that sounds like there’s been a train wreck, there’s a ‘bleach’ smell, and it is foggy. That information was never relayed to the first responders. The Reverse 911 was mentioned but it was not implemented until hours later. With reverse 911 you can call houses and tell them what you’ve got, that you need to evacuate, what you need to do, and that wasn’t done for hours. In the very first minutes, I gave the order we need to have a major evacuation, and we ended up having a major evacuation, four hundred-plus people. Also, Reverse 911 was told to be implemented. That’s two things that weren’t done in the close timeframe. But again, it’s kind of open for discussion. If the Reverse 911 was not working, if you don’t tell the people which way they need to go, they would have come right down into the chlorine gas.”

Rodney Cooper was the acting animal shelter manager during the Graniteville train derailment and cleanup operations. “We went in to rescue the animals, and later removed the animals as necessary for their health and wellbeing. As the hot zone started decreasing in area, we were allowed by other groups to go in if someone had an animal in their house, and they could not rescue the animal(s), they came to us. They signed a release for us to go into their house, and left their house keys for us to get into the residence. That is, we went in to the decreasing hot zone at their request, to either pack the animals up, and get them to safe area, or feed and watered their animals and make sure the animals were all right. We did find a few animals in the houses that had died.”

Rodney Cooper came up with exact count of how many animals the Aiken County Animal Services provided services for: dogs and cats 338, birds 20, hamsters 2, ferrets 1, rabbits 1; 27 where dead on arrival).

Cooper said they set up their operation in the parking lot of the high school which is located about four miles from Graniteville. “It was a fenced-in area, and we set little cages up where we had some shelter. As we picked up the animals, we brought them back here. Anyone who had animal they wanted to claim, could come to the high school and try to find their animal(s). If they found their animal, the animal was returned to them along with a ‘Vet Check’ to make sure everything was fine with the animal. We had a lot of volunteer help from the Charlestown Police Department animal control division, and from the Lexington County animal control division. They called us, asked us if we needed help, and we told them we would take any help they could send. Basically, we borrowed their staff. Charleston sent two officers and two vehicles, while Lexington sent three officers and three vehicles. Also, the Animal Control Officer for Aiken City was also here. We had a very good response. If the volunteers were from out of town, we teamed them with a local officer who knew the Graniteville area so they would not be going in blind.

“Once they deemed the outlying area as no longer a hot zone, we were allowed in, which I believe was about forty-eight hours after the actual rail wreck. However, prior to that time, some of our officers had to put on air packs and other protection because they
were near the hot zone, but this was only one episode. However, once we were allowed to go into the former hot zone, about the third or fourth day of this incident, we were able to check residences where owners wanted us to go, and check the roads and back lots for dead animals. At this time, we had a couple volunteer veterinarians come to our staging area to check the animals as we brought them back from Graniteville. Once the animal was cleared, they were unloaded and put in carriers for their owners to claim them. If they were not claimed that day, we took them back to our shelter, and the owners were notified to come to claim their animals. Most people picked their dogs up pretty quickly. Each day we probably did not have more than 15 animals that we had to take to the shelter, and most of them were claimed the next day, so we where not overloaded with animals. We had dog food donations from citizens, friends, and a huge donation from the Pedigree Dog Food Company that sent tractor-trailer load that somebody told me consisted of forty pallets of dog food. With a lot of volunteer help who came from all around the area, it was hectic but it was a unified chaos. It went well, compared to what it could have been."

Captain Greg Bailey is a shift supervisor with the Aiken County Emergency Medical Services (EMS) who was on duty the night of the rail wreck in Graniteville. He is also a member of the Aiken County Haz-Mat Team, so he had a problem. "I responded to an EMS page, but on my way to the staging location, I had to make a decision which way I went. I called my supervisor who was on twenty-four hours of duty, and asked him which way I should go. Do you want me to go to EMS or Haz-Mat? He sent me to Haz-Mat, and I went down to join Ed Shuler, the technical resource person for the Aiken County Haz-Mat Team, for an entry into the hot zone in the Graniteville incident. We found one injured survivor, who was in a wrecked automobile near the railroad tracks surrounded by damaged rail cars. I came back, made my report to the central command. I was then reassigned back to emergency medical services (EMS), which was in the middle of a process of doing multiple tasks. One thing we had was a couple of ambulances assigned to go in to an area with Haz-Mat technicians in Level B (liquid splash protection suit for hazardous chemical emergencies), another task was readying all the precautionary stuff we needed; also, we had ambulances removing injured, and our people were active in running two triage areas and two decontamination sites. In the decontamination sites, everybody who appeared there was basically stripped of their clothing, everything but their underwear, then run through showers, and on to a medical setup in case they needed to be transported to a hospital.

"At the site located at the University of South Carolina at Aiken, by the time I got there they already had a hospital tent set up from Fort Gordon in nearby Georgia, as well as medical personnel from our trauma center. Across the street, there was Aiken Regional Medical Center which had set up another decontamination and triage site. Before anybody went to the hospital, they had to go through one of our decontamination stations. My original assignment was working at the decontamination station, washing anybody who needed to be washed. We were dressed in Level B protective clothing and SCBA (self-contained breathing apparatus). A lot of people said, 'I have all ready been home, where I took a shower.' I explained to them, 'If we don’t wash you, you are not going to get medical treatment. Drop your clothes right there!' Some people said, 'You are not getting my clothes,' and left. Actually, they were able to take their clothes off in privacy, put their valuables in a bag which they got back after they showered, and then they went through the showers. We did not give them back their clothes, which were bagged for later disposal. When they came out of the shower, someone would catch them, put them in a blanket or sheet, than another person through signs and symptoms would determine if that person needed
medical attention or not. If they needed medical attention, we sent them to the medical tent where there were multiple doctors treating respiratory conditions. If they did not need medical attention, we sent them to a gymnasium. A few persons just refused to go through the showers for a number of reasons; their excuses ran from, ‘I just don’t want to do it,’ to ‘I already had a shower,’ to ‘I don’t want to lose my new clothes.’ We made it very clear that we considered their clothes contaminated, but we had to set up a new line for less than 25 persons, men or women, who would not go through the showers; even though we put 350 people through the showers.

