
Appendix G
Hazardous Materials Group Factual
EPA SitReps

Graniteville, SC
DCA-05-MR-008

000001



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

WMD-ERRB

Subject: Situation Report #1
Graniteville, SC
Norfolk-Southern Derailment

Date/Time: January 6, 2005/10:00 am

SITUATION REPORT #1

A collision of two freight trains in Graniteville, SC around 4:00 am today has resulted in a release of chlorine gas to the atmosphere. This release has led to injuries and deaths according to news reports. Hazmat cars involved in the derailment include 3 chlorine cars (gas), 1 sodium hydroxide (liquid) and 1 creosol (liquid). Current information is that at least one chlorine tanker breached and released its contents. No information available on the condition of the other tankers. Local, state and railroad officials are on-scene. EPA Region 4 OSC Kevin Misenheimer is also on scene. Schools and businesses are closed. Evacuations and shelter-in-place orders have been issued by local emergency management officials.

Resource Mobilization (as of 10:00 am On 1/6/05)

OSCs: 1 on-scene and 2 en route (1 from Atlanta with the small MCP and 1 from a nearby removal site)

START: Tetra Tech 2 on-scene; Weston Solutions 2 en route

Activities

OSC Misenheimer is currently working to help establish a Unified Command structure. Additional EPA resources (OSCs and STARTs) will prepare to initiate air monitoring in support of the response effort for protection of response workers as well as general public.

Press Report from AP

Trains collide in South Carolina

Associated Press

Published on: 01/06/05

GRANITEVILLE, S.C. — Aiken County officials have received reports of deaths and injuries

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after two trains collided here Thursday morning, spilling a hazardous chemical and sending dozens of people to decontamination sites.

But sheriff's Lt. Michael Frank said officials had not been able to confirm any deaths or the number of injuries. A spokeswoman at Aiken Regional Medical Center would not release information on the number of people treated.

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Two Norfolk Southern freight trains collided about 2:30 a.m. in Graniteville, about 11 miles east of Augusta, Ga., Frank said.

One of the cars struck a tree, knocked it onto a car and trapped a woman inside for about two hours, Frank said. The woman was removed and taken to a hospital for treatment. The condition of the crew members of the two trains was unknown early Thursday, said Thom Berry, spokesman for the Department of Health and Environmental Control.

Only first responders were in the immediate area and conditions at the derailment site were unclear, Frank said.

There were at least three hazardous chemicals on the train, Berry said.

Officials were most concerned about chlorine, which is a gas, Berry said. The other chemicals, cresol and sodium hydroxide, are only dangerous if a person comes in direct contact with the materials, he said.

Hazardous materials teams were trying to determine the condition of the car containing the gas, Berry said. Officials were concerned about securing the area and then determining how much of the chemicals spilled, he said.

The gas was expected to dissipate as conditions warmed throughout the morning, Berry said.

More than a dozen agencies were responding to the situation and the federal Environmental Protection Agency had been called to the scene, Berry said.

Those living in Graniteville were told to turn off air conditioners and heaters and remain inside.

More than a half-dozen textile plants operated by Avondale Mills in Graniteville and Warrentonville were closed because of the incident, Frank said. Four area schools also were closed.

A number of people complained of respiratory problems, WIS-TV in Columbia reported.

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Those who were exposed were told to report to decontamination units set up at the gym at the University of South Carolina Aiken campus or at Midland Valley High School.

Two tents were set up at the USC-Aiken campus. In one tent, people exposed to the chemicals removed their clothes and were washed down. They then moved to a second tent where they were given medical attention. Some people have been sent to the hospital.

One of the cars was on fire, emitting a thick, orange vapor, the Aiken Standard newspaper reported. Firefighters were not able to fight the blaze immediately because emergency officials were going car by car to determine what type of chemicals were inside.



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Subject: Situation Report #2
Graniteville, SC
Norfolk-Southern Derailment

Date/Time: January 6, 2005/4:00 pm

SITUATION REPORT #1

A collision of two freight trains in Graniteville, SC just before 3:00 am today has resulted in a release of chlorine gas to the atmosphere. This release has led to more than 100 injured, according to news reports. News reports also indicate that incident-related fatalities may have occurred. Hazmat cars involved in the derailment include 3 chlorine cars (gas) and 1 sodium hydroxide (liquid). Several entries have been made by South Carolina Department of Health and Environmental Control (DHEC) personnel and cleanup contractors retained by Norfolk Southern Railroad. Current information is that at least one chlorine tanker carrying 131 tons of material was breached and immediately released 70% of its contents. A chlorine specialist team is being brought in to access the two remaining chlorine cars and provide tactical advise regarding response operations involving the tankers. No information is currently available on the condition of the other tanker. Local, State and railroad officials are on-scene. EPA Region 4 OSCs Kevin Misenheimer, David Dorian, and Glenn Adams are also on scene. Region 4 OSC Dean Ullock and U.S. Coast Guard Gulf Strike Team Level A Team personnel are being dispatched to the incident. Schools and businesses are closed. A shelter-in-place order for a two (2) mile radius has been issued by local emergency management officials.

Resource Mobilization (as of 4:00 pm On 1/6/05)

OSCs: 3 on-scene and 1 en route (1 from the Mobile, Alabama outpost)
GST: 8 en route (from Mobile, Alabama)
START: Tetra Tech 2 on-scene, 4 en route; Weston Solutions 2 on-scene

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Activities

OSC Misenheimer is currently working within a Unified Command structure with the Aiken County Sheriff's Department, the local Fire Department, South Carolina DHEC, and Norfolk Southern Railroad. EPA is conducting air monitoring in affected areas prior to a door-to-door assessment of area residents by police and local officials. EPA is also setting up an around-the-clock air monitoring program along a 200 yard perimeter around the derailment site for protection of response workers as well as the general public.

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WMD-ERRB

Subject: Situation Report #3
Graniteville, SC
Norfolk-Southern Graniteville Derailment
STATUS as of 0800 on Friday, 7-JAN-05

Date/Time: January 7, 2005/9:00 a.m.

STATUS REPORT

A collision of two freight trains in Graniteville, SC just before 3:00 a.m. on January 6, 2005 resulted in the derailment of 3 chlorine cars (gas) and 1 sodium hydroxide (liquid) tanker cars and a release of chlorine gas to the atmosphere. Current information is that at least one chlorine tanker carrying 131 tons of material was breached and immediately released 70% of its contents. News outlets report 240 incident-related injuries and 8 fatalities. All residential properties have been searched for victims, and one additional body was found. Still, an unknown number of people are still missing, and additional bodies may be found within a textile mill adjacent to the derailment site. A derailment wrecking operation being conducted by N-S RR contractors Hulcher and RJ Corman will be suspended this morning while NTSB investigators inspect the scene and local fire searches the textile mill for additional victims. A chlorine specialist team is being brought in to assess the two remaining chlorine cars and provide tactical advice regarding response operations involving the tankers. Residence and businesses near the derailment site remain evacuated.

EPA Region 4 OSCs Kevin Misenheimer (EPA IC), Glenn Adams, David Dorian,, and Dean Ullock are also on scene. EPA OSCs Jeff Crowley and Jose Negron en route from the Atlanta Regional Office. A U.S. Coast Guard Gulf Strike Team Level A Team has arrived from Mobile, Alabama.

Resource Mobilization (as of 8:00 a.m. on 1/7/05)

OSCs: 4 on-scene; 2 en route

GST: 8 en route

START: Tetra Tech 6 on scene; Weston Solutions 2 on scene

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Activities

OSC Misenheimer is currently working within a Unified Command structure with the Aiken County Sheriff's Department, the local Fire Department, South Carolina DHEC, and Norfolk Southern Railroad. EPA, START, and GST personnel will be organized into shifts within an ICS structure today. Responsibility for situation reporting is being transferred from RRC to Incident Command in Graniteville.

START continues to provide perimeter air monitoring, and a CG Strike Team will be providing oversight of the derailment wrecking operation being conducted by N-S RR contractors Hulcher and RJ Corman.

