



September 15, 2008

Mr. Perry Gaughan
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street SW, 11th Floor
Atlanta, GA 30303

**Subject: Final CERCLA Emergency Response Letter Report
Crossville Tanker Rollover
Crossville, Cumberland County, Tennessee
Technical Direction Document (TDD) No. TTEMI-05-001-0067**

Dear Mr. Gaughan:

The Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START) is submitting this final Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Emergency Response Letter Report summarizing the site conditions and air monitoring results collected during the July 13, 2008 response to a tanker spill along Interstate 40 West (mile marker 332) approximately 14 miles east of Crossville, Tennessee. Figure 1 (Enclosure 1) illustrates the site location. The site-specific geographic coordinates are 35° 53' 41.79" north latitude and 84° 50' 33.13" west longitude.

The initial accident involved a tanker truck and three other vehicles occurred at approximately 1430 on Saturday July 12, 2008. The integrity of the tanker truck, which was transporting a toxic waste mixture consisting of 65 percent toluene and 35 percent titanium tetrachloride ($TiCl_4$), was compromised and an unknown amount of material was released. The $TiCl_4$ mixture was being transported under a nitrogen blanket because of its reactive nature with air moisture, which causes the formation of hydrochloric acid (HCl) and other titanium compounds often seen as a dense white fume.

Following the accident, east and west bound lanes of Interstate 40 (I-40) as well as U.S. Highway 70 (Hwy 70) were closed to all traffic and areas within a two mile radius of the crash site were voluntarily evacuated by Saturday evening. With rain showers threatening the area, there was an increased potential for the formation of HCl vapors produced by the reaction of $TiCl_4$ and moisture. The Crossville Fire Department constructed a berm in the median downgradient of the tanker to prevent further spread of any leaking contaminants. However, material transfer efforts were hindered by forecasts of rain, which caused work stoppages due to health and safety concerns for cleanup personnel.

RESPONSE ACTIVITIES

START was called to respond to the spill on Saturday night, July 12, 2008 and reported to the incident by 0700 on July 13, 2008 per OSC Gaughan. The five-man team deployed included Brain Croft, Brandon Foskey, Yuen-Chang (Didi) Fung, Kyle Russell and, Jody Sumner. Activities involved maintaining written and photographic documentation of onsite activities and conducting air monitoring using five Single Point Monitor (SPM) units setup for HCl vapors. HEPACO Incorporated (HEPACO) was the onsite emergency response contractor performing the material stabilization and transfer activities.

During the transfer activities performed by HEPACO, START monitored continuously for HCL vapors. Four SPM units were positioned at stationary locations in the immediate vicinity of the site while one unit was placed inside a vehicle and used to monitor the areas outside of the accident site particularly along Hwy 70 and I-40.

Figure 2 (Enclosure 1) illustrates the locations of the stationary SPM units, which were positioned as follows:

- one SPM unit located approximately 200 yards west of the accident site
- one SPM unit located 200 yards east of the accident site
- two SPM units were provided to the Crossville Fire Department and HEPACO in order to acquire readings closer to the actual accident, including one unit employed by HEPACO that was positioned on the ground immediately adjacent to the damaged tanker.

The detection limits of the units were between 0.5 and 15.0 parts per million (ppm). All SPM units consistently indicated HCl concentrations of 0.0 ppm throughout the monitoring period. In addition, monitoring of the areas outside of the accident site on July 13 and 14 consistently returned values of 0.0 ppm.

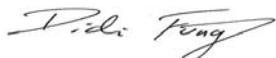
On July 13, 2008, Hwy 70 located just south of I-40 was reopened for public use at approximately 2130. Two hours later the transfer of the material was completed. Next the damaged tanker and cars were cleared from the interstate and by 0630 on July 14, 2008 the eastbound lanes of I-40 were reopened to the public. No measurable concentrations of HCl were detected throughout the duration of the response.