“About that time, I was relieved and then placed in an ambulance crew, and later I went into what I believe was called ‘the warm area’ where we used the Cobra Team bus to evacuate people from these areas. That is, we took a few homebound persons to the top of a hill to avoid the chlorine gas which remained in the low valley. I remember a quadriplegic; we went in and picked him up in what appeared to be a fairly safe area. In an area near Belvidere, we met a private ambulance coming from Augusta, Georgia. Since we were still suited up in protective clothing, we transferred the quadriplegic to the private ambulance, and they took him to the Veteran’s Administration hospital because the patient’s home area was thought to be contaminated and under quarantine. Over all, it was a very large effort, and EMS people were there through out the whole procedure. I went home that night about 7 because I had to come back for my twenty-four-hour shift the next morning. For a week to ten days, since I had responsibilities for both EMS and the Aiken County Haz-Mat Team, I did not get much sleep. I would go home, get a few hours of sleep, perhaps change clothes, and then take an assignment down at the Command Center. I took only one assignment for the Haz-Mat Team, other than the one mentioned before, but took assignments for EMS a number of times because they were required to have a supervisor on duty. Usually, I went to the Forward Command Post at Honda Cars of Aiken located on Route 1 to make sure we had enough ambulances standing by, and to make sure that anyone who went into the hot zone got a medical examination before they entered, and another examination when the came out. We had private ambulance companies there helping us out, and we went on several days, so my wife did not see me much for a week. About this time, I helped the Aiken County Haz-Mat Team go into the former hot zone to find the body of the last casualty. It was not a pleasant site! Everybody worked in this tragedy; you helped anybody and everybody helped you. If you could help, that is what you did.”

When asked about triage, Captain Bailey responded, “We use a standard system of triage. Basically, the worst get treated first. I missed the worst patients (Red Color) since at the start of the incident, I was detailed to the Aiken County Hazardous Materials Team to enter the hot zone in protective clothing and SCBA (self-contained breathing apparatus). Red is for priority patients, patients who could die if they don’t get treated first. Yellow is what we call ‘Delayed Patients,’ they need to be transported to medical care, but they can wait; they are our Priority Two. Green patients could be the walking wounded, or persons with cuts and bruises. Black patients are fatalities, or wounded so much they probably can not survive. Some of these decisions can be the hardest you can possibly make. In a mass casualty incident, you might have to make decisions on who you are going to save, and who you are not going to save. You might spend your efforts trying to save someone knowing you cannot save him, and your efforts could be used to save another person.”

To change the subject, Captain Bailey mentioned a few people who had no idea they were in the middle of an area where a chemical warfare agent was killing nine persons and sickened hundreds of others. Bailey and Ed Shuler of the Aiken County Haz-Mat Team
were dressed in protective clothing and SCBA on their initial tour into the hot zone. “We had walked about a mile into the hot zone with a one-hour air supply around 4:00 in the morning, when a gentleman parked his vehicle beside us. He was cursing us out as he began walking down the street, then he stopped, waved his hands, and said, ‘You need to leave.’ About that time, a woman pulled her vehicle to a stop, opened her doors, and cried, ‘What’s going on here?’ I told her she needed to get the hell out of here. My assistant told me later he was doing an original search in a mill building along with EMS and Haz-Mat personnel searching for survivors or dead bodies, when he noticed a guy come in carrying his lunch bag. He asked the guy with the lunch bag what he was doing in this building, and the worker told him he was coming to work, like he did every day. Since the whole area had been evacuated by law enforcement personnel manning road blocks, the able worker admitted he had driven around a number of roadblocks on his ride to work.”

Ed Schuler, CHMM, works fulltime for the Savannah River Site in Aiken County and is also a Lieutenant with the Aiken County Hazardous Materials Team with duties as Technical Resources Officer. He also holds a Bachelors degree from the University of Maryland, and was originally a sailor and instructor in the Navy’s nuclear submarine program. “On January 6, 2005 around three in the morning, my pager goes off and the message was something about a possible train derailment,” says Ed Shuler. “We first responded to a staging area that was on the other side of town, then we got a message saying we were staging at Honda Cars of Aiken which was just down the highway. We responded in our personal vehicles, and our Haz-Mat truck was already there. We told the party there we had instrumentation on the Haz-Mat truck that could transmit radio signals. We were told to go down close to the hot zone because they really did not know what was going on down there. We drove down Canal Street right after Route 1, got out of vehicle, and soon realized we should not be there. The chlorine gas was very strong at this point. There was a firefighter coming out of the hot zone showing sign of severe respiratory distress, so we called an EMS unit, and they administered to the firefighter. We then situated some of our gas monitors, and then took some back roads to get back to Forward Command.