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**Subject: Situation Report #4
Norfolk Southern Train Derailment
Graniteville, SC**

**To: Don Rigger, Chief
Emergency Operations Section, ERRB**

**From: Kevin Meisenheimer, OSC
Incident Commander**

Date: January 8, 2005

Operational Period: January 7, 2005 07:00 - January 8, 2005 07:00

The following tasks have been completed during the last operational period:

January 7, 2005 07:00 - 19:00:

- In the early morning of January 7, Norfolk Southern contractors initiated operations to remove undamaged railcars from the incident scene. This operation involved working in from both ends of the derailment towards the four hazmat rail cars.
- At approximately 1100 hours, January 7, Norfolk Southern contractors suspended operations at the request of the Aiken County Sheriff, in order to allow local officials to conduct search and recovery operations in the area surrounding the derailment and within the adjacent textile mill. EPA/USCG, Savannah River Site Hazmat and SCDHEC provided air monitoring support and other technical support to local officials during this operation. EPA and the Gulf Strike Team (GST) conducted several level B entries in order to monitor for chlorine levels in areas where local officials were working.
- Norfolk Southern contractor HEPACO placed and monitored boom in Horse Creek to limit impacts from diesel fuel which spilled after the derailment.
- EPA and GST established an Incident Command Post (ICP) located adjacent to the local hazmat team staging area on U.S. Highway 1. An Incident Command System (ICS) has been established which integrates EPA, USCG Gulf Strike Team, START and ATSDR assets.
- EPA met with officials from Norfolk Southern and their contractors (Hulcher, CTEH, Inc. and Hepaco) to discuss operational planning and coordination. A meeting schedule

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was set in order to plan activities on a daily basis. EPA and CTEH, Inc. representatives also discussed ways to integrate air monitoring assets into one, unified system. A web based server was created by CTEH, Inc. that will be used to post air monitoring data.

- EPA Incident Command continued to attend Unified Command meetings and provide technical assistance to local Sheriff and Fire Department officials.

January 7, 2005 19:00 - January 8, 2005 07:00:

- Norfolk Southern contractors added a lime-slurry to the incident scene area. This operation was to aid in prevention of chlorine releases from the soils near the damaged chlorine tanker rail cars.
- Norfolk Southern contractor HEPACO decontaminated 17 railcars that were previously removed from the site and transported them to Augusta, GA for further inspection and repair.
- EPA, START and GST provided air monitoring and oversight to the railcar decontamination project and to the addition of the lime slurry to the incident scene area.
- EPA met with officials from Norfolk Southern, DHEC, and Aiken County FD to discuss operational planning and coordination. The next meeting is scheduled for 0830 on 1-8-05 in order to summarize Norfolk Southern's over-night accomplishments and to discuss details of the initiation of the patching of the leaking chlorine car.
- EPA met with Norfolk Southern representatives and requested them to set up a check-point where all responders entering the area of the incident must check in and out. This check-point will also be used to warn responders of the latest monitoring results and current activities in the area of the incident. EPA also requested a map be prepared showing which areas require minimum Level C and minimum Level B protection to enter the area. This map will be given to all responders and physical markers will be placed in the areas of delineation.

Next Steps for January 8, 2005 07:00 - January 9, 2005 07:00:

- From 0730 to 1130 hours on January 8, Norfolk Southern contractors will suspend operations to allow local officials to finish conducting search and recovery operations in the area surrounding the derailment and within the adjacent textile mill. EPA, START, and GST will provide air monitoring support and other technical support to local officials during this operation. EPA, START and the GST will conduct several level B entries in order to monitor for chlorine levels in areas where local officials are working.
- Norfolk Southern contractors will initiate preparations to address the four derailed hazmat railcars. This will involve moving the punctured chlorine car to a more stable location and placing a patch on the damaged car. After patching the car the process of

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treating the remaining chlorine using negative pressure and sodium hydroxide to form bleach which can then be removed from the site. They will also initiate transferring product from the two full chlorine cars and the sodium hydroxide car while the above process is occurring.

- EPA will continue to monitor and coordinate all activities with Norfolk Southern contractors. GST and START will make entries as necessary into the hotzone in order to conduct air monitoring activities and to oversee Norfolk Southern clean up activities. EPA will continue to develop and implement ICS system.



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**Subject: Situation Report #5
Norfolk Southern Train Derailment
Graniteville, SC**

**To: Don Rigger, Chief
Emergency Operations Section, ERRB**

**From: Kevin Misenheimer, OSC
Incident Commander**

Date: January 9, 2005

Operational Period: January 8, 2005 07:00 - January 9, 2005 07:00

The following tasks have been completed during the last operational period:

January 8, 2005 07:00 - 19:00:

- The local fire department asked EPA to conduct air monitoring at a home in which an elderly woman and her mentally handicapped son had remained since the incident Thursday morning. EPA, START and GST entered the house and determined that there were no elevated levels of chlorine. Elevated levels of carbon monoxide were found, most likely due to the HVAC system.
- EPA, START and GST made an entry into the hotzone in the woods behind the Woodhead Plant to continue to support the local search and rescue operations. EPA provided air monitoring support.
- GST provided health and safety support to local coroners to allow them to make an entry into the Woodhead Plant in identifying and recovering the remains of the last unaccounted citizen from the mill.
- GST assisted local EMS and Fire in dumping coal from the boiler of the mill on Gregg St. to mitigate the fire that had started as a result of the incident.
- Norfolk Southern contractors added a lime-slurry to the incident scene area. This operation was to aid in prevention of chlorine releases from the soils near the damaged chlorine tanker rail cars.

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- A meeting was held between EPA, State, Norfolk Southern and local officials in order to form a true Unified Command System to better coordinate site activities.

January 8, 2005 19:00 – January 9, 2005 07:00:

- START and USCG GST set up 5 Area Rae chlorine monitors and data receiving facility collocated with the CTEH data center. The entry was conducted in Level B. START is receiving data from 3 of the monitors and working on the connection to the remaining two. Eleven more Area Raes are expected to arrive from ERT.
- Norfolk Southern contractor worked through the night to set up sodium hydroxide pump transfer. Contrary to earlier reports, the tank car of sodium hydroxide was not breached. The contents will be pumped into tanker trucks then discharged to frac tanks staged out of the hot zone. Contractor also worked to construct unit that will sparge chlorine gas into 18% sodium hydroxide to make bleach. EPA met with on-site contractor to review health and safety concerns. EPA noted concerns about respiratory protection at the decontamination line.
- Norfolk Southern continued application of and hydro-mulching of lime on chlorine contaminated soil. The intent is to reduce chlorine gas and hydrogen chloride emissions when the ground is disturbed by heavy equipment.
- A heavy fog rolled in around 4:00AM. An inversion formed. Responders on Highway 1 reported heavy chlorine smell and some irritation. EPA and START drove Highway 1 and took measurements with Multi-Warn. Chlorine was detected from 0.05 to 0.25 ppm.
- EPA and DHEC met with Norfolk Southern and their primary contractors to discuss health and safety concerns. EPA established more stringent health and safety over-site of Norfolk Southern's contractors.

Next Steps

- Bring in additional personnel to provide over-site and provide additional air monitoring tasks.
- Receive, calibrate, and install 11 additional Area Rae's to present air monitoring system.
- Continue to provide over-site of NS response activities and continue air monitoring. NS will continue to reconfigure the patch for the damaged chlorine rail car in order to begin offloading of product and vapor in a controlled manner. NS will also set up for transfer operations on the two full and intact chlorine rail cars.
- Continue to support Unified Command.