Attached with this letter report are three enclosures as follows:

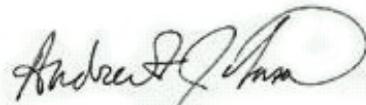
Enclosure 1: Figures
Enclosure 2: Photographic Log
Enclosure 3: Logbook Notes

Please contact me at (678) 775-3095 if you have any questions regarding this final CERCLA emergency response report.

Sincerely,



Yuen-Chang (Didi) Fung
START III Site Manager



Andrew F. Johnson
START III Program Manager

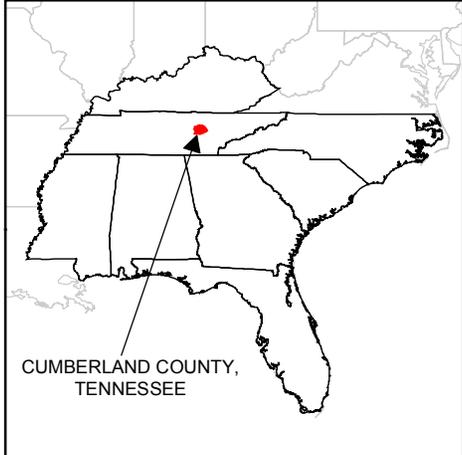
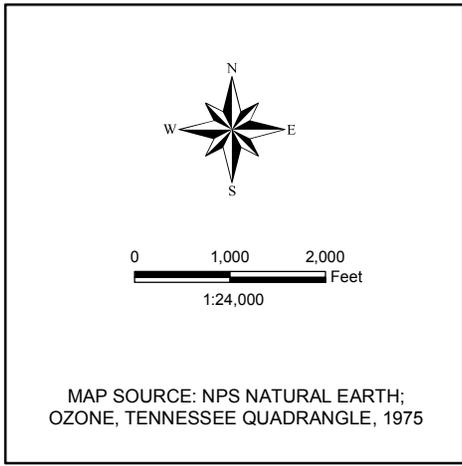
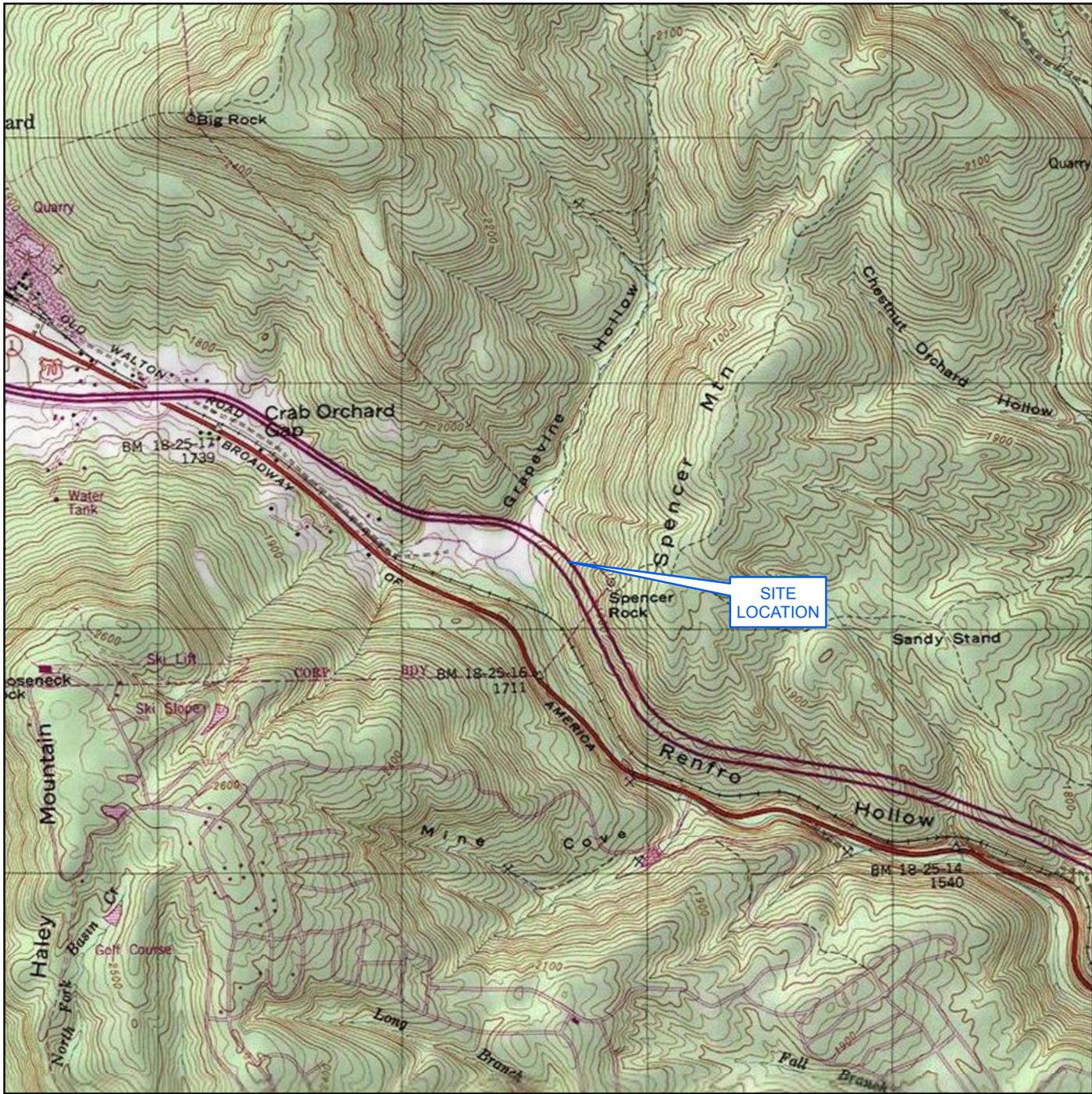
Enclosures (3)

