**ecology and environment, inc.**
CLOVERLEAF BUILDING 3, 6405 METCALF, OVERLAND PARK, KANSAS 66202, TEL. 913/432-9961
International Specialists in the Environment

MEMORANDUM

Site: K.C. Southern R.
ID#: MOD000803689
Break: 1.5
Other:
8-21-92

TO: Paul Doherty, EPA/DPO

FROM: Dave Tyson, E & E/TATM Dave Tyson

THRU: Joe Chandler, E & E/TATL JCC

DATE: August 21, 1992

SUBJECT: Site Assessment; KC Southern & Santa Fe Railway Train Collision, Armco Railyard, Kansas City, Missouri
TDD#: T07-9203-006
PAN#: EM01031BAA
EPA Spill#: 03072-D-1700
EPA OSC: Don Sandifer

40090689
SUPERFUND RECORDS

**INCIDENT**

The Ecology and Environment, Inc. (E & E) Technical Assistance Team (TAT) received a call from On-Scene Coordinator (OSC) Paul Doherty of the U.S. Environmental Protection Agency Emergency Planning and Response (EPA/EP&R) Branch at 1600 hours on March 7, 1992. The call was initiated in reference to a report of diesel fuel spillage at the Armco Railyard, near Roberts and Manchester, Kansas City, Missouri. The report was made by Phillip Wall, of Armco Steel, to the National Response Center (NRC). NRC in turn notified the EPA Region VII spill line which was being manned by OSC Doherty. NRC reported that 2 trains collided at a crossing at approximately 1500 hours, resulting in the release of diesel fuel, reported to be greater than 4,000 gallons. While the release of diesel fuel from the train tanks reached the ground, no waterways were reportedly affected. Concern existed, however, with the Blue River being approximately 1/4 mile from the spill and the Blue River feeding into the Missouri River less than 1 mile away (see Site Location Map).

EPA tasked the TAT to respond to the incident and perform a site assessment to include site documentation, any necessary spill containment, environmental sampling, if necessary, and contractor oversight of the cleanup.

E & E/TAT assigned team members Dave Tyson and Hieu Vu to respond to the incident.



recycled paper

**RESPONSE**

March 7, 1992: TAT mobilized and responded to the incident, arriving on-site at 1705 hours. TAT coordinated with the Kansas City Fire Department (KCFD) Incident Commander Wall upon arrival. Other parties present at the incident were the Kansas City Police Department, Kansas City Hazardous Materials (HazMat) unit, Kansas City Southern Railway Company (KCS), Santa Fe Railway (SFR), Armco Steel, Environmental Specialists, Inc. (ESI), and Hulcher Resources, Inc. (HRI).

TAT met with Wall and was provided with an update on the incident. Wall described the incident as occurring when a southbound KCS train and an eastbound SFR train collided at the Big Blue Junction. Wall estimated that approximately 4,000 gallons of diesel fuel was released in the incident. Oil from the train engines was also released, but to a much smaller extent. Diesel fuel and oil was released from the train engines from a combination of the following: the engine turning over, fuel tanks rupturing, or fuel sloshing out during the collision. The more significant spill locations requiring cleanup are outlined in the Site Sketch Map (see attachment). As noted in the Site Sketch Map, all spilled petroleum products occurred to the east of the tracks in which the KCS train was on. No other hazardous materials were involved in the incident. Minor injuries occurred as the train conductors jumped from their respective trains as they determined the collision of the trains to be inevitable. Wall stated that the conductors were taken to a local hospital for treatment. Conductors from both trains stated that they had the right-of-way (green light) at the time the incident occurred. Wall requested the presence of the TAT on-site during the cleanup work. TAT stated that EPA would likely approve such presence to insure that an adequate and proper cleanup be performed.

The KCFD provided containment of the spilled petroleum upon their arrival to the incident. Foam was used to a large extent in the containment process. Additionally, a flash fire which occurred during the incident was put out by the KCFD with the use of foam. No power lines were downed during the incident.

No waterways were affected from the spill. The Blue River is located approximately 1/4 mile west of the incident and feeds into the Missouri River less than 1 mile away. A threat still remained to both waterways prior to the cleanup due to the excessive quantity of diesel fuel released.

The cleanup was initiated at approximately 1730 hours. ESI, a local cleanup services contractor was obtained by KCS for the emergency response cleanup. Senior Project Manager Alan Wolfe was on-site as Response Manager and directing ESI personnel with the cleanup. ESI personnel began by laying down absorbent material onto the roadway area to soak up spilled fuel. Vacuum trucks were on-site and began offloading diesel fuel from the diesel tanks which ruptured and vacuuming up the pools of diesel fuel which were on the ground. Other equipment

ESI responded to the incident with included an emergency response van, vacuum trucks, roll-off containers, a rubber tire loader, backhoes, loaders, dozers, and emergency lighting (light plants).

