

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Tiskilwa Train Derailment - Removal Polrep
Final Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Subject: **POLREP #3**
Tiskilwa Train Derailment
Z5L2
Tiskilwa, IL
Latitude: 41.2899170 Longitude: -89.4909970

To:
From: Leonard Zintak, On-Scene Coordinator
Paul Ruesch, On-Scene Coordinator
Date: 10/20/2011
Reporting Period: 10/11/2011 - 10/20/2011

1. Introduction

1.1 Background

Site Number:	Z5L2	Contract Number:	
D.O. Number:		Action Memo Date:	
Response Authority:	OPA	Response Type:	Emergency
Response Lead:	EPA	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	10/7/2011	Start Date:	10/7/2011
Demob Date:	10/10/2011	Completion Date:	10/10/2011
CERCLIS ID:		RCRIS ID:	
ERNS No.:		State Notification:	Illinois EPA
FPN#:	E12501	Reimbursable Account #:	

1.1.1 Incident Category

Emergency Response

1.1.2 Site Description

The Tiskilwa Train Derailment occurred at 0255 hrs on October 7, 2011 and was reported to the NRC (Report #991849) by the Iowa Interstate Railroad (the PRP) at 0441 hrs. An updated NRC Report (#991862) was issued at 0919 hrs. OSC Len Zintak mobilized START contractors to begin emergency response activities on October 7, 2011.

Approximately 27 cars of 126 total on the train were involved in the incident and roughly 500ft of track was impacted. 17 of the cars were 'hopper' cars containing dry corn mash and the 10 were full tanker loads of fuel ethanol. The intensity of the fire prompted a partial, voluntary evacuation of the town of Tiskilwa, Illinois.

1.1.2.1 Location

The Tiskilwa Train Derailment Site is located at Railroad MP 122.4 in Tiskilwa, Bureau County, Illinois.

1.1.2.2 Description of Threat

Approximately 27 cars of 126 total on the train derailed. Nine of the derailed cars were full tanker loads of ethanol, several of which caught fire or exploded, and ethanol product was spilled. NTSB estimates that approximately 143,534 gallons of ethanol product were released. The majority of the ethanol product release was burned off in the subsequent fire and explosions.

The chemical involved in this incident involves Fuel Ethanol, also known as Denatured Ethanol (ID# UN 1987). The Fuel Ethanol is 95%-98% ethanol and 2-5% natural gasoline (see MSDS in the Documents Section). The benzene content is estimated less than 0.1%. The MSDS for the spilled ethanol product shows that it contained 2-5% natural gasoline, which makes the entire spilled ethanol product an oil according to the Oil Pollution Act.

The chemicals of concern are benzene, ethanol, particulates and carbon monoxide. Benzene is a known carcinogen. Particulates and carbon monoxide in the air can cause adverse health risks. The spilled

ethanol product also posed a significant fire/explosion risk.

The wreck site is approximately 750 feet from the Big Bureau Creek (to the north), and approximately 3000 feet from the Plow Hollow Creek (to the east), which flows directly into the Big Bureau Creek. Big Bureau Creek flows east and into the Illinois River approximately 8 miles downstream. As ethanol is completely miscible in water, and the pumping rate of firefighting water/foam was 1.5 million gallons/day to extinguish the fire, it was determined on scene to be a substantial threat of release to both creeks via the surface water, subsurface (along the track bed) and/or groundwater pathways which could eventually impact the Illinois River. Previous ethanol releases at train wrecks have resulted in discharges to surface waters and fish kills weeks to months after the release from the groundwater pathway.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

Approximately 27 cars of 126 total on the train were involved and approximately 500ft of track was impacted. 17 of the derailed cars were 'hopper' cars containing dry corn mash and the other 10 were full tanker loads of ethanol. Of the 10 full tanker loads, one remained upright on the tracks and the other 9 derailed. It is estimated by NTSB that of the estimated 259,012 gallons of ethanol contained in the 10 tanker loads, 143,534 gallons were either consumed in the fire or released to the air and/or soil. It is estimated that the majority of the released ethanol product was burned off in the subsequent fire and explosions.