cc: Katrina Jones, U.S. EPA Project Officer
 Darryl Walker, U.S. EPA Alternate Project Officer
 Angel Reed, START III Document Control Coordinator

ENCLOSURE 1

FIGURES

(Two Pages)



United States Environmental Protection Agency

CROSSVILLE TANKER ROLLOVER
CROSSVILLE,
CUMBERLAND COUNTY,
TENNESSEE
TDD: TTEMI-05-001-0067

FIGURE 1
SITE LOCATION

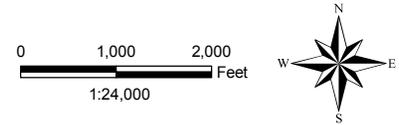
TETRA TECH



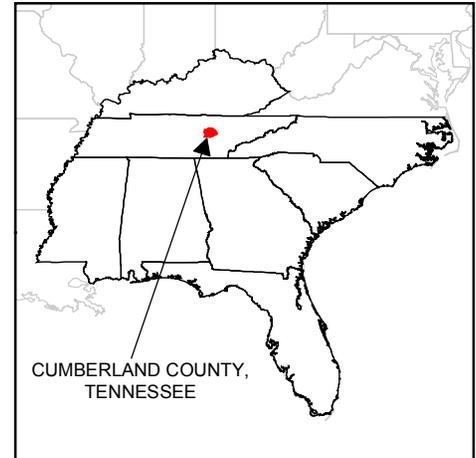
LEGEND

- ★ Rollover Site
- Hazmat Staging Area
- Stationary SPM Air Monitoring

NOTE: SPM = Single Point Monitor
All observed HCl readings were 0.0 ppm.



MAP SOURCE: NAIP Natural Color 2006.



United States Environmental Protection Agency

CROSSVILLE TANKER ROLLOVER
CROSSVILLE,
CUMBERLAND COUNTY,
TENNESSEE
TDD: TTEMI-05-001-0067

FIGURE 2
SITE LAYOUT



ENCLOSURE 2

PHOTOGRAPHIC LOG

(Seven Pages)



OFFICIAL PHOTOGRAPH NO. 1
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-001-0067

Location: Interstate 40 (mile marker 332)
Crossville, TN

Orientation: Northwest

Date: July 13, 2008

Photographer: Brian Croft, Tetra Tech

Witness: Kyle Russell, Tetra Tech

Subject: The tanker truck as it came to rest following the accident.