TAT began performing photo documentation of cleanup activities, as requested by the OSC. The photo documentation log is attached with this report.

HRI was contracted to upright the fallen train engines which were either on their sides or off of their tracks. HRI began this operation at 1740 hours.

TAT contacted the OSC at 1745 hours and provided an update as to the incident and on-going activities. TAT recommended notifying the Missouri Department of Natural Resources (MDNR) of the incident, as no parties on site had stated as doing so. The OSC said that he would notify EPA Public Affairs and MDNR of the incident.

At 1815 hours TAT spoke with Wall and determined that no further assistance was required at the time. HRI was uprighting the trains back onto the tracks and ESI was removing contaminated soil and gravel. ESI planned to work throughout the night. Contaminated soils and gravel was to be placed in roll-off containers or stockpiled near the site.

TAT contacted the OSC and provided an update on the status of the cleanup. The OSC stated that no further TAT assistance was necessary for the evening. TAT was requested to return to the site on March 8 to monitor cleanup activities. TAT departed at 1835 hours.

March 8, 1992: TAT arrived on-site at 1150 hours and coordinated with OSC Doherty. Doherty was provided with an update of the incident and the ensuing efforts of the cleanup. ESI crews had worked throughout the night on the cleanup. Work performed included the continued recovery of diesel fuel and rain-water which had pooled in the ditches and areas undergoing excavation, as well as the excavation of contaminated soils.

When the roll-off boxes were filled with contaminated soil and sorbant materials, a stockpile was created for the on-site storage of contaminated soils being excavated from spill areas. The stockpile was established in a contamination reduction zone to the southeast of the collision point at the Big Blue Junction. Visqueen plastic sheeting was applied to the ground prior to the stockpiling of contaminated soils. After excavating the contaminated soil, front end loaders were utilized in hauling the soil to the stockpile. The primary location where soil removal was being performed was in the area to the southeast of where the collision occurred.

Doherty coordinated with MDNR on the cleanup activity. MDNR indicated that adequate monitoring was being performed by the EPA and TAT and that their personnel would not be responding. With the incident occurring in an industrialized area and in a railyard, MDNR indicated that

cleanup criteria weren't established for such an incident and that the cleanup criteria should be set in accordance with the MDNR underground storage tank regulations. The following criteria was established for cleanup levels for soil sample analysis results:

Total Petroleum Hydrocarbon (TPH): 25 ppm
Benzene, Toluene, Ethylbenzene, Xylene (BTEX): 2 ppm
Benzene: .5 ppm

Doherty informed ESI Response Manager Wolfe of the criteria and requested that sampling and soil analysis be performed prior to replacement of contaminated soil with clean soil in excavated areas. Prior to departure from the site for the day, ESI arranged for a local laboratory to perform the analytical work. Quality Analytical Services was contracted for the analysis of seven soil samples which ESI collected, including one background sample. Samples were collected by ESI personnel from six spill areas where cleanup was being conducted. ESI delivered the samples to the lab which was located less than 5 minutes from the site.

Prior to departure from the site for the day, Doherty suggested that ESI secure the stockpile with visqueen as the weather forecast was for rain during the night. In addition, the recommendation was made for ESI to maintain a vacuum truck and a recovery technician on-site during the night to maintain recovery procedures.

ESI ceased work at approximately 1900 hours. EPA and TAT departed at 1930 hours. Prior to departure, Doherty stated that another OSC would be assigned to the project as he was leaving town the next day.

March 9, 1992: TAT arrived on-site at 0710 hours. ESI began work at approximately 0730 hours on the continuing cleanup.

TAT coordinated with Wolfe on the sample results. Sample results are attached with this report. The background sample detected TPH at 69.8 ppm, which might be expected for a railyard. An area directly southeast of the collision point detected TPH at 28 ppm. The only other sample, in which TPH was detected above cleanup criteria was located northeast of the road crossing. This location was the only sample which detected BTEX above cleanup criteria, although no benzene was detected. Flashpoint tests were all greater than 210 degrees Fahrenheit.

Sampling methods were questionable as EPA and the TAT did not observe sampling when it was performed by ESI. This conclusion was based on the fact that visible contamination still existed in locations sample results indicated were clean. This was brought to the attention of Wolfe who indicated that "hot spots" probably remained and would be removed.

OSC Don Sandifer arrived on-site at 0830 hours. Sandifer replaced Doherty as OSC on the project. TAT provided Sandifer with a status update on the site.

A majority of the work being performed was in the area directly to the southeast and northeast of the collision point, up to the road crossing. The railroad and railway bed had to be removed from the collision point up to the road crossing.