“At that point, we did not really know what we were dealing with. When we started our entry into the hot zone, I believe we reached ground zero around 5:30 a.m.; that is, nearly two hours between the actual accident and the start of our recon mission. That sounds like a long time to a lay person, but we had to suit up in protective gear, and make sure our PPE [personal protective equipment: equipment provided to shield or isolate a person from chemical, physical, and thermal hazards that may be encountered at a hazardous materials incident; and should include protection for the respiratory system, skin, eyes, face, hands, feet, head, body, and hearing], an electronic Geiger apparatus, four gas monitors, and two radios with one for my partner [Gregory R. Bailey, Shift Manager for EMS] and one for me. It was still dark, warm and foggy, somewhere about 50 degrees F. We had to huff a long way since we did not know exactly where the hot zone began. It was perfect temperature, calm with some slight breeze when we were at the bottom of a hill, the low point in our journey, when we climbed back up to go across a little bridge. There was a slight odor here, but we could not identify exactly what it was. We saw a man who said, ‘My son is back at the house,’ and I told him he better get the hell out of here.”

Ed Schuler and Greg Bailey continued to walk down the pitch dark street in dense fog, crossed the railroad tracks, where they began to hear the crossing light at an intersection going ding, ding, ding, ding, ding, ding in an endless rhythm that haunted that night in Graniteville, South Carolina. “We came down a slight hill where the road crossed
over the railroad tracks before going in a straight line again, and the bell going ding-dong seemed to get louder and louder,” says Ed Schuler. “I looked over to see this huge oak tree laying down on the highway surface. It took me a few seconds to realize there was an automobile captured and held within the tree branches. I went over to the car but could not get the doors open, and beat on the windows in case there was anybody alive in the car. There was a live man in the car, but suddenly I seemed to be covered with white powder; I thought it was sodium hydroxide powder, but that’s not the way they ship it. I told the guy in the car to roll down a window, and I told him that we would get him out of the car. We called a rescue team and got a response; these guys were a block away in a pickup truck, and they were successful in getting a rear window out of the guy’s car and extracting the victim.

“We then continued the reconnoitering mission, but when we found the derailment, we could not see any placards, or any other signs of identifying information in the jumbled mess. We did see fire burning with smoke apparent. When we got down to the scene, we has plenty of air; but working with the victim in the car, I ran out of air a bit faster than I anticipated, slipped in white powder, fell backwards down a short distance, and ended up with crap all over me. My electronic Draeger tubes [Draeger tubes are designed to detect specific compounds in the air. Users will draw a specific volume of air through a tube with a Draeger pump, and then read a color change reaction against a series of quantifying markers on the tube. The glass tubes are filled with one or more substances that undergo chemical reactions in the presence of specific chemicals or types of chemicals. The basis of any direct reading Draeger tube is the chemical reaction of a measured substance with the chemicals of the filling preparation. This reaction will result in a color change which the user can identify and therefore quantify the amount of the measured substance. Each tube has specific interference that will indicate a positive reading for the compound of interest. The user must have a general knowledge of what the compound is to minimize the number of separate tests] were so coated I could not read it. I also lost my radio, so my partner called for a pickup, since I knew we could not make it out of the hot zone if we had to walk back a mile because of our limited air supply. While waiting for the pickup truck, we crossed to that little park on Canal Street, across from the data processing center that serves the mill company. A lady drove up to where we were standing, and we told her to leave this area. The pickup truck drove us back to Forward Command. It now was about daybreak.

“A little after daybreak, we formed a team with three mill company personnel and brought them down to the hot zone so they could shut down the different mill plants. We dropped off one team, and then went to another building. I saw in the supervisor’s office a man sitting in a chair who did not look well at all, and was probably dead. I went into the break room and saw a guy lying on his back, and I went over to check him out. I could not get a pulse. It was now getting light; I say its now about 6:30 a.m. to 7:00 a.m., and I tried to call the other plant, sixteenth of a mile away, where we had left a team. I could not get them on the radio, I could not reach Command, and I could not reach my team. However, I had the victim’s cell phone, so I called 911. I reported our status, that we had found victims, and gave a general status report. The operator could hear me, but I could not hear the operator. We got back in the car that took us back to pickup the other team, after which we went back to Forward Command.”

Ed Shuler was of the opinion that people from out of town were quick to arrive in Graniteville to offer their help in every possible way. “We suddenly had aerial maps, detailed street maps, and every thing was in good order. The FBI, the railroad investigators, and...
the environmental monitoring teams from the railroad must have been dispatched immediately, within minutes of the crash. The railroad had some type of alert system, and they got teams airborne at once. Their monitoring team was also flying in, and they had remote monitors all over the place, which was pretty amazing. They had capabilities for monitoring that nobody was tapping into; and they were monitoring for possible liability that might be directed to the railroad, Norfolk Southern Corporation.”

On Saturday or Sunday, Ed Shuler was put in charge of a thirteen-man search and rescue team because there was one individual that was not accounted for. “They went through the accountability system, knew where everybody was except for one mill employee. We went to the Woodhead Division of the mill, and the fire department said we should enter the building in Level B protection since the building was very near the incident location. We split our team into two groups, and each group had one member who knew the building. One group went clockwise around the building, and the other group went counterclockwise. My group did a thorough search, and came out. The backup team was chomping at the bit, and went through the building slowly checking every possible spot for a missing body. Just on their way out, someone found the body underneath some equipment in a dark spot within the building.”

“After a number of days, there was a lot of back and forth in the newspapers between the Sheriff and the Fire Chief accusing one or the other of wanting to be the overall commander of this incident. The Sheriff took overall control of this incident, possibly saying, ‘This is the way it is going to work.’ It was politics in a small place, and in fire departments, everybody wants to be in command. The county was not too keen in this decision, and there was a lot of dissent. On a Friday, at one point in time, while railroad crews were trying to re-patch a second chlorine car when the first patch had failed, I was in charge of Haz-Mat Command for a short period of time. Someone said there was an evacuation order in effect, so I called Incident Command to ask them what was going on. Basically, Incident Command did not know about the evacuation order being in effect. I told all my Haz-Mat crews to return to base. We found out later that the railroad repair crews, because the first patch had blown off, did not tell anybody working on the site, and did not tell Emergency Command. That lack of attention and coordination could have killed somebody.”