The fire was extinguished, damaged cars and track removed, and underlying soils excavated by October 10, 2011 by Hulcher Services, Inc. and other hazmat contractors to the PRP. Ethanol product that was not spilled or burned off was recovered by SWS Environmental Services, a contractor to the PRP. It was reported by SWS that 115,478 gallons were recovered and transloaded from the derailed tankers.

START contractors established continuous perimeter air monitoring with AreaRAEs in 3 fixed locations and took MultiRAE readings at various locations around the perimeter of the wreck site (see map in Documents Section). In addition, START contractors collected 9 water samples from various locations in both the Plow Hollow Creek (to the east) and Big Bureau Creek (to the north) for laboratory analysis on October 8-9, 2011. Plow Hollow Creek flows north to Big Bureau Creek which flows east to the Illinois River approximately 8 miles downstream. Surface water sampling was conducted every 4-5 hours with a YSI water quality meter. Sampling was also conducted at the confluence of Big Bureau Creek with the Illinois River. It was expected that dissolved oxygen levels would drop significantly if ethanol product or firefighting run-off containing contaminants entered the waterways.

A draft environmental monitoring plan covering groundwater, residential well, surface water, surface and sub-surface soils, wastes and air monitoring was developed by the Center for Toxicology and Environmental Health (CTEH), a contractor to the PRP, and submitted to U.S. EPA and Illinois EPA for review on October 9, 2011. U.S. EPA, START, NTSB and Illinois EPA commented on the workplan on October 10, 2011. A revised work plan was submitted by CTEH to Illinois EPA on October 11, 2011 (see the Documents Section).

START contractors also conducted oversight of excavation and sampling of underlying soils within the incident footprint pursuant to the draft work plan submitted by CTEH on October 9, 2011. Approximately 100 cubic yards of excavated soils were placed in a bermed area lined with polyethylene plastic adjacent to the wreck site where it will be sampled and disposed of by CTEH, as outlined in the draft work plan or as directed by Illinois EPA. The soil is currently being held until further notice from NTSB. Burnt brush and limbs were chipped and spread out on site and spilled corn mash and sand was recovered and removed by contractors to the PRP.

U.S. EPA OSCs and START demobilized from the site on October 10, 2011. Illinois EPA and the Bureau County Health Department assumed oversight of the response to the incident on October 11, 2011. Track reconstruction was completed and train traffic resumed on October 12, 2011.

2.1.2 Response Actions to Date

U.S. EPA OSC Len Zintak and START contractors mobilized to begin emergency response activities on October 7, 2011. OSCs Zintak and Ruesch continued oversight activities on October 8, 2011. OSCs Ruesch and Atkociunas conducted oversight of response activities on October 9 - 10, 2011.

U.S. EPA's operational objectives for the incident included:

- 1) Participate in the Unified Command,
- 2) Conduct air monitoring in the surrounding community,
- 3) Conduct surface water monitoring in the vicinity of the wreck to monitor for releases to navigable waterways,
- 4) Assist in the development of a draft continuing sampling work plan for residential wells, surface water, groundwater, surface/sub-surface soils, and contaminated wastes, and
- 5) Transition oversight responsibilities for the draft environmental sampling work plan to Illinois EPA and the Bureau County Health Department.

START contractors conducted 24 hour continuous air monitoring with AreaRAEs, MultiRAEs and personal particulate meters until the fire was extinguished, ethanol product was removed from tanker cars, and the wreckage was cleared from the tracks on October 10, 2011. VOC readings ranged from 0 parts per million (ppm) to 1 ppm and particulate readings ranged from 0.001 to 1.892 milligram per cubic meter during the incident (see sampling results summary in Documents Section). ATSDR has recommended an ambient air residential evacuation action level specific for ethanol at 500 ppm, which is the DOE Temporary

Emergency Exposure Limit (TEEL).

Surface water monitoring was conducted in Plow Hollow Creek and Big Bureau Creek (see map in Documents Section). START utilized an YSI water quality meter, which monitors for pH, conductivity, dissolved oxygen, temperature and oxidation-reduction potential. All readings were within acceptable limits and no significant changes were noted during the response activities. On October 8-9, 2011 START collected physical water samples for parameters including ethanol, VOCs and pH. All parameters sampled were non-detect (see sampling results in Documents Section) and pH levels were normal.