OFFICIAL PHOTOGRAPH NO. 2
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-001-0067

Location: Interstate 40 (mile marker 332)
Crossville, TN

Orientation: Northwest

Date: July 13, 2008

Photographer: Brian Croft, Tetra Tech

Witness: Kyle Russell, Tetra Tech

Subject: A soil berm that was constructed by the Crossville Fire Department along Interstate 40 downgradient of the tanker to contain any releases.





OFFICIAL PHOTOGRAPH NO. 3
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-001-0067

Location: Interstate 40 (mile marker 332)
Crossville, TN

Orientation: East

Date: July 13, 2008

Photographer: Brian Croft, Tetra Tech

Witness: Didi Fung, Tetra Tech

Subject: Transfer operations in process. HEPACO team attempts to attach the hose connecting the damaged tanker to the transfer tanker.





**OFFICIAL PHOTOGRAPH NO. 4
U.S. ENVIRONMENTAL PROTECTION AGENCY**

TDD Number: TTEMI-05-001-0067 **Location:** Interstate 40 (mile marker 332)
Crossville, TN

Orientation: West **Date:** July 13, 2008

Photographer: Jody Sumner, Tetra Tech **Witness:** Kyle Russell, Tetra Tech

Subject: Staging area along Interstate 40 West. In order from right to left (closest to furthest from crash site): HEPACO, Crossville Fire Department, EPA/START.





OFFICIAL PHOTOGRAPH NO. 5
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-001-0067 **Location:** Interstate 40 (mile marker 332)
Crossville, TN

Orientation: Northwest **Date:** July 13, 2008

Photographer: Kyle Russell, Tetra Tech **Witness:** Jody Sumner, Tetra Tech

Subject: Release of white fumes (hydrochloric acid and titanium compounds) during the transfer process. Multiple attempts by HEPACO were made to equalize pressures in the tankers before the waste began transferring at around 1700 on July 13, 2008.





**OFFICIAL PHOTOGRAPH NO. 6
U.S. ENVIRONMENTAL PROTECTION AGENCY**

TDD Number: TTEMI-05-001-0067

Location: Interstate 40 (mile marker 332)
Crossville, TN

Orientation: North

Date: July 13, 2008

Photographer: Didi Fung, Tetra Tech

Witness: Brandon Foskey, Tetra Tech

Subject: Decontamination area set up by HEPACO upwind from the site.





OFFICIAL PHOTOGRAPH NO. 7
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-001-0067

Location: Interstate 40 (mile marker 332)
Crossville, TN

Orientation: North

Date: July 13, 2008

Photographer: Jody Sumner, Tetra Tech

Witness: Kyle Russell, Tetra Tech

Subject: Transfer operations continued into the night and were completed at approximately 2330 on July 13, 2008.



ENCLOSURE 3

LOGBOOK NOTES

(Six Sheets)

"Rite in the Rain"
ALL-WEATHER WRITING PAPER



Name _____

Address _____

Phone _____

Project _____



CONTENTS

PAGE REFERENCE DATE

HEPACOTM
INCORPORATED
*Cleaning the Environment*SM
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Corporate Industrial Hygienist
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Telephone: 704-598-9782 • Fax: 704-598-7823
Home Page <http://www.hepaco.com> • E Mail: dlinville@hepaco.com
24 Hour Emergency 800-888-7689

Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook.
Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation

Spoke with Crossville Fire + Rescue

7/13/08 7/13/08

Tennessee Tanker Spill

BF

- Tanker truck overturned; 65% toluene + 35% TiCl₄ is transported material.
- Other vehicles involved → toxic waste transport
- 8-9 patients, a couple in critical condition; firefighter injured during initial response (chemical burns to eyes)
 - HCl is on the ground
 - Placard on side of tanker = 3288
- 0740 Initial walkthrough and readings yield 0
- Tanker onsite to begin transfer of non-reacted material
- Set up two SPMs; one to the east and one to the west of the accident site along I-40
 - 0900 START Craft begins perimeter sweep around crash site
 - 1000 Five SPMs running; four stationary - one mobile; No readings as of yet
 - 1140 Readings from firefighters on guard rail near tanker are zero (rescue team)
 - ~ 1100 first attempt at transferring waste to another truck; ~~Reducers~~ ^{fittings} did not fit the hose
 - 1315 second attempt @ transfer
- B. ~~Shy~~

Time	HCl (ppm)	Location
1000	0	Truck
1030	0	"
1100	0	"
1130	0	"
1200	0	"
1230	0	"
1300	0	"
1330	0	"
1400	0	"
1430	0	"
1500	0	Just behind decon zone
1530	0	"
1600	0	"
1630	0	"
1700	0	"
1730	0	"

B. ~~Shy~~

7/13/08 Tennessee Tanker Spill BF

- 1320 Plumes of white smoke coming from site (believed to be HCl + Titanium oxide) ^(RP)
- ~~1331 Product is flowing into the transfer truck around truck~~
- 1340 Area has to be evacuated due to threatening rain; second attempt was not a success; rain ended at 1420
- 1440 Third attempt at transferring waste into the waiting tanker
- 1500 HEPACO team back at decon zone; no word on whether waste is flowing; pressure inside the wrecked truck is less than pressure inside the other tanker; pressure gradient working against ~~the~~ ^(RP) progress
- 1550 team back at the tanker; plans to ~~begin~~ ^(RP) relieve pressure in the ~~damaged~~ ^(RP) undamaged tanker by removing the nitrogen blanket
- 1620 team back at decon zone; plans are to remove cap from wrecked tanker, put hose in place, and begin pumping material. HEPACO isn't sure it can get the cap back on should the need arise
- 1650 response team back at the tanker
- 1700 waste material is moving
R. Fisher

- 1745 Team has pumped all the material that can be pumped from the current opening
- 2015 Discovered that earlier in the day one of the worker's Level A suits was breached. Facepiece became brittle and cracked when workers went to remove the nitrogen shield
- 2045 Took readings along Highway 70 and I-40 East; Readings were constantly at 0

B. Fisher

² 7/12/08 Saturday

2345 - START Kyle Russell
mobilizes from Huntsville, AL
to Crossville, TN

0030 - 7/13/08 - START Jody
Sumner mobilizes from
Nashville, TN to Crossville, TN

0300 - START Russell + Sumner
meet in Crossville, TN; told
to stand down until following
morning



7/13/08 Sunday ³

0710 - START Sumner + Russell
arrive at ICP west of
accident site. Met EPA OSC
Perry Gaughn. Discussed site
info.

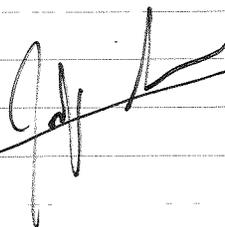
0720 - moved to east of
accident site. Met START
members Didi Fung, Brian
Croft, + Brandon Foskey.

0745 - START Sumner + Russell
tasked to set up air
monitoring station 200 yards
east of accident site. SPM
set up at 35.85387 - 84.84266

0755 - Monitoring of HCL.
Wind blowing east to west.
0.0 ppm.