Avondale Mills lost six valuable employees, an untold number of other employees were injured, clean-up work lasted at least seventeen months, and many trusted and qualified employees were, as a result of the deadly incident, laid off. On January 6, 2005, Avondale Mills had 183 employees working the third shift that night in five different buildings, all located in a depression by a small creek. About 2:40 a.m., that whole area became a hell hole of suffering humanity. Chlorine gas began issuing from a wrecked tank car with an amazingly strong chemical odor; survivors described it as strong bleach odor, some said was a green fog that enveloped them and made them lose their way, and some mentioned they never knew a toxic gas was present until they felt it. And many people felt it. Their eyes and noses ran with fluid, it stopped their breathing, and each of the breaths they could get was no blessing because it burned their lungs. It was a world of hacking, coughing and vomiting like no other world experienced before. It was not a nice way to give up a life as nine persons learned. It was the worst train wreck in the last thirty years.

Employees in the difference plants were initially able to call supervisors and report what was going on, and then call 911 for an emergency in progress. However, if you wanted to escape from the cloud of chlorine gas, you were pretty on your own. No significant rescue efforts were attempted in the hot zone for hours since law enforcement officers set
January 6, 2005

up an evacuation zone and installed armed police on roadblocks around the border of the hot zone. Some workers, even one’s who had made it out of the hot zone on their own, went back in to the hot zone to rescue other workers. Such conduct is quality behavior of the highest order. Almost no one knew what the gas was; they just knew that it was killing them. Some workers believed it was a chemical used in the mill for normal production. Actually, Avondale Mills and its employees, Graniteville and its citizens, and Aiken County had absolutely nothing to do with responsibility for this tragedy. Yet, they suffered without end.

Avondale Mills had an absolute tragedy to recover from, although the company had no responsibility for such a tragedy. The company’s computer system was destroyed by corrosive gas. What used to be done by computer, now had to be done with manpower. This included raw materials, cloth and yarn, payroll preparation, plant scheduling, check writing, cost approval, and ordering had to be done by hand rather than by computer. Both suppliers and customers were easy to deal with in a quick rebirth of Avondale Mills and their mills in Graniteville, but it would take months to repair all the damage done to the various plants. Due to major corrosion, a large number of electrical and metal components had to be replaced. The railroad paid for a contracting company to come to Graniteville to work with mill personnel to do a general cleanup of the property.

However, early in October of 2005, Avondale Mills began laying off up to 350 workers due to apparent problems cleaning up corrosion left from the tragic incident that happened nine months earlier. And the situation worsened. This author visited the mill in January of 2007 and was shocked by what I saw, or rather didn’t see. The many large trucks with “Avondale Mills” printed on their sides were all gone. The site appeared to be deserted. The lots were empty, and there was no one walking about on the mill grounds. Whether the plant was purchased or not, I cannot say. After eighteen months of making so-called repairs, and a year of trying to fix the damage on their own, the company may have decided that the plant was unsatisfactory for their manufacturing purposes.

The Human Costs of Chlorine Gas in Graniteville, South Carolina

Deaths
Rusty Rushton III, employee of Avondale Mills, age forty-one, Warrenville, found dead on loading dock of Stevens Steam Plant where he was a Boiler Operator with twelve years at Avondale. He was a 1982 graduate of Midland Valley High School, a native of Aiken County, loved riding motorcycles, and cared greatly for his three animal buddies. He was a friendly person with an expansive personality, somewhat of a cutup and local wit with a keen sense of humor, and a free spirit. People also said he knew his job very well, and was willing to help anyone with a problem. The father of five children liked Jimmy Buffet songs, and loved beaches. At his funeral, family and friends played a Jimmy Buffet song and later family members placed a small amount of his ashes on a favorite beach.

Willie C. Shealey, employee of Avondale Mills, age forty-three, of Graniteville, was found dead in low, swampy woods near the Woodhead Division Plant. He was the Shift Third Supervisor and had been with Avondale Mills for eighteen years. Mister Shealey was also a member of the National Guard 122 Engineering Battalion in Graniteville, South Carolina. He was a comer in the plant in all respects, and rumor has it he could do any
job in the Woodhead Division Plant with ease. Shealey had been one of the first winners of the Corporate Zero Defects award at the Woodhead Plant, and he was so good at handling personnel problems that people on the day shift wanted to come to work with Shealey who worked from midnight until eight in the morning. People noticed he did his job very well, wanted production quality, and cared about his fellow workers. He was also a horseman, and belonged to a local riding club. He didn't run from the gas attack on home ground until he had shut down the production machinery, and helped other workers to flee the plant. Shealey finally left the plant with John Laird, Jr. They attempted to help each other outrun the toxic gas cloud, but were unsuccessful. Sometime later, their bodies were found together.

John Laird, Jr., an employee of Avondale Mills, age twenty-four, of North Augusta, South Carolina, was found dead in low, swampy woods near the Woodhead Division Plant. Employed as a Lead Machine Operator, Laird had five years with the company, and had a reputation as a reliable young person with a serious respect for the work he did, who had recently been promoted. Laird was regarded as a good-hearted man who would do anything for any person. His new job was a position of responsibility, and he handled it well. He was dedicated to his work, and had the respect of his co-workers of all ages. He was also a good listener, and very mature for his age. If Laird made a mistake, he would not do it again. John Laird, Jr. loved to work with his hands, and was a fan of NASCAR racing.