Local fire departments and hazmat contractors conducted fire fighting and wreckage cooling operations, which included the application of over 1.5 million gallons of fire suppression foam and water. Hulcher Services, Inc., a contractor to the railroad, constructed containment berms to contain any run-off. The run-off did not sheet flow off the wreck site, and appeared to absorb directly down into the soil in the immediate vicinity of the derailment. The potential migration of firefighting runoff into groundwater will be monitored pursuant to the work plan submitted on October 9, 2011, unless otherwise directed by Illinois EPA. START contractors conducted oversight of excavation and sampling of approximately 100 cubic yards of underlying soils within the incident footprint pursuant to the draft work plan submitted by CTEH on October 9, 2011. Air monitoring conducted during the excavation with both MultiRAE and UltraRAE field instruments ranged from 0 - 21 ppm total VOCs, with ambient levels during excavation averaging 1-2 ppm (see summary of sampling results in Documents Section). Total benzene was measured three times during excavation activities, with the highest UltraRAE for benzene at 0.2 ppm.

U.S. EPA demobilized from the site on October 10, 2011 and air and surface water monitoring continued by CTEH with oversight by Illinois EPA. Ongoing surface water monitoring in Big Bureau Creek and Plow Hollow Creek, as well as subsequent remediation activities which may be necessary, will be conducted in coordination with Illinois EPA. Residential well sampling will be conducted by CTEH in coordination with the Bureau County Health Department unless otherwise directed.

U.S. EPA OSCs Zintak, Ruesch and Atkociunas will continue to provide data, information and technical support regarding the incident to Illinois EPA and local agencies as needed.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

The Iowa Interstate Railroad, Ltd. (IAIS) is the PRP and assumed responsibility for the mitigation of the incident. The contact information for the railroad is as follows:

Jeff Johnson
Iowa IAIS Railroad Ltd.
5900 6th Street S.W.
Cedar Rapids, Iowa 52404
Phone: 319-298-5440
Cell: 319-350-0914
FAX: 319-298-5454
Email: jtjohnson@IAISRR.com

2.1.4 Progress Metrics

Waste Stream	Medium	Quantity	Manifest #	Treatment	Disposal
Oil/Water Mix	Liquid	115,748 gal	N/A	Recovery	SWS
Debris	Soil	100 yds	N/A	Landfill	Not available

R5 Priorities Summary		
This is an Integrated River Assessment. The numbers should overlap.	Miles of river systems cleaned and/or restored	0
	Cubic yards of contaminated sediments removed and/or capped	100
	Gallons of oil/water recovered	115,748
	Acres of soil/sediment cleaned up in floodplains and riverbanks	0.5
Stand Alone Assessment	Acres Protected	4
	Number of contaminated residential yards cleaned up	N/A
	Human Health Exposures Avoided	800
	Number of workers on site	140

2.2 Planning Section

2.2.1 Anticipated Activities

U.S. EPA will provide data, information and technical support regarding the incident to Illinois EPA and local

agencies as requested.

2.2.1.1 Planned Response Activities

See Section 2.2.1

2.2.1.2 Next Steps

See Section 2.2.1

2.2.2 Issues

None

2.3 Logistics Section

U.S. EPA and START contractors demobilized all sampling equipment and personnel on October 10, 2011.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

All work was conducted under an emergency response Health and Safety Plan (see Documents Section).

2.6 Public Information Officer

NTSB contact Tim DePaepe 312-343-7795 is addressing all media inquiries.

3. Participating Entities

3.1 Unified Command

A Unified Command was established for the incident consisting of the following local, state and federal agencies:

Local

Fire Departments
Police Departments
Bureau County Health Department
County EMAs

State

Illinois EPA
Illinois EMA
Illinois DOT
Illinois DNR
Illinois DPH
Illinois Commerce Commission
Illinois State Police

Federal

U.S. DOT
U.S. EPA
OSHA
NTSB
FRA
TSA
PHMSA
FBI

3.2 Cooperating Agencies

See Section 3.1

4. Personnel On Site

None

5. Definition of Terms

N/A

6. Additional sources of information

N/A

7. Situational Reference Materials

Site maps, photos and data sets can be found on the website.