At 0940 hours sorbant pads were placed around the signal box as the TAT observed standing diesel fuel and oil in this area. A backhoe was used to excavate around this area as diesel and oil was observed to the south, southeast, and east of the signal box. A signal communications line was cut to allow the backhoe operator to excavate contaminated soil. EPA, TAT, and ESI coordinated with Kansas City Terminal Railway Company (KCTR) personnel on the location to cut the line. KCTR provides maintenance, control services, and freight movement for railway companies which contract for their services in the Kansas City area. KCTR was handling the re-establishment of the railway line and communications systems.

What appeared to have happened when the spill occurred was that the fuel saturated and migrated laterally through the railway bed and surrounding soil which consisted of unconsolidated fill and shale. A clay layer located approximately 5 feet below the surface prevented migration to lower depths.

ESI made the request to the Kansas Department of Health and Environment (KDHE) for a special waste authorization for the contaminated soil. The request was made to Charles Linn, KDHE Solid Waste Section. Included with the request was application to the Forest View Landfill, Kansas City, Kansas, a special waste state permitted landfill. Analytical results from the 3/8/92 ESI sampling were completed and submitted to KDHE and Forest View Landfill for disposal approval.

Prior to clearing areas as clean and ready for fill, EPA and TAT inspected the areas for any observable contamination and checked the soil for odors. Diesel fuel has an odor threshold of 0.7 ppm, according to the U.S. Department of Transportation and U.S. Coast Guard Chemical Hazard Response Information System (CHRIS). EPA and TAT then observed ESI personnel sample, collecting multiple aliquots of soil in an 8 ounce jar. ESI then heated the sample jar and performed a headspace test of the sample using an HNu photoionization detector (PID).

ESI transported 900 cubic yards of clean soil on-site for replacement of contaminated soil which was removed. Completion of the cleanup in the area from the collision point up to the roadway was finished in the afternoon. Clean soil was then put into the excavated area and compacted with a sheepfoot vibratory roller/compactor. KCTR then established a gravel bed on top of the clay for the re-establishment of the railway.

ESI began further soil removal on the area to the southeast of the road crossing at 1400 hours. This consisted primarily of excavating "hot spots". Another stockpile was created approximately 100 yards

northeast of the road crossing as the stockpile to the west of the roadway was full and a stockpile to the east of the road would reduce the time spent on transporting contaminated soil.

Soil removal continued at 1640 hours in areas along the railway to the northeast of the road crossing. This area was where the SFR train lost diesel fuel as the result of a ruptured fuel tank. Photograph number 1/9 depicts diesel fuel which was released into this area. As ESI backhoes dug soil from this area large pockets of diesel fuel were encountered which had migrated through the unconsolidated soil.

While the initial report was made that approximately 4,000 gallons of diesel fuel were released in the incident, the news media were now reporting the figure to be approximately 15,000 gallons. It was unknown how this figure was reached, but reports on television and in newsprint consistently used 15,000 gallons. This figure was considered more accurate. This is particularly true after learning that the diesel tanks on the trains were all 20,000 gallon tanks.

TAT departed for the day at 1735 hours as ESI crews began to break for the day.

March 10, 1992: TAT arrived on-site at 0740 hours. KDHE gave approval to dispose 3,000 cubic yards of contaminated soil and sorbant materials from the train derailment under the State of Kansas authorization number 8147. This disposal approval was submitted to the Forest View Landfill so that transportation and disposal of the contaminated materials could begin.

Removal activity continued in the area to the northeast of the road crossing. At 0840 hours the signal communications line was forced to be cut due to diesel fuel flow from the line and contamination around the line. What evidently occurred was that when the diesel fuel from the derailment reached the communications line the line acted as a conduit for the diesel fuel migration. Contamination was encountered approximately 25 feet to the northeast of the road crossing and approximately 15 feet from the railway where pockets of diesel fuel were encountered.

The migration of the diesel fuel and several of the pockets of fuel were pointed out to representatives of the railway companies and Armco officials. All were agreeable with the removal activities taking place and emphasized that they wanted the contaminated soil removed.

Soil removal was completed at 1350 hours on all areas to the northeast of the road crossing. ESI began filling in the excavated areas with clean soil after EPA and TAT inspected the removal areas and ESI samples were negative for volatiles. All soil removal activities were completed at this point.

The removal of the west stockpile was completed at 1630 hours and no further soil transportation off-site was performed on this date. A total of 1,157 cubic yards of contaminated soil and materials was

loaded, transported, and disposed at the Forest View Landfill in Kansas City, Kansas. The excavation of contaminated soil was performed simultaneously on this date as transportation and disposal activities were conducted.

TAT departed at approximately 1745 hours.

**FOLLOWUP**

TAT visited the site at approximately 0800 hours on March 11. Contaminated soil from the east stockpile was being loaded and transported to the Forest View Landfill. The only other activity being performed on-site was the compaction of clean soil and slag on areas northeast of the roadway with the vibratory sheepfoot roller/compactor and a dozer. TAT departed as no contractor monitoring was deemed necessary.