Steven W. Bagley, an employee of Avondale Mills for two years, age thirty-eight, worked at the Gregg Plant as a fork lift driver who loved to fish and hunt. He lived in Augusta, Georgia about twelve miles from Graniteville, and became a father of a baby son ten days before the Graniteville railroad tragedy. After the incident, his body was found in the break room of the Gregg Plant. Mister Bagley was a hard worker with a cheerful attitude, by all accounts, and his constant smile could light up a whole room.

Allen Frazier, an employee of Avondale Mills for thirty-six years, age fifty-eight, lived in Ridge Spring, South Carolina and worked as a Supervisor in the Gregg Plant. He was a graduate of Midland Valley High School, and a lifelong resident of Aiken County. Mister Frazier's body was later found in an office of the Gregg Division. He was known to be an avid fisherman, and worked at Avondale Mills for his entire adult life. He was well known for his dependability and dedication at work, and for his caring attitude. He was a quiet and soft-spoken man who actually listened to anyone who might have a problem. A private person, Mister Frazier enjoyed spending time with his family, was known to be a good cook, and seemed to be highly regarded by workers and other supervisors. He also had a son who works for Avondale Mills.

Willie Lee Tyler, an employee of Avondale Mills for thirty-four years in the Woodhead Division, age fifty-seven, of Aiken City, was a Chemical Controller grinding pigments and paints in the textile unit. His body was not found until the third day of this tragedy, and his death was the sixth and final fatality of employees working for Avondale Mills. Mister Tyler was a deacon at the Sardis Baptist Church in Salley, South Carolina, and a well-known gospel singer active with the groups Fantastic Melodairs, and Deacon Willie Tyler and The Mighty Gospel Jewels. He also had appeared a number of times on the local Sunday morning television show, “Parade of Quartets.” During the year 2000, Willie Lee Tyler was Avondale Mills’ nominee for the South Carolina Manufacturing Alliance’s “Manufacturing Citizen of the Year.” He was an experienced worker, as well as a person who was easy to work with or for. Willie Lee Tyler was always in a good mood, and a joy to be around, no matter what might be going on.
Christopher Seeling, a railroad engineer for Norfolk Southern Railroad, age twenty-eight, was born in Fort Wayne, Indiana and lived in West Columbia, South Carolina due to his job. He had employment that he figured was the best job in the entire world. He loved his job. He graduated from the B.S.N.F. Railroad Academy at Johnson County Community College, and was secretary/treasurer of the local Brotherhood of Locomotive Engineers. On January 6, 2005, Seeling was to die through no fault of his own. The day before, another crew working for Norfolk Southern Railroad made a tremendous, unjustified error by forgetting to change a manual switch for a railroad siding back to the main line track. When Seeling came through Graniteville at 47 to 49 m.p.h. (a legal rate at the time) about 2:40 a.m. on January 6, 2005, with a three-engine train towing forty-two cars loaded with general freight; he probably had about four seconds before he hit an unmanned locomotive and two attached cars on the siding track. The engineer and his conductor were not killed in the crash. They found a mixture of fog and chlorine gas that blinded them, but they knew they were in Graniteville so they blindly followed the railroad ties between the tracks until they found the fire chief, and group of Avondale Mills third shift employees trying to save themselves. Seeling reported to Fire Chief Napier of the GVW Fire and Rescue Department that he had a head-on collision with another train, that there had been a chemical leak, and that he and his conductor could not breathe. The fire chief called an ambulance, and engineer Christopher Seeling died in a hospital some hours later. His conductor was seriously ill for a long time, but survived.

Joseph Stone was a long-haul truck driver, age twenty-two, who lived off-the-road in Sherbrooke, Quebec, Canada. His sleeper-truck was a “Freightliner” which pulled into Avondale Mills too late for unloading on January 5, 2005. Stone, also known as “Rolling Stone,” his CB radio name, drove for J.W. Express located in Deauville, Quebec. He called his girlfriend at home in Quebec to tell her he would be held up for the night, and then went to bed in his truck. Runaway chlorine gas killed Joseph Stone by inhalation while he slept on Leitner Street in Graniteville, and he may never have known what killed him.

Tony L. Deloach, age fifty-six, was an invalid who lived in a house on Main Street in Graniteville. He was an Ex-Marine who spent time in Vietnam where he lost much of his vision. He also had emphysema and pain in his knees. His home was near, or in the hot zone, and he died from inhaling chlorine gas. His body was buried in the Graniteville Cemetery with full military honors.

In the nine deaths listed above, it should be noted and understood that all nine persons died from inhaling chlorine gas. They may have had other injuries, but the cause of death was inhalation of chlorine gas.

Injured

In this incident, more than 550 persons sought medical attention, and 75 people were hospitalized in six area hospitals. The South Carolina Department of Health and Environmental Control (DHEC) identified 72 persons who were hospitalized and 525 persons who were treated in hospital emergency rooms or in private physicians’ offices after the train crash and chlorine spill in Graniteville on January 6, 2005. In the days immediately following the incident, this agency interviewed 280 people who were known to have received medical care. These interviews were conducted in person at a hospital or by telephone. Of these people, 54 were hospitalized and 226 were treated as outpatients. Their symptoms included the following conditions: Increased or new coughing (81 percent), burning eyes (76 percent),
shortness of breathe (73 percent), headaches (62 percent), chest pain (58 percent), nausea (53 percent), nose burning (52 percent), coughing up phlegm (49 percent), choking (46 percent), dizziness (42 percent), and vomiting (34 percent).

In June of 2005, DHEC mailed a follow-up questionnaire to 280 people who were interviewed. Of the 94 respondents: 23 percent had been hospitalized, 83 percent still were experiencing symptoms they felt related to the chlorine spill, 52 percent were taking medication for problems they felt were related to chlorine exposure, 51 percent were under a doctor’s care for problems they felt were related to chlorine exposure, and 48 percent screened positive for post-traumatic stress disorder.