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Subject: **Situation Report #6**
 Norfolk Southern Train Derailment
 Graniteville, SC

To: **Don Rigger, Chief**
 Emergency Operations Section, ERRB

From: **Kevin Misenheimer, OSC**
 Incident Commander

Date: **January 10, 2005**

Operational Period: January 9, 2005 07:00 - January 10, 2005 07:00

The following tasks have been completed during the last operational period:

January 9, 2005 07:00 - 19:00:

- EPA and START continued operation and maintenance on the Area Raes. ERT and REAC arrived on site with 11 additional Area Raes; they were sent to the staging area located at a funeral home in the exclusion zone for calibration and later deployment.
- The Unified Incident Command Post was established. Members of all agencies represented will have a representative present 24 hrs a day to handle questions and requests.
- Norfolk Southern examined the sodium hydroxide car and determined that it was empty. They also applied a temporary patch to the punctured chlorine car and began the process of pumping the contents and producing bleach. GST provided air monitoring support.
- Members of the BellSouth hazmat team arrived on site to investigate their phone line terminus located near the crash site. They were concerned that their 911 service might not be functional. They conducted their entry and determined that no corrosion was present and the equipment was operational. Bell South will continue to monitor this situation.
- Norfolk Southern contractors continued to add lime-slurry to the incident scene area. This operation was to aid in prevention of chlorine releases from the soils near the damaged chlorine tanker rail cars.

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- CTEH took samples from the creek downstream of the derailment to test the impact of the hazardous chemicals on the creek. This was also to support DHEC sampling conducted earlier in the incident.

January 9, 2005 19:00 – January 10, 2005 07:00:

- EPA established locations for the 11 additional Area Raes (for a total of 16) and put 11 into place. Currently receiving data from 10. Set up repeater towers. Borrowed a generator to power the repeater tower. Level B entry required to place new Area Raes into hot zone. Several Raes placed on the periphery to evaluate public health outside immediate work zone. The system went offline at 0600 and the problem appears to be software.
- Norfolk Southern contractor staging equipment for morning operations. During the evening, Norfolk Southern contractor continued to sparge chlorine gas from breached tank into sodium hydroxide. GST monitored health and safety at decontamination areas in operation.
- Norfolk Southern scheduled the turning of the breached chlorine car for morning operations.

Next Steps

- Continue to provide over-site of NS response activities and continue air monitoring. NS will also set up for transfer operations on the two full and intact chlorine rail cars.
- Continue to support Unified Command.

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ATLANTA, GEORGIA 30303-8960

**Subject: Situation Report #7
Norfolk Southern Train Derailment
Graniteville, SC**

**To: Don Rigger, Chief
Emergency Operations Section, ERRB**

**From: Kevin Misenheimer, OSC
Incident Commander**

Date: January 11, 2005

Operational Period: January 10, 2005 07:00 - January 11, 2005 07:00

The following tasks have been completed during the last operational period:

January 10, 2005 07:00 - 19:00:

- EPA, GST, START and CTEH finalized the placement of the Area Raes. Operation and maintenance on the Area Raes continued throughout the day. This included battery replacement, repeater tower placement and repositioning if needed. The highest reading recorded today was 1.4 ppm in the park next to the derailment.
- Norfolk Southern began the set-up for the transfer of the chlorine from the damaged car. The sodium hydroxide car was also moved during this time period away from the derailment scene.
- DHEC continued their sampling of the water bodies and streams in the area of the derailment. A reported fish kill was reported in Langley Pond. The fish may have been washed downstream from the creek that runs near the derailment and into the pond. DHEC along with South Carolina Department of Natural Resources will further investigate the kill in Langley Pond during the next operational period.
- ATSDR, CTEH, Norfolk Southern and DHEC began working on a reoccupation fact sheet that can be distributed to the public when they will be let back into their homes. It will describe the precautions they need to take as well as explain how chlorine affects the environment.

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- NTSB completed and entry into the exclusion zone to examine the engines. Further investigation will be conducted by them once the engines are moved to a secure location, most likely after the hazmat portion of the response is complete.
- Members of the BellSouth hazmat crew arrived to further investigate the central office which located approximately 200 yds. from the derailment. Their team, dubbed the Saber team, consists of technicians who can more accurately conduct an assessment of just what needs to be done to the equipment to maintain functionality of the system.

January 10, 2005 19:00 – January 11, 2005 07:00:

- A natural gas leak detected in the area near where the air monitoring equipment is staged temporarily disrupted EPA activities. EPA ERT was unable to monitor Area Raes for the period that the fire chief requested evacuation while the gas lines and man hole were assessed. This caused a delay in the placement of additional Area Raes until early morning.
- Norfolk Southern contractor began liquid transfer from the northern tank. During the evening, Norfolk Southern contractor continued to sparge chlorine gas from breached tank into sodium hydroxide.

Next Steps

- Continue to provide over-site of NS response activities and continue air monitoring.
- Norfolk Southern decided to scrap the proposed lead patch and go back to the steel patch. The patch will be placed on the car during the next operational period.
- ATSDR, CTEH, NS and DHEC will finalize the reoccupation fact sheet as well as translate it into Spanish and then submit it for review and distribution.
- Continue to support Unified Command.



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Subject: **Situation Report #8**
 Norfolk Southern Train Derailment
 Graniteville, SC

To: **Don Rigger, Chief**
 Emergency Operations Section, ERRB

From: **Kevin Misenheimer, OSC**
 Incident Commander

Date: **January 12, 2005**

Operational Period: January 11, 2005 07:00 - January 12, 2005 07:00

The following tasks have been completed during the last operational period:

January 11, 2005 07:00 - 19:00:

- EPA, GST, START and CTEH finalized the placement of the Area Raes. Operation and maintenance on the Area Raes continued throughout the day. This included battery replacement, repeater tower placement and repositioning if needed. The highest reading recorded today was 1.4 ppm in the park next to the derailment.
- Norfolk Southern contractors set up and completed the liquid transfer from the full (North) chlorine car. NS then began the process of evacuating chlorine vapors from the car. Norfolk Southern contractor continued to sparge chlorine gas from the breached tank car into sodium hydroxide. NS contractors determined that a steel permanent patch would be placed on the breached car. NS contractors continued fabrication and modification of the steel patch.
- South Carolina Department of Natural Resources continued to investigate the fish kill on Langley Pond. At least 250 dead fish were observed and enumeration is scheduled for 12 January, 2005
- ATSDR, CTEH, Norfolk Southern and DHEC continued working on a reoccupation fact sheet that can be distributed to the public when they are allowed back into their homes. It will describe the precautions they need to take as well as explain how chlorine affects the environment.

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- Members of the BellSouth hazmat crew (Saber team) arrived to further investigate the central office which is located approximately 200 yards from the derailment scene.

January 10, 2005 19:00 – January 11, 2005 07:00:

- A natural gas leak detected in the area near where the air monitoring equipment is staged temporarily disrupted EPA activities. EPA ERT was unable to monitor Area Raes for the period that the fire chief requested evacuation while the gas lines and man hole were assessed. This caused a delay in the placement of additional Area Raes until early morning.
- Norfolk Southern contractor began liquid transfer from the northern tank. During the evening, Norfolk Southern contractor continued to sparge chlorine gas from breached tank into sodium hydroxide.

Next Steps

- Continue to provide over-site of NS response activities and continue air monitoring.
- NS will complete transfer of chlorine from the second full rail car and continue to sparge chlorine vapors from the damaged car.
- ATSDR, CTEH, NS and DHEC will finalize the reoccupation fact sheet as well as translate it into Spanish and then submit it for review and distribution.
- Continue to support Unified Command.



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ATLANTA, GEORGIA 30303-8960

**Subject: Situation Report #9
Norfolk Southern Train Derailment
Graniteville, SC**

**To: Don Rigger, Chief
Emergency Operations Section, ERRB**

**From: Kevin Misenheimer, OSC
Incident Commander**

Date: January 13, 2005

Operational Period: January 12, 2005 07:00 - January 13, 2005 07:00

The following tasks have been completed during the last operational period:

January 12, 2005 07:00 - 19:00:

- EPA continued operation and maintenance of the Area-Rae chlorine air monitoring network. During this period, 25 Area Raes were operational; 12 from EPA-ERT, 4 from the USCG and 9 from NS contractor CTEH. There were four detections of chlorine during this operational period. A chlorine concentration of 1.4 ppm was detected near the derailment site and 0.1 ppm was detected approximately 500-yards upwind on three occasions during the operational period.
- USCG Gulf Strike Team escorted Senator Tom Moore and ten Avondale Mill officials on a perimeter reconnaissance of the Gregg Plant to locate temporary storage locations for equipment.
- USCG Gulf Strike Team assisted the United States Postal Services HAZMAT with an entry to the Graniteville Post Office to assess facility conditions and equipment.
- EPA began coordination with the Aiken County School Board to obtain access to three schools inside the 1-mile evacuation zone (Leavelle McCampbell Middle School, Byrd Elementary School, and Freedman Parenting School). Fire Marshall will also inspect schools prior to reopening.
- Norfolk Southern (NS) contractors set up and completed the liquid transfer from the second (middle) chlorine car. NS contractor continued to sparge chlorine gas from the breached tank car into sodium hydroxide. NS contractors applied the steel permanent

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patch on the breached chlorine car. A draft re-occupation plan was submitted for approval from the Unified Command.