TAT returned to the site at 1715 hours on March 11. The removal of the east stockpile was completed and compaction of clean soil was near completion as the signal communications line was re-established along the railway northeast of the road crossing. Re-establishment of the railway and signal crossing light was complete. TAT inspected the two locations where the stockpiles had been established. No residual contamination was evident. A total of 1,104 cubic yards of contaminated soil and materials were loaded, transported, and disposed at the Forest View Landfill on this date. TAT notified ESI that a bag of contaminated sorbant materials remained on-site and needed to be included with the soil and materials in the roll-off containers which awaited disposal.

TAT performed followup with ESI on further disposal activity. On March 12, 89 cubic yards of contaminated soil in the roll-off containers was transported and disposed at the Forest View Landfill. All ESI heavy earthmoving equipment was demobilized from the spill site on this date.

On March 13, 58 cubic yards of contaminated soil in roll-off containers was transported and disposed at the Forest View Landfill. Disposal of all contaminated soil was completed.

On March 18, a total of 3,057.60 gallons of contaminated diesel fuel recovered from the incident was transported to CMT, Inc., in Talala, Oklahoma. The contaminated diesel fuel was to be filtered, cleaned, and recycled for reuse as fuel.

Approximately 4,000 gallons of contaminated water and fuel was transported on April 1 to the SFR wastewater treatment plant for disposal. The SFR wastewater treatment plant is located at 2200 Argentine Blvd., Kansas City, Kansas. All removal and disposal activities were completed on this date.

**SUMMARY**

TAT was tasked to respond to the report received on the EPA spill line from the NRC of a train collision and subsequent release of diesel fuel. The incident involved a Kansas City Southern train and a Santa Fe

Railway train. TAT determined that no hazardous substances were involved in the incident but a release of approximately 15,000 gallons of diesel fuel from the fuel tanks occurred. A PRP cleanup ensued, and TAT assisted EPA with monitoring and documentation of the cleanup. Contaminated soil was transported to a Kansas State permitted landfill for disposal. Contaminated diesel fuel was transported to a recycling facility in Oklahoma for cleaning and recycling of the fuel for reuse. Contaminated water and fuel was transported for disposal to the Santa Fe Railway wastewater treatment plant in Kansas City, Kansas.

TAT has completed its investigation at this time.

**ATTACHMENTS**

EPA Notification
Site Location Map
Site Sketch Map
Site Contacts
Analytical Results
Photo Documentation

# ERNS INCIDENT NOTIFICATION REPORT

Regional Case Number: U3072-D-1700

| | | | |
|---|---|---|---|
| Reported (mm/dd/yy): 05/07/92 | Time (HH/MM): 1700 | Multiple Report: ☐ | Regional Time (HH/MM): |
| Recorded By: | | Multiple Regional Case Number: | |
| Through NRC: ☑ | NRC Case Number: 109621 | SSI Report: ☐ | CR Number: |

**A. REPORTER** (*Privacy Act)

Confidentiality Requested: ☐ *Reported By: PHILLIP WALL

Organization Name: ARMCO STEEL

Organization: (Check One) ☐ Discharger ☐ Public ☐ State ☐ Local ☐ Federal ☐ Unknown

*Address: FRANKLIN & — *Phone: ( ) 471-1822 ext.:

City: KC County: JACKSON State: MO Zip:

**B. DISCHARGER**

Same As A: ☐ Organization: (Check One) ☐ Private Co. ☐ Public ☐ State ☐ Local ☐ Federal ☐ Unknown

Discharger Name: KANSAS CITY SOUTHERN & SANTA FE RR — Phone: ( ) ext.:

Contact Name: — 2nd Phone: ( ) ext.:

Address: — Facility ID Number:

City: County: State: Zip:

**C. INCIDENT LOCATION**

Same As A: ☒ Same As B: ☐ Street or Approx. Location: ARMCO STEEL FACILITY YARD

M.P. 6.1 KANSAS CITY SOUTHERN LINE

City: KC County: State: MO Zip: Milepost:

**D. DATE**

Discovery Date (mm/dd/yy): 5/7/92 Spill Date (mm/dd/yy): Spill Time (HH/MM): 1500

**E. MATERIAL**

Material Type: (Check One) ☐ Unknown ☐ Oil ☐ Haz Sub ☐ Other

| | Material Name | CHRIS | CAS No. | UN DOT No. | Quantity | Units (Circle One) | Quantity In Water |
|---|---|---|---|---|---|---|---|
| 1. | DIESEL FUEL | | | | >8,000 | lb bbl drm unk (gal) ton oth | |
| 2. | | | | | | lb bbl drm unk gal ton oth | |
| 3. | | | | | | lb bbl drm unk gal ton oth | |