**Heroes of the Moment**

About 5,400 residents and workers in Graniteville were evacuated from normal pursuits in the one mile radius hot zone, which had to be broadened to two zones, Zone A and Zone B. Some people had to stay out of downtown Graniteville for up to twenty-one days. Their homes were examined, sometimes multiple times. They were lucky if they could take the clothes on their back when they were evacuated for as much as three weeks. These people were heroes of the moment—all of them.

In the first minutes of pandemonium, one of the workers in the Hickman Plant, part of the Avondale Mills company, started calling the emergency number 911. When he finally got through to the 911 Operator and reported the situation at Hickman, the 911 Operator told him some unpleasant news. Basically, the police knew all about the disaster, but they were not going to send anyone into the hot zone. The employee did the right thing; he called his department manager, John Albright, at Albright’s home. When John’s pager went off, he was sound asleep one moment and wide awake the next, as he listened to the caller’s report. John Albright also did the right thing; he drove into the chlorine gas in the hot zone to save his employees. However, Albright was thinking he was headed toward a 55-gallon barrel or drum leak, not a very sizable poison gas leak without end. He was coughing, his eyes stung, and he was spitting constantly. He could see where the railroad engines had challenged one another, but he could not see the wrecked railroad tank cars due to the ever-present gas. Unable to drive directly through the gas and fog, John Albright drove around the Hickman Plant in another direction, and found his workers. He loaded all nineteen people into his pickup truck, reported to his supervisor by telephone as to the condition of his employees, and took them all to his home. There, Albright, his wife, and mother did a quick triage maneuver to learn how serious the nineteen workers might be; in the absence of any ambulances, they then used automobiles and vans to take to take nineteen persons to hospitals.

Those nineteen people had some adventures of their own before John Albright arrived. While Melvin Scott called the emergency number of 911, and then called John Albright; Clifford “Bubba” Hastings and Dewey Thompson helped organize the evacuation of the Hickman Plant. Forgetting nobody, and staying together, the nineteen workers left Hickman to seek their fate, good or bad. They soon found the railroad engineer and the train conductor who were both in bad shape (the engineer would die in a hospital within hours, and the conductor would survive after long hospital and home stays). They continued their trek with Bubba and Dewey lifting and supporting the engineer and two other workers responsible for the conductor, as they continued their journey toward clean air, they hoped.
The mill employees were suffering more than before, and just about this time a car came through the gas and fog, and a lady popped out. “I am a nurse; can I be of any help,” said Brenda Montgomery. Within a few seconds, she was gone with three injured men, including the conductor and the engineer. By now, the engineer begged for more air, so Brenda drove with all windows wide open to be one of the first vehicles to arrive at Aiken Regional Medical Center after this incident.

At the Gregg Plant, which covered 13 acres and held 120 workers on the third shift who were there that night, many employees were able to get to their cars in the parking lot and drive away. The poison gas outside Gregg was much worse than the gas inside the building, so it took a lot of courage to run through the parking lot. Some groups joined hands and walked or ran to the packing lot, dropping off employees when individuals got to their parking spot; others just got the hell out of there, hoping they knew where they parked their cars on this particular night. John Tillman evacuated his people to the parking lot, and waited while they drove away; then he drove home to his residence. He was worried about other workers, so he went back to the Gregg Plant, running at least one police road-block in his process. Mr. Tillman found some people still in the process lab, who were unaware of the escape route through the Gregg parking lot. In another room, he found a man who could not breathe and could not stand. He exited the building again, picked up his truck, and positioned the truck near a door in the Gregg Plant. John then found a machine in the plant, knowing he could not carry the man who could not walk, and used the machine to transport the injured man to his truck. Two other persons needed help, and John put the three of them in his truck, and drove out of the Gregg plant parking lot as he looked for a safe position where the chlorine gas would be less severe, finding a better situation on the top of the hill near the Townsend and Swint plants. The road-block was manned EMTs who treated the three injured men with John. John Tillman then heard information about another group who had gotten out of the Gregg plant but could not fight through the chlorine gas, or could not locate their automobiles. This group had called 911, but where told to stay where they were. However, nobody was coming to save them! Tillman begged for help from authorities, but nobody would be allowed to go into this toxic cloud until authorities knew what gas was present. It was a lock-down situation, and no one was going to argue with authorities, except John Tillman who was not going to let workers die when they could be saved. John Tillman knows his way around Graniteville, and drove down what could be described as a cart path, avoiding road-blocks, and entered the hot zone without being discovered. He merely honked his horn at the Gregg plant and flashed his lights, and he was immediately joined by seventeen survivors. All of them somehow got into John’s truck and were driven to a safe area. John Tillman ultimately saved twenty workers.

Michael E. Hunt is the Sheriff of Aiken County. This county has a total land area 1,073 miles, which is the size of the State of Rhode Island, and a population in the county of 140,000 citizens. The total annual county operating budget recently was $108,654,553, and county employees numbered 854. The Aiken Sheriff’s Office employs 106 sworn deputies and 38 civilian employees who provide patrol of a wide area within Aiken County. The Aiken County Sheriff’s Office also operates a state-of-the-art Drug Identification Laboratory which serves all Law Enforcement agencies in Aiken County, as well as surrounding counties. Career paths open to sworn officers include Uniform Patrol, Criminal Investigations, Narcotics Investigation, Crime Scene Investigations, Civil Process, Juvenile Services, School Resource Officer, K-9 and Bloodhounds, Special Operations, Training, and
Dispatch. The Office of the Sheriff in Aiken County is a well-run organization with an esprit de corps.