- CTEH provided a plume model for a potential worst-case chlorine release from the patched chlorine car. The model output indicated that such a release would adversely impact at a distance of approximately 600 yards from the derailment location.
- South Carolina Department of Natural Resources completed an enumeration study of the fish kill at Langley Pond. Subsequently, NS contractors began clean-up of the fish carcasses.
- ATSDR, CTEH, Norfolk Southern, EPA and DHEC completed the reoccupation fact sheet distributed to the public at 1900 hours. The fact sheet describes the precautions residents need to take upon reentering their homes and businesses as well as explains how chlorine affects the environment. In addition, significant planning continues to take place to develop procedures for sampling of homes during the re-occupation process. EPA began mobilization of personnel and equipment to support sampling efforts including an ERT member to support data management. In addition, EPA mobilized a Safety Officer to the scene to help overall coordination of safety issues for hotzone work and for the re-occupation operation.
- Members of the BellSouth hazmat crew (Saber team) arrived to further investigate phone boxes located within the 1-mile evacuation zone, primarily focusing on the area north of Montgomery Street.

January 12, 2005 19:00 – January 13, 2005 07:00:

- EPA and GST conducted entries into Byrd Elementary School and Leveille McCampbell Middle School. The entry team monitored air quality and tested surfaces for pH. No chlorine detections or abnormal pH readings were found. The teams also assessed busses at Byrd Elementary.
- EPA and GST assessed air quality at the Valley Fair Church. No chlorine levels were detected; however the teams were unable to access the basement.
- EPA and GST moved the forward command post from the bank on U.S. 1 to the Aiken Recreation Center.
- Operation and maintenance on the Area Raes continued throughout the shift. This included battery replacement, repeater tower placement and repositioning if needed. Air monitoring detections of chlorine were limited to 0.1 ppm on two separate monitors.
- NS contractor continued to sparge chlorine gas from the breached tank car into sodium hydroxide.

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- EPA ERT veterinarian arrived on scene to provide technical assistance to local animal control officials in dealing with animal issues. ERT will develop an animal control action plan.

Next Steps

- Continue to provide over-site of NS response activities and continue air monitoring.
- Combined EPA / CTEH teams will begin to conduct home re-occupancy clearance sampling in homes that are being repopulated. EPA and CTEH will develop sampling database to track the progress of this operation. EPA will continue to mobilize additional resources to support this operation including SESD, Air Division and Region 3 personnel.
- Continue to support Unified Command.

Resources On-Scene

OSCs	7
EPA PIO	2
EPA Planner	1
ERT	3
START	12
USCG	15
REAC	3
ATSDR	2



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Subject: **Situation Report #10**
 Norfolk Southern Train Derailment
 Graniteville, SC

To: **Don Rigger, Chief**
 Emergency Operations Section, ERRB

From: **Kevin Misenheimer, OSC**
 Incident Commander

Date: **January 14, 2005**

Operational Period: January 13, 2005 07:00 - January 14, 2005 07:00

The following tasks have been completed during the last operational period:

January 13, 2005 07:00 - 19:00:

- At approximately 1430 hours, a detection of 0.7 ppm (10 second spike) chlorine was reported from a Norfolk Southern (NS) contractor CTEH Area-RAE located adjacent to the vapor transfer process. At 1500, NS discovered a potential crack in the vapor transfer line. Hotzone operations were halted and the personnel were evacuated. NS contractor completed a Level B entry to assess the patch. An additional chlorine reading of 30 ppm was detected several feet from the sparge car. No elevated chlorine concentrations were detected on the downwind Area-RAEs. Major operations were limited for the afternoon/evening.
- EPA continued operation and maintenance of the Area-RAE chlorine air monitoring network. EPA contractors continued to adjust the air monitoring network as the evacuations were lifted. Excepting the concentrations listed above, only one other chlorine detection was observed; an EPA Area-RAE unit located downwind from the wreck site detected 0.1 ppm immediately after the release noted above.
- EPA coordinated with Avondale Mill officials to obtain keys to access locked areas within the Gregg Plant to monitor air conditions. One entry was partially completed when the evacuation from the hotzone was ordered. The entry team reported no elevated detections of chlorine and retrieved one computer processing unit and monitor that contained critical information for Avondale Mills operations.

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- Residential reoccupation began in approved zones:

Zone 1: neighborhoods around Laurel and Trolley Line Roads (north of Gregg Plant)

Zone 2: Warendville area, south of Highway 1

Zone 3: subdivisions west of Ergle

SC DHEC, CTEH, and EPA coordinated with the Aiken County Sheriff's Office to assist residents with reoccupation. Reentry/decontamination fact sheets describing the precautions residents should take upon reentering their homes and businesses were distributed to residents upon reentry. The fact sheets were also posted in visible areas throughout the community (i.e., gas stations). Index cards were also provided to residents to post on their front doors to request reoccupation sampling.

- EPA mobilized 32 personnel, including 4 OSCs from Region III, to team with CTEH personnel to complete reoccupation sampling. Sampling teams were instructed to collect air monitor readings for chlorine and hydrochloric acid from the lower level of homes. Wipe samples were also collected from non-porous horizontal areas for pH testing. All sample results were recorded on provided data sheets and returned to CTEH for data management. Each residence/business that was sampled received a statement from EPA, SC DHEC, CTEH, ATSDR, and Norfolk Southern clearing the building for reoccupation. Approximately 2,000 residents returned and 200 homes/businesses were sampled. No elevated air monitoring or pH results were reported.
- The EPA Safety Officer began to coordinate with Norfolk Southern to revise site specific health and safety guidelines for on-site personnel.
- EPA ERT veterinarian continued to coordinate and assist local animal control officials with the handling of animal related issues.
- Norfolk Southern contractors loaded the wrecked chlorine railcars and sodium hydroxide railcar onto flatcars for transport to Augusta. In addition, all but 3 of the remaining railcars (non-HAZMAT) were loaded onto flatcars. NS contractor began loading Kaolin (clay) into roll-off boxes for disposal. Approximately 200 fish carcasses were bagged from the Langley Pond fish kill.
- South Carolina Department of Health and Environmental Control provided approximately 30 representatives to assist residents during reoccupation.
- Limited operations resumed at the Swint, Townsend, and Horse Creek Divisions of the Avondale Mill.

January 13, 2005 19:00 – January 14, 2005 07:00:

- EPA completed an entry to investigate the area of Posner Street and Marshall Street to support Law Enforcement follow-up on 911 hang up call.
- GST conducted air monitoring and pH testing at the Graniteville Fire Station. No problems were reported.
- EPA contractors completed maintenance on the Area-RAEs (battery change-out and bump tests). Two elevated chlorine detections were observed: CTEH Unit #10 (adjacent to the sparge car) yielded 3.3 ppm (5 second spike) and 2.5 ppm. It was determined there was a leaking gasket in the chlorine recovery vapor equipment. The gasket was replaced. The Area-RAEs were removed from outside locations due to inclement weather.

Next Steps

- Continue to provide over-sight of NS response activities and continue air monitoring.
- Combined EPA / CTEH teams will continue home re-occupancy clearance sampling in homes that are being repopulated.
- Begin preparing the demobilization plan.
- Limited night operations.
- Transition new Incident Commander.
- Continue to support Unified Command.