0800 - 0.0 ppm

0820 - Wind changed direction -
blowing west to east. 0.0 ppm



4
Air Monitoring Station #1 7/13/08

GPS - 35.89387 -84.84266
0745 - 0.0 ppm
0800 - 0.0 ppm
0820 - 0.0 ppm
0845 - 0.0 ppm
0900 - 0.0 ppm
0920 - 0.0 ppm wind change from
e to w
0940 - 0.0 ppm
1020 - 0.0 ppm
1045 - 0.0 ppm
1110 START Moved East up hill
from tanker. 5 Hazmat members make
way to tankers to begin transfer
1115 0.0 ppm (GPS - 84.84167 35.892215)
1130 0.0 ppm. HAZMAT has begun
connecting hoses to start transfer of
liquid.
1155 0.0 ppm New tanker coords.
-84.84253 35.89494135
1210 - 0.0 ppm ~~84.84167~~
1310 - Transfer of product resumed,
Damaged Tanker venting white
gas intermittently. 0.0 ppm
1335 - 0.0 ppm

5
7/13/08
1340 - Rain begins, transfer
suspended until rain
passes - 0.0 ppm
0200 - SPM battery running low,
monitoring stopped to allow
quicker charge while rain
continues
0245 - SPM monitoring resumed
0.0 ppm, transfer
activities resumed
0305 - Transfer activities
suspended again, SPM
monitoring stopped, 0.0 ppm
before stopping
0315 - START Sumner + Russell
leaving site to go to hotel/
before possible night shift
2100 Start Sumner + Russell arrive
back at IC. STARTFUNG briefs on
activities + the rest of the night
~~transfer~~ schedule. Transfer of chemical
is still taking place. TO will open
back up.
0430 START Fung Kroft, Lopez
Leave site

Russell + Souer check in with
 OSC Perry
~~0145~~ Switched out SPM by firetrucks
 and brought two back to charge.
 2200 head to TO since repaired to run
 air monitor.
 2215 SPM - 0.0 ppm
 2300 Return from Hwy TO Loop
 0.0 ppm readings
 2335 - Transfer Tanker
 cleared to leave site for
 decon.
 2350 - Transfer Tanker deconed
 and leaves area.

[Handwritten signature]

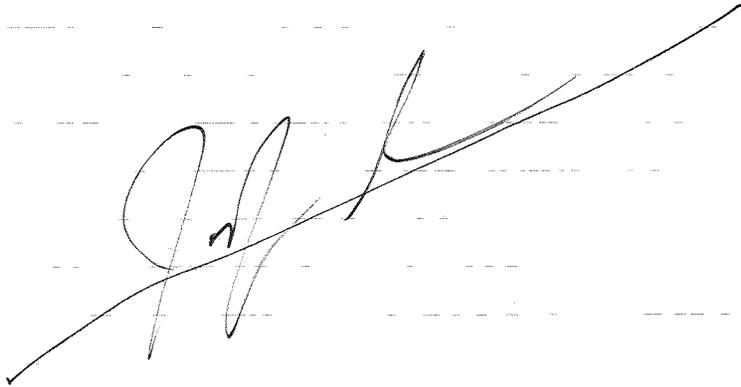
7/14/08

Monday

0115 - SPM monitoring loop
 on Highway 70 completed
 0.0 ppm readings
 0145 - wrecked cars being
 removed, beginning
 to move damaged tanker
 START performs monitoring
~~at~~ while moving tanker
 0216 - Air Monitoring Position
 on eastbound lanes just
 southeast of crash site
 to monitor while moving
 tanker 0.0 ppm
 0225 - moved air monitoring
 position to just south west
 of crash site on eastbound
 lanes to be upwind - 0.0 ppm
 0240 - Wreckers move to position
 to move tanker - 0.0 ppm
 0440 - Left air monitoring position,
 0.0 ppm over time
 0530 - tow trucks able to pull
 tanker off of embankment
 0600 - Eastbound lanes of I-40
 re-opened to public.

7/14/08

- 0630 - Hepaco wrapping up operations ~~for~~^{for} morning tanker move.
- 0645 - OSC Perry Gaughn informed by Hepaco of further plans to put a nitrogen blanket on the remaining product in the tanker. Hepaco may fill the tanker with 1000 gallons of mineral oil to make it safe for transport if it is deemed necessary.
- 0650 - OSC Gaughn determined EPA/START was no longer needed onsite.
- 0700 - START demobs from site.

A large, stylized handwritten signature in black ink, written over the bottom portion of the page. The signature is cursive and appears to be the name of the person who recorded the log entries.