Sheriff Hunt had been in office about three years when the Graniteville tragedy occurred. Just like Graniteville Fire Chief Phil Napier, Hunt is a Graniteville resident. Both men have behaved honorably at the time of this incident and the months that followed. There was some anger in town that an early call for "Sheltering-In-Place," and road-blocks set up by police, resulted in very limited rescue being done at first, and possibly increased deaths and serious injuries among the 183 staff who were working the night shift at Avondale Mills. However, a third-party, after-action report conducted by Westinghouse Savannah River Company, and the U.S Department of Energy, claimed the emergency response was well organized in general and done safely.

"In this state, the sheriffs are very involved in local jurisdiction in Homeland Security," according to Sheriff Hunt. "We started very quickly to becoming involved, and trying to build bridges with other agencies; such as, Emergency Management, Emergency Services, FBI, and Law Enforcement. We wanted people to come together and talk, because the sheriff's office had never been involved in planning or dialogue with these other agencies. As a result, this made us successful in this major accident, because we had been people at a table. We made it very clear that we didn’t care about turf battles; because we had an obligation to the people we serve. We all should put turf interests aside, and plan together. We became very involved in planning, and we received a lot of Homeland Security money in this state.

“Our State Law Enforcement Division disperses the money, but each county needs an assessment. The purpose of this is that the Sheriff, Police Chief, Fire Chief, Emergency Medical Services, and Emergency Management, and a few other agencies have to decide the needs of each agency, Homeland Security plan and response, as well as the actual needs of each agency, and the manner of each agency about how they are going to spend their money that was given. All money given out includes a packet of information. First of all, for the first couple of rounds, we purchased equipment that we thought would be beneficial to everybody in a county, and we pre-staged massive amounts. In Aiken County, we really went out of the box, worked very closely together. As this Graniteville train wreck occurred, all that pre-staged equipment responded to the staging area and assisted in this fourteen-day operation. As an example, every police officer in South Carolina has an emergency kit including masks, Tyvek suits, and a respirator.

“The early morning of the alarm, the Sheriff’s office received Command through our pager that said there was a train accident in downtown Graniteville, with mass casualties possible," says the Sheriff. “I live in Graniteville and called the dispatcher asking, ‘Is this crash near the train track-switch in town.’ The dispatcher told me it was at the switch, and that two trains had collided. We immediately activated a number of actions, including our Homeland Security response enforcement division, notified the FBI, and had them all responding to our staging area because we took this act as a possible terrorist action or a Homeland Security attack since it involved a railroad switch at 2:34 in the morning. We did a full recall of Sheriff Personnel that included dispatchers, and sealed the area very quickly, in about twenty minutes.

“When I came out of my house, the report was we were getting a green cloud and a smell like bleach which was irritating to the lungs of bystanders. We controlled the sick people first, getting them to decontamination centers. At decontamination, all of our supplies and equipment were funded by the Homeland Security project. We set up a Uni-
Unified Command where the Fire Chief, Emergency Management, Emergency Services, and everybody involved in this action, so that Unified Command became larger because people from all over were dispatched to the scene.

“We also received during the first day of the incident our Homeland Security PODS (truck boxes without wheels filled with badly needed incident supplies and equipment that stay with response teams for days at a time). The PODS were shipped in from Columbia, South Carolina, and were very impressive in the equipment and supplies they contained. During the first day, we held an orderly evacuation (The Sheriff’s office directed the mandatory evacuation of those who has been sheltering-in-place within a mile radius of the accident scene, which amounted to as many of 5,400 persons. Some people had to wait eight days to return home, while others had as long as fourteen days).

“A curfew was used about seven days strait,” adds Sheriff Hunt. “The curfew (an order establishing a specific period of time, usually at night, during which certain restrictions apply, especially that no unauthorized persons may be outdoors or that places of public assembly must be closed) was from dusk to dawn. We also had a No-Fly-Zone so helicopters would not get too close to the incident scene.

“When I took office as Sheriff, in South Carolina law enforcement agencies never participated much in incident command. As a result of 911 and the presidential directive, Incident Command and Unified Command training was a mandate. As an example, we spent a lot of money on our SWAT team (special weapons and tactics) paid for by Homeland Security, and the morning of the event we activated our tactical team. We sent half of that team to our staging area, and the other half of the team was sent to the other end of the county. Also, in this state, there is a regional COBRA team that is responsible for dealing with biological and chemical incidents, who were very helpful in the early stages of the Graniteville tragedy.” (The large Wackenhut Savannah River Site near Graniteville could be a site of terrorist interest.)

The mission of Aiken County Hazardous Materials Team includes protection of public safety, protection of the environment, protection of property and assets, and safety of all emergency responders. Besides dealing with typical emergency response challengers, the team intervenes in chemical, biological, and radioactive incidents. The team is trained for weapons of mass destruction (WMD) incidents. Strict guidelines of the Occupation Safety and Health Administration’s (OSHA) regulation 29 Code of Federal Regulations 1910.120 are followed, which include an Emergency Response Plan, Chain of Command, Training, Medical Surveillance, Personal Protective Equipment, and Post-Emergency Response (PPE).

The Operations Captain for the Aiken County Hazardous Materials Team is Fred Wilber, who works a fulltime job at the Savannah River Site. “What the title gives me is day-to-day operations of the team. My job in an emergency is in Operations, within the Incident Command structure. I approve the Decontamination Officer, based on training records with all the training up to this year, that they’ve have passed their medicals, wear protective clothing, and other responsibilities; and pretty much run our Hazardous Materials Team. On the Graniteville incident, we were extremely lucky to have the Fort Gordon U.S. Army Decontamination Team from over in nearby Georgia to assist with the mass decon we had to face. Lots of federal money paid for this. This team was already there with their tractor trailers and shower systems plus personnel to run the system; this was the first time they had used this procedure, except in training. They were very organized, and knew what they were doing.
“I was working on my regular job when I got alerted for this incident by my mom, “said Fred Wilber. “We are normally alerted by pager, and it’s my understanding that the pagers did go off, but I work in a very large building made of concrete at Riverside, so radio signals do not come in on the telephone. Her message was, ‘There’s been a Haz-Mat, and they will probably alert you.’ I called my boss at Riverside and told what is going on, and he told me I had permission to leave. Out in the open air, my pager stated going off at federal site three. The pager told us we needed information on what was in the rail cars, and to deploy a team in there.