Resources On-Scene

OSCs	10
EPA PIO	2
EPA Planner	1
ERT	3
EPA Air	7
SESD	21
START	14
USCG	15
REAC	3
ATSDR	2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

**ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960**

**Subject: Situation Report #11
Norfolk Southern Train Derailment
Graniteville, SC**

**To: Don Rigger, Chief
Emergency Operations Section, ERRB**

**From: Art Smith, OSC
Incident Commander**

Date: January 15, 2005

Operational Period: January 14, 2005 07:00 - January 15, 2005 07:00

The following tasks have been completed during the last operational period:

January 14, 2005 07:00 - 19:00:

- EPA Incident Command was transferred from Kevin Misenheimer to Art Smith.
- EPA continued operation and maintenance of the Area-RAE chlorine air monitoring network. EPA contractors continued to adjust the air monitoring network as the evacuations were lifted. Monitors were placed back in service after having been removed during night shift operations the previous night due to inclement weather (which adversely affects monitor operations).
- EPA completed monitoring of seven buildings in Graniteville. Monitoring consisted of chlorine gas monitoring throughout the buildings (except for confined space areas) and pH sampling of surfaces. The following Avondale facilities were completed: Gregg Building, Purchasing, Plant Services, Gregg Filter Plant, Granite Building, Administration, Engineering. In addition, the Friedman School (all buildings) was completed. The EPA entry teams reported no elevated detections of chlorine and no unusual pH readings. All EPA monitoring to date has indicated that there are no problems with residual chlorine gas or with residual acidic conditions, including some buildings in close proximity to the accident site.
- Norfolk Southern sampling teams monitored the Avondale Mills buildings within the immediate plume impact area. Several of these buildings (Hickman, Woodhead, IT) had evidence of surface corrosion and low pH levels, but no residual chlorine levels.

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- The Reentry Committee approved an additional area of Graniteville to be opened for reoccupation today. This area is from the southern edge of the 500 yard evacuation zone to Route 1, and extends west beyond Canal Street and east to the one mile radius. An estimated 4,200 residents have now been allowed to return. Additional sections of Route 1 will be opened for public travel.
- Residential reoccupation continued in approved zones:
 - Zone 1: neighborhoods around Laurel and Trolley Line Roads (north of Gregg Plant)
 - Zone 2: Wareville area, south of Highway 1
 - Zone 3: subdivisions west of Ertle

SC DHEC, CTEH, and EPA coordinated with the Aiken County Sheriff's Office to assist residents with reoccupation. Reentry/decontamination fact sheets describing the precautions residents should take upon reentering their homes/businesses were again distributed to residents upon reentry. The fact sheets were also posted in visible areas throughout the community (i.e., gas stations). Index cards were also provided to residents to post on their front doors to request reoccupation sampling.

- EPA personnel teamed with CTEH personnel to complete reoccupation sampling. Sampling teams collected air monitor readings for chlorine and hydrochloric acid from the lower level of homes. Wipe samples were also collected from non-porous horizontal areas for pH testing. All sample results were recorded on provided data sheets and returned to CTEH for data management. Each residence that was sampled received a statement from EPA, SC DHEC, CTEH, ATSDR, and Norfolk Southern clearing the building for reoccupation. Approximately 300 homes/businesses were sampled during this operational period. No elevated air monitoring or pH results were reported throughout the entire residential reoccupation phase of the incident.
- EPA ERT veterinarian completed the coordination and assistance with local animal control officials on handling of animal related issues.
- The EPA Safety Officer and Norfolk Southern developed an amendment to the site specific health and safety guidelines for on-site personnel to be implemented today. These amendments address access control and emergency egress procedures within the 500 yard evacuation zone.
- Norfolk Southern contractors continued to remove chlorine from the remaining chlorine tank car. The process rate is currently less than ½ ton per day. 14 loads of contaminated soil were loaded for offsite shipment. Approximately 9,000 gallons of bleach (produced from the chlorine offloading operation) were loaded and prepared for transport offsite by truck. Preparations were made for removing the three locomotives from the site.
- South Carolina Department of Health and Environmental Control provided approximately 30 representatives to assist residents during reoccupation.

January 14, 2005 19:00 – January 15, 2005 07:00:

- EPA completed an entry to investigate an area of Canal Street support Law Enforcement follow-up on an incident. The area turned out to be outside the restricted area.
- EPA/GST continued oversight of the chlorine removal operations. 100% coverage of the operation was provided.
- EPA/GST escorted a gas company hazmat team to an area near the accident site to test/decontaminate a small pipeline valve shutoff station.
- EPA contractors continued maintenance and operation on the Area-RAEs.

Next Steps

- Continue to provide oversight of NS response activities and continue air monitoring.
- Combined EPA / CTEH teams will continue home re-occupancy clearance sampling in homes that are being repopulated.
- Begin implementing the demobilization plan.
- Limited night operations.
- Reorganization of the incident management team to support revised incident objectives.

Resources On-Scene

OSCs	10
EPA PIO	2
EPA Planner	1
EPA SESD	23
ERT	3
START	14
USCG	11
REAC	3
ATSDR	2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Subject: **Situation Report #12**
 Norfolk Southern Train Derailment
 Graniteville, SC

To: **Don Rigger, Chief**
 Emergency Operations Section, ERRB

From: **James Webster, OSC**
 Deputy Incident Commander

Date: **January 16, 2005**

Operational Period: January 15, 2005 07:00 - January 16, 2005 07:00

The following tasks have been completed during the last operational period:

January 15, 2005 07:00 - 19:00:

- EPA continued operation and maintenance of the Area-RAE chlorine air monitoring network until 12:00 hours. At that time, after consultation with CTEH and review of their monitoring network, the EPA Area-RAE network was decommissioned. EPA will perform oversight and data review of the eleven CTEH Area-RAE monitoring network that is in place in and around the 500 yard evacuation zone.
- EPA completed monitoring of three buildings in Graniteville. Monitoring consisted of chlorine gas monitoring throughout the buildings (except for confined space areas) and pH sampling of surfaces. The following Avondale facilities were completed: Woodhead, Hickman Hall, Hickman plant, and Whitehall. The EPA entry teams reported no elevated detections of chlorine and no unusual pH readings. All EPA monitoring to date has indicated that there are no problems with residual chlorine gas or with residual acidic conditions, including some buildings in close proximity to the accident site.
- The Reentry Committee approved an additional area of Graniteville to be opened for reoccupation today. This area is a small four block area to the southwest of the evacuation zone on either side of the railroad tracks. This area was previously kept in the evacuation zone primarily due to safety concerns with the train operations related to the accident, which have diminished. An estimated 4,200 residents have now been allowed to return. All of Route 1 was opened for public travel.

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- Residential reoccupation continued in approved zones:

Zone 1: neighborhoods around Laurel and Trolley Line Roads (north of Gregg Plant)

Zone 2: Warendville area, south of Highway 1

Zone 3: subdivisions west of Ergle

Zone 4: areas south and east of the evacuation zone along Route 1

SC DHEC, CTEH, and EPA coordinated with the Aiken County Sheriff's Office to assist residents with reoccupation. Reentry/decontamination information describing the precautions residents should take upon reentering their homes/businesses were again distributed to residents upon reentry and posted in visible areas throughout the community (i.e., gas stations). Index cards were also provided to residents to post on their front doors to request reoccupation sampling.

- EPA personnel teamed with CTEH personnel to conduct reoccupation sampling. Sampling teams collected air monitor readings for chlorine and hydrochloric acid from the lower level of homes. Wipe samples were also collected from non-porous horizontal areas for pH testing. All sample results were recorded on provided data sheets and returned to CTEH for data management. Each residence that was sampled received a statement from EPA, SC DHEC, CTEH, ATSDR, and Norfolk Southern clearing the building for reoccupation. Approximately 75 homes/businesses were sampled during this operational period. No elevated air monitoring results or pH results out of normal range were reported throughout the entire residential reoccupation phase of the incident.
- Norfolk Southern contractors continued to remove chlorine from the remaining chlorine tank car. The process rate is currently less than ½ ton per day. 16 loads of diesel contaminated soil have been loaded for offsite shipment. The three locomotives were removed from the site.
- South Carolina Department of Health and Environmental Control provided approximately 20 representatives to assist residents during reoccupation.
- All REAC and ATSDR resources demobed at end of day shift.