**F. SOURCE**

Source of Spill: (Check Any) ☐ Highway ☐ Air Transport ☒ Railway ☐ Vessel ☐ Pipeline ☐ Offshore ☐ UST ☐ AST ☐ Fixed Facility ☐ Unknown ☐ Other

Vehicle ID or Carrier No: Number of Tanks: Tank Capacity: Tank Units: (Circle One) lb bbl drm unk gal ton oth

Source Description: 2 TRAINS COLLIDED AT CROSSING, FUEL TANKS SPILLED

**G. MEDIUM**

Medium Affected: (Check Any) ☐ None ☐ Air ☒ Land ☐ Water ☐ Groundwater ☐ Within Facility ☐ Other ☐ Unknown

Waterway Affected: FUEL SPILLED TO GROUND - NONE REACHED WATERWAY

**H. CAUSE**

Reported Cause: (Check Any) ☐ Transportation Accident ☒ Equipment Failure ☐ Operational Error ☐ Natural Phenomenon ☐ Dumping ☐ Unknown ☐ Other

Cause Description: SWITCH SIGNAL FAILURE (STILL UNDER INVESTIGATION)

**I. DAMAGE**

No. of Injuries: 2 (MINOR) ☐ None No. of Deaths: ☐ None Property Damage>$50,000: ☐

**J. ACTIONS**

Evacuation: ☐ Response Actions Taken: SPILLED FUEL WAS CONTAINED & POOLED UPWIND RECOVERED; CONTAMINATED SOIL EXCAVATION; DERAILED TRAINS PUNTED & REMOVED CLEANUP UNDERWAY

**K. NOTIFIED**

Caller Has Notified: (Check Any) ☐ State/Local ☑ Discharger ☐ USCG ☐ Other ☐ Unknown

Agency Name:

**L. COMMENTS**

Comments: SEE ATTACHED FOR RR CONTACTS

OTHER NRC REPORT # 109620 SANTA FE 708 795-6309

#109623 GATEWAY WESTERN RAILWAY

Additional Information (See Reverse Side) ☐

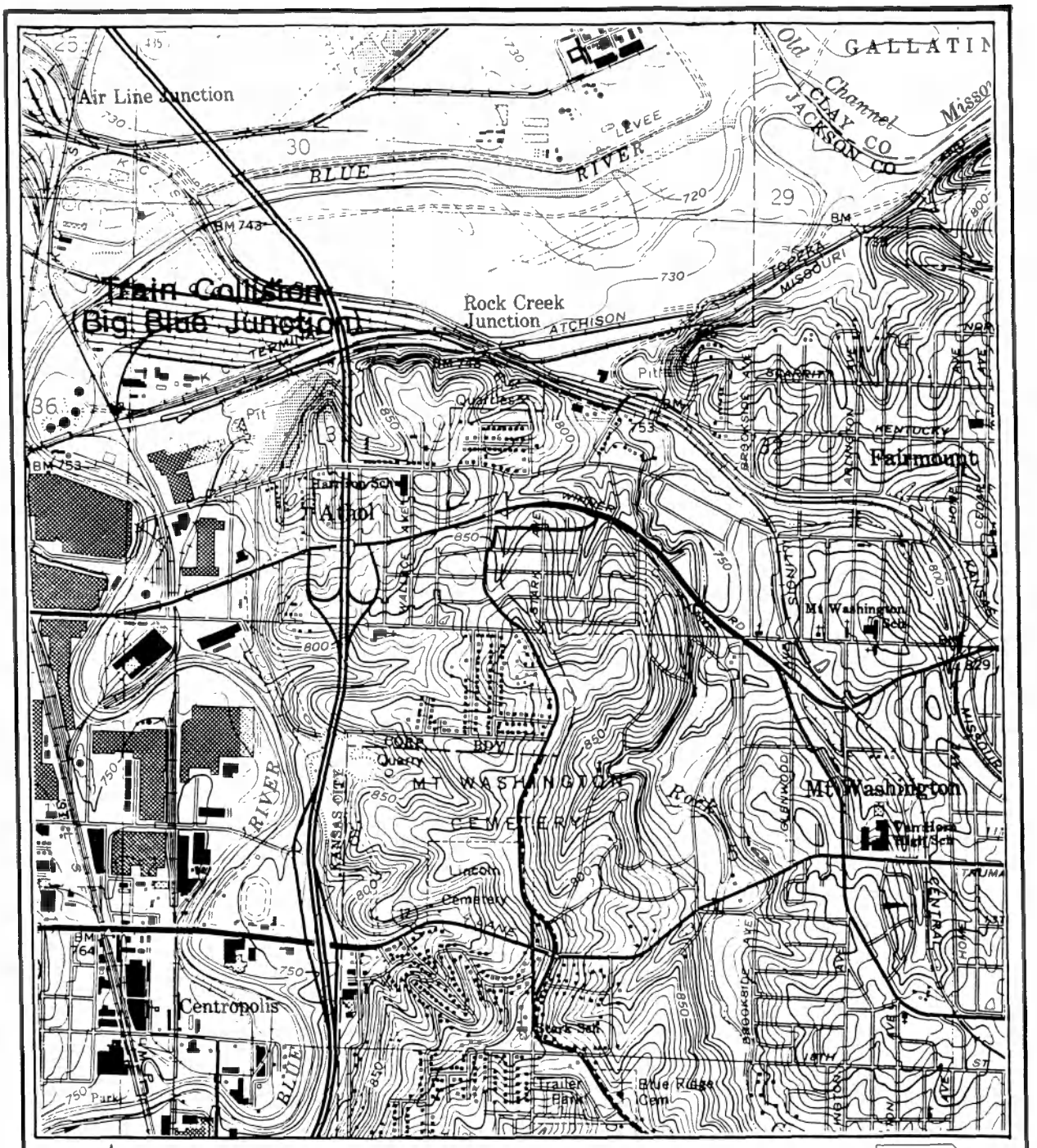
**M. RESPONSE AND EVALUATION**

Response Comments: TRI DISPATCHED 5/7/92 ON SCENE 0600-0900 (APPROX) 98 2M-7288

EPA (VOLKERT) ON SCENE 5/8/92 0900-1500 & 1800-1900

CPAR WILL MONITOR CLEANUP

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Agency Name: MDNR | (Check One) | ☐ Local | ☑ State | ☐ Discharger | ☐ Federal | ☐ EPA | ☐ Other | ☐ Unknown |
| Agency Name: KCMO FIRE | (Check One) | ☑ Local | ☐ State | ☐ Discharger | ☐ Federal | ☐ EPA | ☐ Other | ☐ Unknown |
| Agency Name: | (Check One) | ☐ Local | ☐ State | ☐ Discharger | ☐ Federal | ☐ EPA | ☐ Other | ☐ Unknown |