“We found the train wreck, and one of the guys walked into a couplet in the dark. The team could not see anything except a cloud near the earth with vapors coming down. When they could see more, they found a man still alive in a car trapped under a tree. On that first try, the scout team saw a car coming, stopped it, and radioed Command with a report of, ‘Suspected Chlorine.’ This team went in two more times, and eventually was able to take good photographs of general damage and the leaking tank car.

“I went to Honda Cars of Aiken, an out-of business car dealership, to establish Forward Command for the Haz-Mat team, and get things organized. We radioed information back to Command, which was placed in another location on Route 1, and very busy trying to set up an Incident Command system. This type of incident had never been faced before in this county. There were multiple response agencies, and we had to learn a lot quickly. We had been using Incident Command among ourselves, having been trained in this procedure, but it was a horse of a different color dumped on us really quickly. There were a bunch of kinks our first time, as well as a number of people’s first time, which took us a little time to get acclimated to. Experts were doing it too, and the railroad had there own experts. We were put on shifts to monitor housing during the evacuation next morning making sure everybody was out, doing searches for unknown victims, and we had our own protective equipment which set to Red for respiratory protection needed, and Yellow for meter readings but you could still dress up if desired.

“The bodies were found the first day,” remembers Captain Wilber. “Once there was daylight, bodies were fairly easy to find. The last body was found only after three entry teams had no luck. Veterinarians trained in hazardous materials and others, who were not local, were brought in to deal with pets left behind during the evacuation. They had certain drugs they needed, bags of cat and dog food, checked on the health and well being, fed the animals, and stockpiled food; they did that every twelve hours, I was told. I think they had one house where in a closet or small room they found nine Pomeranian dogs that were wild after being in there for three days.”

“At the very beginning of this incident, there was a weather inversion (a reversal in the normal temperature lapse rate, the temperature rising with increased elevation instead of falling) that helped a lot because that kept the toxic gas packed down to the ground, of just above it. This tragedy would have been worse if it had occurred later in the morning with traffic moving on the streets, a lot of shift changers at the mill and elsewhere, schools opening, and everybody going this way and that. If the cloud moved that way, we would have to evacuate that way.”
Aiken County Emergency Services; Emergency Preparedness Family Planning Guide. Aiken, SC (undated).


Aiken County Sheriff’s Office After-Action Report; Graniteville Train Wreck. Aiken, SC. January 2000.


Cashman, John R., Interviews with 32 Victims at the Graniteville Train Wreck Site on January 6, 2005, done from June 10 to June 17, 2006.


Chemical/Biological Incident Handbook. Director of Central Intelligence for the Intelligence Committee on Terrorism, and the Community Counterterrorism Board. Washington, D.C., 1995


Bibliography


Graniteville Train Wreck (DVD). Aiken, SC: Aiken County Sheriff’s Office (June 10) 2005.


JTF-CS Media Outreach Information (DVD), Joint Task Force Civil Support. Fort Monroe, VA.


Marshall, Stephen M.; Fedele, Paul D.; Lake, William A. Guidelines for Incident Commander’s Use of Firefighter Protective Ensemble (FFPE) with Self-Contained Breathing Apparatus (SCBA) for Rescue Operations During a Terrorist Chemical Agent Incident. Prepared by U.S. Army Soldier and Biological Chemical Command (SBCCOM) and the Domestic Preparedness Chemical Team with the assistance of firefighters from Montgomery County Fire and Rescue Services (MD), and Baltimore County Fire Department (MD). Commander, U.S. Army, ECBC, Attn.: SSB-REN-HD-DI, Building E5307, Hanlon Road, APG, MD 21010-5424. August, 1999.


Medical Management of Chemical Casualties, MMCC Supplemental Training Materials v.3.00 (DVD). U.S. Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD (January) 2002.

Bibliography

NATO Handbook on The Medical Aspects of NBC Defensive Operations: Part II – Biological AMedP-6(B). Department of the Army Field Manual (FM 8-9) 1996.


Norfolk Southern Graniteville Derailment – Final Information Update as of January21,2005 (Homes, Schools, Traffic, Crash Site Activities, Environmental, Hospitals, Law Enforcement Fire Service, Family Pets, Government Services, Local Assistance Center, Aiken County Summary Court, Aiken County 211). U.S. E.P.A. Region 4, Southwest; March 12, 2006.


Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. National Institute for Occupational Safety and Health (NIOSH), Occupational and Health Administration (OSHA), the U.S. Coast Guard (USCG), and the U.S. Environmental Protection Agency (EPA). Washington, D.C.: U.S. Department of Health and Human Services (HHS), Public Health Service (PHS), Centers for Disease Control (CDC), and the National Institute for Occupational Safety and Control (NIOSH), 1985.


Situation Reports #1 Through #13 from the Forward State Emergency Operation Center (via ECV). State Emergency Operations Center, from January 6 through January 13, 2005, West Columbia, South Carolina.


Standing Operating Procedure for Obtaining, Shipping, Receipt and Storage of Biomedical Samples. U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), Aberdeen Proving Ground, MD. Undated.