January 15, 2005 19:00 – January 16, 2005 07:00:

- EPA/GST continued oversight of the chlorine removal operations. 100% coverage of the operation was provided.
- NS removed the jacket and insulation from one end of the chlorine car, allowing EPA/START to use a thermal imaging camera to estimate chlorine quantities remaining in the car. The amount of time necessary to transfer and treat the remaining chlorine is uncertain at this time. Unconfirmed estimates run on the order of two weeks.
- EPA ERT data management completed uploading of all backlogged monitoring data.

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Next Steps

- Continue to provide oversight of NS response activities and continue air monitoring.
- Combined EPA / CTEH teams will continue home re-occupancy clearance sampling in homes that are being repopulated through 1/16/05. DHEC personnel will take over these activities beginning 1/17/05. EPA will evaluate resource needs relative to this operation as conditions warrant.
- Continue implementing the demobilization plan.
- Limited night operations, primarily chlorine removal oversight and response readiness.
- Reorganization of the incident management team to support revised incident objectives.

Resources On-Scene

OSCs	12
EPA PIO	0
EPA Planner	1
EPA SESD	23
ERT	3
START	11
USCG	9
REAC	3
ATSDR	2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

**ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960**

**Subject: Situation Report #13
 Norfolk Southern Train Derailment
 Graniteville, SC**

**To: Don Rigger, Chief
 Emergency Operations Section, ERRB**

**From: James Webster, OSC
 Deputy Incident Commander**

Date: January 17, 2005

Operational Period: January 16, 2005 07:00 - January 17, 2005 07:00

The following tasks have been completed during the last operational period:

January 16, 2005 07:00 - 19:00:

- The Unified Command met and agreed to a new organizational structure based on functional groups within the Unified Command.
- EPA conducted oversight and data review of the eleven station CTEH Area-RAE monitoring network that is in place in and around the 500 yard evacuation zone.
- EPA completed monitoring of additional buildings in Graniteville. Monitoring consisted of chlorine gas monitoring throughout the buildings (except for confined space areas) and pH sampling of surfaces. The following Avondale facilities were completed: Woodhead, Hickman Hall, Hickman plant, and Whitehall. The First Baptist Church, parsonage, and the Williams building were completed, along with the bank, hardware store, and Magistrate's office in the Masonic Shopping Center. The EPA entry teams reported no elevated detections of chlorine and no unusual pH readings. All EPA monitoring to date has indicated that there are no problems with residual chlorine gas or with residual acidic conditions, including some buildings in close proximity to the accident site.
- The Reentry Committee approved an additional area of Graniteville to be opened for reoccupation on day 12 (today). This area includes the blocks east of Gregg Street that had not been previously opened. An approximately 7 block area remains closed, and 4,500 residents have been returned to their homes (approximately 900 remain evacuated).

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- Residential reoccupation continued in approved zones:

Zone 1: neighborhoods around Laurel and Trolley Line Roads (north of Gregg Plant)

Zone 2: Wareville area, south of Highway 1

Zone 3: subdivisions west of Ergle

Zone 4: areas south and east of the evacuation zone along Route 1

Zone 5: area east of Gregg Street to Aiken Street and Bethlehem Circle

SC DHEC, CTEH, and EPA coordinated with the Aiken County Sheriff's Office to assist residents with reoccupation. Reentry/decontamination information describing the precautions residents should take upon reentering their homes/businesses were again distributed to residents upon reentry and posted in visible areas throughout the community (i.e., gas stations). Index cards were also provided to residents to post on their front doors to request reoccupation sampling.

- EPA personnel teamed with CTEH personnel to conduct reoccupation sampling. Sampling teams collected air monitor readings for chlorine and hydrochloric acid from the lower level of homes. Wipe samples were also collected from non-porous horizontal areas for pH testing. All sample results were recorded on provided data sheets and returned to CTEH for data management. Each residence that was sampled received a statement from EPA, SC DHEC, CTEH, ATSDR, and Norfolk Southern clearing the building for reoccupation. Approximately 30 homes/businesses were sampled during this operational period. No elevated air monitoring results or pH results out of normal range were reported throughout the entire residential reoccupation phase of the incident. EPA personnel on this effort demobed at the end of the day.
- Norfolk Southern contractors continued to remove chlorine from the remaining chlorine tank car. The process rate has varied from less than ½ ton per day to in excess of 2 tons per day. The amount of time necessary to transfer and treat the remaining chlorine is uncertain at this time. Unconfirmed estimates run on the order of one to two weeks.
- Crews continued to repair the damaged areas around the accident site and clear away debris and wreckage.
- South Carolina Department of Health and Environmental Control provided 4 representatives to assist residents during reoccupation.

January 16, 2005 19:00 – January 17, 2005 07:00:

- EPA/GST continued oversight of the chlorine removal operations. 100% coverage of the operation was provided.
- EPA ERT data management continued uploading of all monitoring data.

Next Steps

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- Continue to provide oversight of NS response activities and continue air monitoring.
- DHEC personnel will take over home re-occupancy clearance sampling in homes that are being repopulated beginning 1/17/05. EPA will evaluate resource needs relative to this operation as conditions warrant.
- Continue implementing the demobilization plan.
- Limited night operations, primarily chlorine removal oversight and response readiness.
- Reorganization of the incident management team to support revised incident objectives.

Resources On-Scene

OSCs	9
EPA Planner	1
EPA SESD	6
ERT	2
START	8
USCG	9



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Subject: **Situation Report #14**
 Norfolk Southern Train Derailment
 Graniteville, SC

To: **Don Rigger, Chief**
 Emergency Operations Section, ERRB

From: **Art Smith, OSC**
 Incident Commander

Date: **January 18, 2005**

Operational Period: January 17, 2005 07:00 - January 18, 2005 07:00

The following tasks have been completed during the last operational period:

January 17, 2005 07:00 - 19:00:

- EPA conducted oversight and data review of the eleven station CTEH Area-RAE monitoring network that is in place in and around the 500-yard evacuation zone.
- EPA completed monitoring of the Studio 7 hair salon located in Graniteville Shopping Center. Monitoring consisted of chlorine gas monitoring throughout the salon and pH sampling of surfaces. The entry team reported no elevated detections of chlorine and no unusual pH readings. All EPA monitoring to date has indicated that there are no problems with residual chlorine gas or with residual acidic conditions, including some buildings in close proximity to the accident site.
- The Reentry Committee approved an additional area of Graniteville to be opened for reoccupation on day 13 (today) – Phase VI. This area includes the 2 blocks of Montgomery Street and Cottage Street, east of Trolley Line Road that had not been previously opened. Prior to the reoccupation in the remaining closed areas, the Aiken County Building Inspector will require individual dwelling inspections for homes and businesses. The 3 areas designated for mandatory inspection are as follows: Seastrunk Street to Gentry Street; Gentry Street to Aiken Street; and Cottage Street to Aiken Street. Inspections are to begin Wednesday 19 January 2005.
- Residential reoccupation continued in approved zones:

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Phase I: neighborhoods around Laurel and Trolley Line Roads (north of Gregg Plant); Wareville area, south of Highway 1; subdivisions west of Ergle Street

Phase II: Quimby Town – Granite Drive to Fourth Street, including Marshall Street to Canal Street; Taylor Street and Kalmia Apartment Drive to Gregg Highway

Phase III: areas south and west of Mount Arthur Drive; Bethlehem Circle; Elbert Street; Elbert Street; Hewitt Street; Mack Lane east of Aiken Road Cherry Lane; Davis Road; Laurel Avenue; Pine Street; south of Mack Lane between Church Street and Aiken Road; Shazach Lane; Blowing Wind Terrace; south and east of Brooks Street; south of Seastrunk Street to Gregg Street; A.P. Nivens Street; south of Arbute Street; Baker Street; Hope Lane; Polatty Street; Canal Street south of Arbute Street; south of Aiken-Augusta Highway.