N

KC Southern & Santa Fe Railway

Train Collision

Big Blue Junction

Kansas City, Missouri

MISSOURI

QUADRANGLE LOCATION

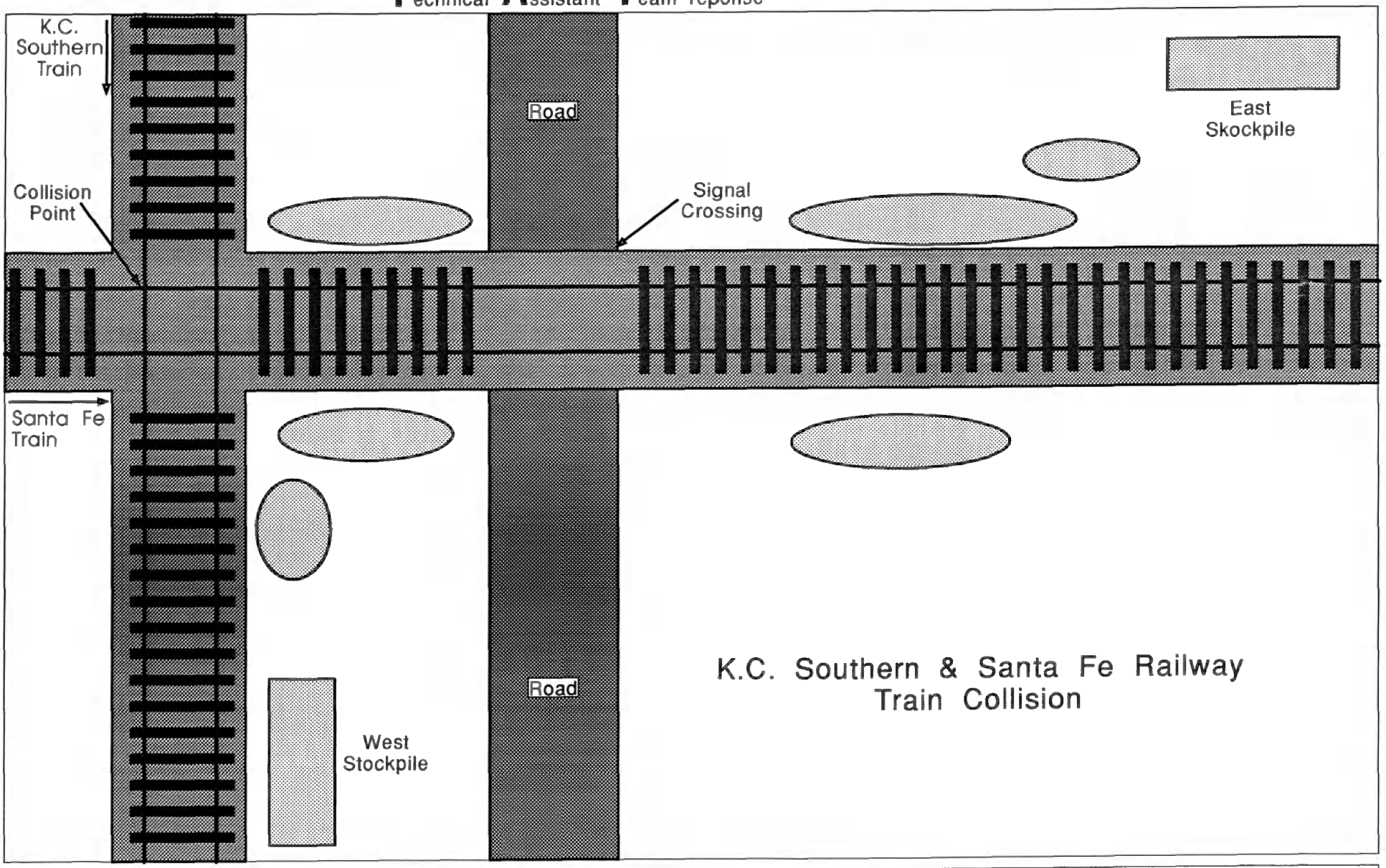
T07-9203-006

EMO1031BAA

Independence Quadrangle

Site Location Map

# Technical Assistant Team reponse




Explanation

- Spillage

N

Big Blue Junction
Kansas City, Missouri
TDD# T07- 9203-006
PAN# EMO1031BAA

PREPARED BY: MARK MAYO

Site Sketch Map

# Quality Analytical Services

1633 S. Marsh • Box 268426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
3001 East 83rd Street
Kansas City, MO 64132

REPORT #: 20308001-1

DATE: 3-6-92

ATTN: Mr. Ed Wolfe

QAS #: 20308001
DATE SAMPLED: 3-6-92
SAMPLE IDENTIFICATION: #1 Southeast Composite

DATE RECEIVED: 3-6-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT | CONC. |
|---|---|---|---|
| Flashpoint (PMCC) | SW-846-1010 | N/A | > 210 F |
| Total Petroleum Hydrocarbons | SW-846-8071/ EPA-418.1 | 10 mg/Kg | 14.8 mg/Kg |

ND = NOT DETECTED
NA = NOT APPLICABLE

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 286428 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
3001 East 83rd Street
Kansas City, MO 64132

REPORT #: 20308005-1

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308005
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #2 N. E. Crossing Composite

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT | CONC. |
|---|---|---|---|
| Flashpoint (PMCC) | SW-846-1010 | N/A | > 210 F |
| Total Petroleum Hydrocarbons | SW-846-9071/ EPA-418.1 | 10 mg/Kg | ND |

ND = NOT DETECTED
NA = NOT APPLICABLE

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 368426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
3001 East 63rd Street
Kansas City, MO 64132

REPORT #: 20308002-1

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308002
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #3 Black Soil, Near Box 22E; N. E. of Crossing

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT | CONC. |
|---|---|---|---|
| Flashpoint (PMCC) | SW-846-1010 | N/A | > 210 F |
| Total Petroleum Hydrocarbons | SW-846-9071/ EPA-418.1 | 100 mg/Kg | 13,900 mg/Kg |

ND = NOT DETECTED
NA = NOT APPLICABLE

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 268426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
3001 East 83rd Street
Kansas City, MO 64132

REPORT #: 20308006-1

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308006
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #4 Brown Soil N. E. of Crossing. Near Box 22E

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT | CONC. |
|---|---|---|---|
| Flashpoint (PMCC) | SW-846-1010 | N/A | > 210 F |
| Total Petroleum Hydrocarbons | SW-846-9071/ EPA-418.1 | 10 mg/Kg | 14.8 mg/Kg |

ND = NOT DETECTED
NA = NOT APPLICABLE

Kevin L. Fillmore

# Quality Analytical Services

1833 S. March • Box 266429 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
3001 East 83rd Street
Kansas City, MO 64132

REPORT #: 20308003-1

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308003
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #5 East of West, South of Main Track

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT | CONC. |
|---|---|---|---|
| Flashpoint (PMCC) | SW-846-1010 | N/A | > 210 F |
| Total Petroleum Hydrocarbons | SW-846-9071/ EPA-418.1 | 10 mg/Kg | ND |

ND = NOT DETECTED
NA = NOT APPLICABLE

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 268426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
3001 East 83rd Street
Kansas City, MO 64132

REPORT #: 20308007-1

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308007
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #5 Clay S. W. of Crossing