Phase IV: areas south of Seastrunk Street; north and south of side of Hester Lane

Phase V: areas east of Gregg Street; north of Seastrunk Street; south of Taylor Street

- SC DHEC and CTEH coordinated with the Aiken County Sheriff's Office to assist residents with reoccupation. Reentry/decontamination information describing the precautions residents should take upon reentering their homes/businesses were again distributed to residents upon reentry and posted in visible areas throughout the community (i.e., gas stations). Index cards were also provided to residents to post on their front doors to request reoccupation sampling. Sampling teams collected air monitor readings for chlorine and hydrochloric acid from the lower level of homes. Wipe samples were also collected from non-porous horizontal areas for pH testing. All sample results were recorded on provided data sheets and returned to CTEH for data management. Each residence that was sampled received a statement from EPA, SC DHEC, CTEH, ATSDR, and Norfolk Southern clearing the building for reoccupation. SC DHC provided 4 representatives to assist residents during reoccupation.
- During reoccupation sampling at the Village Restaurant on Church Street, near Aiken Street (southeast of the wreck site), a sampling team detected a chlorine concentration of 0.1 ppm. The detection was confirmed by a second instrument. The owner informed SC DHEC that Clorox was used to clean the kitchen; therefore teams turned on an oven hood for approximately 10 minutes. Subsequent readings were 0.0 ppm for chlorine. The 0.1 ppm detection was attributed to the cleaning products and not incident related.
- Norfolk Southern contractors continued to remove chlorine from the remaining chlorine tank car. EPA met with Norfolk Southern and their contractor, Hulcher, to discuss the chlorine vapor transfer process (sparging). Hulcher indicated that the sparging operation was running at an optimal rate. To reach the optimal rate, heat is being added to the tank car in 2 ways: heating the sweep gas (air) and heating the outside of the car. The sweep gas is being heated to approximately 90°F, and the skin of the car to approximately 85 °F. When the sweep gas is removed from the rail car it is neutralized utilizing sodium hydroxide. At these temperatures, the estimated removal rate is 2 tons of chlorine every 2-4 hours. The railcar is presently slightly tilted and as of 0700 hours on 18 January 2005, Hulcher estimated 9-inches of chlorine at the low end of the car (measured using

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thermal imaging). The sparging operation will be considered complete when there is no more frost on the railcar. At that time, Hulcher will continue sparging the car for another 12-24 hours to ensure all of the chlorine has been removed. At the end of the 12-24 hour period, a hole will be cut in the car, a visual inspection will occur, and the inside of the car will be pressure washed. Upon completion of the pressure washing, the railcar will be loaded on a flat bed car and transported to Altoona, PA per instruction from the NTSB.

EPA raised concerns of chlorine contamination in the soil beneath the rail car. Norfolk Southern pointed out that the present position of the car is not its original location (the car was rolled so the breach was on top), and the soil in area where the car was originally located has already been removed. The area under the car will be surveyed when the car is removed, but the contamination should be minimal.

- Norfolk Southern's contractors began general housekeeping of the area adjacent to the railroad track and placed silt fence and signage around the wreck site.
- Norfolk Southern coordinated with Avondale Mills to begin inspecting employees' personal vehicles that were parked at the plant at the time of the incident. Employees were instructed to call the Avondale Mills security office to set-up an appointment. When employees arrived at the plant, their vehicles were opened and monitored for visual damage and residual chlorine (air monitoring). The vehicles were then taken to the Norfolk Southern car wash and towed to a mechanic (owner's choice) for further inspection.
- Four SC DHEC representatives attended the open houses at Byrd Elementary and Leavell-McCampbell Middle Schools. No problems were reported. A high turnout was reported. Schools are scheduled to reopen today, Tuesday 18 January 2005.
- Representatives from the Unified Command relocated to their normal business and mobile command posts. EPA's incident command is now located at the Aiken County Recreational Center on US Highway 1.

January 17, 2005 19:00 – January 18, 2005 07:00:

- EPA/GST continued oversight of the chlorine removal operations. 100% coverage of the operation was provided.
- EPA ERT data management continued uploading of all monitoring data.

Next Steps

- Continue to provide oversight of Norfolk Southern response activities and continue air monitoring.

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- EPA personnel will assist SC DHEC and the Aiken County Building Inspector in the mandatory re-occupancy clearance sampling in homes and businesses beginning on 19 January 2005.
- Continue implementing the demobilization plan.
- Limited night operations, primarily chlorine removal oversight and response readiness.

Resources On-Scene

OSCs	4
EPA Planner	1
ERT	2
START	7
USCG	9



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Subject: **Situation Report #15**
 Norfolk Southern Train Derailment
 Graniteville, SC

To: **Don Rigger, Chief**
 Emergency Operations Section, ERRB

From: **Art Smith, OSC**
 Incident Commander

Date: **January 19, 2005**

Operational Period: January 18, 2005 07:00 - January 19, 2005 07:00

The following tasks have been completed during the last operational period:

- As of 0100 hours on 19 January 2005, the chlorine transfer process was complete. Norfolk Southern contractors began the 12-24 hour purging process. Purging operations are expected to be completed on 19 January 2005. EPA/GST continued oversight of the chlorine removal operations. 100% coverage of the entire chlorine transfer operation was provided.
- EPA conducted oversight and data review of the eleven station CTEH Area-RAE monitoring network that is in place in and around the 500-yard evacuation zone.
- EPA completed monitoring of the Family Medical Center located on Hickman Street. This facility is located nearly at the epicenter of the chlorine release. Monitoring consisted of chlorine gas monitoring throughout the building and pH sampling of surfaces. The entry team reported no elevated detections of chlorine and no unusual pH readings. The entry team did report signs of corrosion on some of the metal instruments. EPA monitoring to date continues to indicate that there are no problems with residual chlorine gas or with residual acidic conditions. Several instruments were also retrieved for the physician.
- SC DHEC and CTEH coordinated with the Aiken County Sheriff's Office to assist residents with reoccupation. To date, approximately 750 homes and businesses have been assessed and cleared for re-occupation. Fact-sheets and sampling request cards continued to be distributed as residents passed through check points. CTEH and EPA continue to provide data management. SC DHEC provided 4 representatives to assist residents during reoccupation.

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Re-occupation efforts during the current operational period were delayed due to an error in a press release, which provided a wrong number for residents to call the building inspector's office to set-up home/business inspections in the mandatory inspection areas. The process for scheduling appointments for building inspections will resume beginning at 0800 hours on 19 January 2005.

- During reoccupation sampling at the Barber Shop on US Highway 1, near the Aiken County Recreation Center, a CTEH sampling team detected a chlorine concentration of 0.1 ppm. The detection was confirmed by a second instrument. The owner informed CTEH, SC DHEC, and EPA that there was a mold problem on the walls and a Clorox solution was used for cleaning. The 0.1 ppm detection was attributed to the cleaning products and not incident related.
- Norfolk Southern contractors continued general housekeeping of the area adjacent to the railroad track.
- EPA ERT data management continued uploading of all monitoring data.

Next Steps

- EPA plans to complete demobe of all EPA, USCG, and START personnel from the site no later than 21 January 2005 @1200 hrs.
- Continue oversight of chlorine tank car operations until purging and decon of all residues is complete.
- Continue to provide oversight of Norfolk Southern response activities and continue air monitoring.
- Provide resources to assist in the final reoccupation effort involving up to 75 homes and businesses within the 150 yard radius evacuation zone. The Aiken County Sheriff's Office is planning to release information to the public today regarding the schedule for lifting the evacuation of this area.
- Final Unified Command Meeting is scheduled for 19 January 2005 @1500 hrs., at EPA's Incident Command Post (Aiken Co. Rec. Center on U.S. 1).

Resources On-Scene

OSCs	4
EPA Planner	1
ERT	2
START	6
USCG	9

000040



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Subject: **Situation Report #16 AND FINAL
Norfolk Southern Train Derailment
Graniteville, SC**

To: **Don Rigger, Chief
Emergency Operations Section, ERRB**

From: **Art Smith, OSC
Incident Commander**

Date: **January 20, 2005**

This situation report makes the completion of EPA reporting response activities for this incident.

Operational Period: January 19, 2005 0700 - January 19, 2005 1900

- As of 1500 hours on 19 January 2005, the chlorine purging process was complete. Air monitoring readings of 0.0 ppm were detected at the intake and outtake of the railcar. A hole was cut in the tank to allow Norfolk Southern contractors to pressure wash the railcar. The railcar will be loaded onto a flatcar and transported to Augusta, GA prior to departure to Altoona, PA where it will be impounded, subject to further investigation by NTSB. Prior to the completion of the chlorine transfer, EPA provided oversight to Norfolk Southern contractors during all off-loading operations.
- EPA facilitated the final meeting of the Unified Command at 1500 hours on 19 January 2005 to discuss the reoccupation of the exclusion zone. Approximately 40-50 homes and businesses have not completed the required building inspection prior to reentry; of those, approximately 15 are vacant. The Aiken County Building Inspector will complete the inspections by 1800 hours on 20 January 2005. At that time, the Aiken County Sheriff's Office will lift all road blocks and curfews.
- During the duration of the emergency response activities, EPA maintained an air monitoring comprised of approximately 17 of Area RAEs. EPA also conducted oversight and data review of the eleven station CTEH Area-RAE monitoring network. EPA ERT provided data management.
- EPA completed monitoring of several local businesses including several divisions of Avondale Mills' Gregg Plant, the Family Medical Center, a barber shop, a bank, the Graniteville Post Office, Studio 7 Hair Salon. Monitoring consisted of chlorine gas

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monitoring throughout the building and pH sampling of surfaces. Only two detections of chlorine were reported (0.1 ppm), both from businesses using Clorox for cleaning purposes. The detections were ruled non-incident related. No unusual pH readings were detected. The entry teams did report signs of corrosion on some of metal objects. EPA monitoring to date indicates that there are no problems with residual chlorine gas or with residual acidic conditions.

- EPA assisted SC DHEC, CTEH, and the Aiken County Sheriff's Office to assist residents with reoccupation. Residents were allowed to reoccupy their homes and business once their dwelling had been deemed safe (based on air monitoring results and recommendation of the EPA Health and Safety Officer and other officials). Approximately 800 homes and businesses have been assessed and cleared for re-occupation. Fact-sheets and sampling request cards were distributed as residents as they passed through check points.
- All other EPA, GST and START resources have been demobilized from the site.

Next Steps

- No further response actions planned on behalf of EPA. SC DHEC will take responsibility for any further environmental protection issues related to this incident.
- EPA ERT and START personnel to remain on-site to continue data management on 20 January 2005.

Resources On-site

EPA ERT 1
START 1

INCIDENT REPORT

INCIDENT REPORT: #3 Graniteville South Carolina Train Incident (New info in bold)

TYPE OF INCIDENT: Train Collision

INCIDENT REPORT DATE AND TIME: January 6, 2005; 3:00 PM EST

INCIDENT: At 3:45 AM EST, the South Carolina Emergency Management Division (SCEMD) was notified that two freight trains collided in downtown Graniteville, South Carolina (Aiken County), resulting in the release of an unknown quantity of chemicals. A Norfolk Southern Railway train traveling at 45 mph missed a switch and ran into a parked locomotive. Hazardous materials being carried by the train included chlorine, sodium hydroxide, and creosol. Information indicates that chlorine is the only substance known to be leaking, but it is believed that the sodium hydroxide may be leaking. The cause of the incident has been determined to be an operational error. The FBI has also confirmed that no terrorism was involved. A half-mile evacuation order was issued and a decontamination site has been established. The evacuation order has been rescinded and replaced with a "Shelter-In-Place" order for a 2-mile radius. The accident occurred near a residential area. Shelters for displaced individuals have been established, and are currently housing 10 individuals.

First responders have been hospitalized. Local hospitals are treating numerous patients. Reports of up to 25 patients were treated at the Medical College of Georgia with several being intubated. It has been reported that the University Medical Hospital in Augusta has treated 80 persons and the Aiken Hospital may have seen as many as 200 individuals. The Georgia Hospital Association has issued a request for mutual aid, which is a request for an updated bed status and a request for oxygen. The hospital situation is now under control and the Medical Center of Central Georgia has stood down as the back coordinating hospital. No additional oxygen cylinders will be needed and no additional website updates are needed. The immediate area has limited resources.

The following Civil Emergency Message was issued by the Columbia SC weather office: All residents within a two-mile radius of the incident have been advised to take shelter until further notice. This means to stay inside, keep windows and doors shut, and turn off the ventilation system.

There have been numerous reports of deaths and injuries. The FBI has reported there are four confirmed fatalities. The State has confirmed that there have been four fatalities. Two injuries resulted as a result of the locomotive crash. Patients that may have been exposed to leaking chemicals have been decontaminated and sent to medical facilities. Detailed casualty information is still being determined.

Updated hospital information (as of 12:00 PM EST):

Aiken Regional Medical Center, Aiken SC: treated 87, admitted 20
Lexington Medical Center, West Columbia SC: treated 5, admitted 5

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University Hospital, Augusta GA: treated 80, admitted 17
Medical College of Georgia, Augusta GA: treated 30, admitted 14
Doctors' Hospital, Augusta GA: treated 30
St. Joseph's Hospital, Augusta GA: treated 2

Totals: Treated 234, Admitted 56

STATE AND LOCAL ACTIONS: The South Carolina State Emergency Operations Center (EOC) has elevated their activation to Opcon 1, disaster or emergency situation in effect; full fledged emergency response operations ongoing. State ESFs 6 (Mass Care), 8 (Health and Medical), 10 (HazMat), 13 (Law Enforcement), and 16 (Emergency Traffic Management) have been notified and are coordinating with local and State officials. The State is also in the process of notifying personnel of possible activation for a night shift. **The State has been providing equipment and assistance to the local officials. Requests have included 30, 800 mhz radios, a mobile repeater, and the Emergency Communications Vehicle (ECV). The State will continue to assist and respond to requests as necessary.**

On-scene response organizations include Graniteville Fire Department and Aiken County Sheriff's Office. Aiken County Emergency Services is operational and the County EOC is activated. The South Carolina Department of Health and Environmental Control (SCDHEC), SC Department of Public Safety (SCDPS), SC Highway Patrol (SCHP) and the SCEMD are also assisting local authorities. Richmond County GA is also on scene assisting in operations. The Director, SCEMD is on scene at the incident command post and a liaison has been dispatched to the Aiken County EOC.

A HAZMAT team from Norfolk is enroute to the site.

The South Carolina Department of Health and Environmental Control reports the leak on the rail car has been contained; it was assumed to be chlorine but has not been confirmed. Officials are preparing to conduct a door-to-door search in a two-mile radius from the incident scene for additional victims.

The Governor has issued an executive order declaring a State of Emergency for Aiken County.

Local schools (4) and businesses have been closed. The American Red Cross (ARC) has set up an information center in Aiken SC, and the Richmond County GA ARC has set up a shelter in Augusta GA.

FEDERAL ACTIONS: The Regional Duty Officer (RDO) has been in contact with the State EOC. The RDO will remain in contact with the State and will continue to provide reports as necessary. **FEMA Region IV activated the Regional Operations Center (ROC) in Thomasville, Georgia at a Level 3, monitoring, on January 6, 2005 at 11:00 AM EST.**

The Environmental Protection Agency (EPA) has representatives on site. A National Disaster Medical System Regional Specialist has been deployed to the site. **The FEMA Response**

Liaison has arrived at the State EOC as coordinated with the South Carolina Emergency Management Division.

REGIONAL CONTACTS:

Annette Dupree
Regional Duty Officer
V: [REDACTED]
C: [REDACTED]
F: [REDACTED]

or Thomasville MOC at 800-792-6196

SOURCE OF INFORMATION: South Carolina State EOC; various reports from NRC, NDMS EOC, Columbia Weather Office, EPA, and FBI