Armco Site - Diesel Spill

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

| PARAMETER | METHOD | DET. LIMIT | CONC. |
|---|---|---|---|
| Flashpoint (PMCC) | SW-846-1010 | N/A | > 210 F |
| Total Petroleum Hydrocarbons | SW-846-9071/ EPA-418.1 | 10 mg/Kg | 28 mg/Kg |

ND = NOT DETECTED
NA = NOT APPLICABLE

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 266428 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
3001 East 83rd Street
Kansas City, MO 64132

REPORT #: 20308004-1

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308004
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #7 Background Soil Sample

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT | CONC. |
|---|---|---|---|
| Flashpoint (PMCC) | SW-846-1010 | N/A | > 210 F |
| Total Petroleum Hydrocarbons | SW-846-9071/ EPA-418.1 | 10 mg/Kg | 69.8 mg/Kg |

ND = NOT DETECTED
NA = NOT APPLICABLE

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 255426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
: 3001 East 83rd Street
: Kansas City, MO 64132
:

REPORT #: 20308001-2

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308001
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #1 Southeast Composite

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT (ug/Kg) | CONC. (ug/Kg) |
|---|---|---|---|
| Benzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Toluene | SW-846-8240 | : 250 ug/Kg | : ND |
| Ethylbenzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Xylenes (Total) | SW-846-8240 | : 250 ug/Kg | : ND |

ND = NOT DETECTED

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
: 3001 East 83rd Street
: Kansas City, MO 64132
:

REPORT #: 20308005-2

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308005
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #2 N. E. Crossing Composite

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT (ug/Kg) | CONC. (ug/Kg) |
|---|---|---|---|
| Benzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Toluene | SW-846-8240 | : 250 ug/Kg | : ND |
| Ethylbenzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Xylenes (Total) | SW-846-8240 | : 250 ug/Kg | : ND |

ND = NOT DETECTED

Valerie D. Thompson for
Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
: 3001 East 83rd Street
: Kansas City, MO 64132
:

REPORT #: 20308002-2

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308002
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #3 Black Soil, Near Box 22E; N. E. of Crossing

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT (ug/Kg) | CONC. (ug/Kg) |
|---|---|---|---|
| Benzene | SW-846-8240 | : 500 ug/Kg | : ND |
| Toluene | SW-846-8240 | : 500 ug/Kg | : 3410 ug/Kg |
| Ethylbenzene | SW-846-8240 | : 500 ug/Kg | : 6450 ug/Kg |
| Xylenes (Total) | SW-846-8240 | : 500 ug/Kg | : 26170 ug/Kg |

** DETECTED BUT BELOW DETECTION LIMIT
ND = NOT DETECTED

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 966426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
: 3001 East 83rd Street
: Kansas City, MO 64132
:

REPORT #: 20308008-2

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308006
DATE SAMPLED: 3-3-92
SAMPLE IDENTIFICATION: #4 Brown Soil N. E. of Crossing, Near Box 22E

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT (ug/Kg) | CONC. (ug/Kg) |
|---|---|---|---|
| Benzene | SW-846-8240 | 250 ug/Kg | ND |
| Toluene | SW-846-8240 | 250 ug/Kg | ND |
| Ethylbenzene | SW-846-8240 | 250 ug/Kg | ND |
| Xylenes (Total) | SW-846-8240 | 250 ug/Kg | ND |

ND = NOT DETECTED

Valerie D. Thompson for
Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 286426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
: 3001 East 83rd Street
: Kansas City, MO 64132
:

REPORT #: 20308003-2

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308003
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #5 East of West, South of Main Track

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT (ug/Kg) | CONC. (ug/Kg) |
|---|---|---|---|
| Benzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Toluene | SW-846-8240 | : 250 ug/Kg | : ND |
| Ethylbenzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Xylenes (Total) | SW-846-8240 | : 250 ug/Kg | : ND |

ND = NOT DETECTED

Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 268428 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
: 3001 East 83rd Street
: Kansas City, MO 64132
:

REPORT #: 20308007-2

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308007
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #6 Clay S. W. of Crossing

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT (ug/Kg) | CONC. (ug/Kg) |
|---|---|---|---|
| Benzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Toluene | SW-846-8240 | : 250 ug/Kg | : ND |
| Ethylbenzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Xylenes (Total) | SW-846-8240 | : 250 ug/Kg | : ND |

ND = NOT DETECTED

Valerie D. Thorpe for
Kevin L. Fillmore

# Quality Analytical Services

1633 S. Marsh • Box 268426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Environmental Specialists Inc.
: 3001 East 63rd Street
: Kansas City, MO 64132
:

REPORT #: 20308004-2

DATE: 3-8-92

ATTN: Mr. Ed Wolfe

QAS #: 20308004
DATE SAMPLED: 3-8-92
SAMPLE IDENTIFICATION: #7 Background Soil Sample

DATE RECEIVED: 3-8-92
SAMPLED BY: Tim Henderson

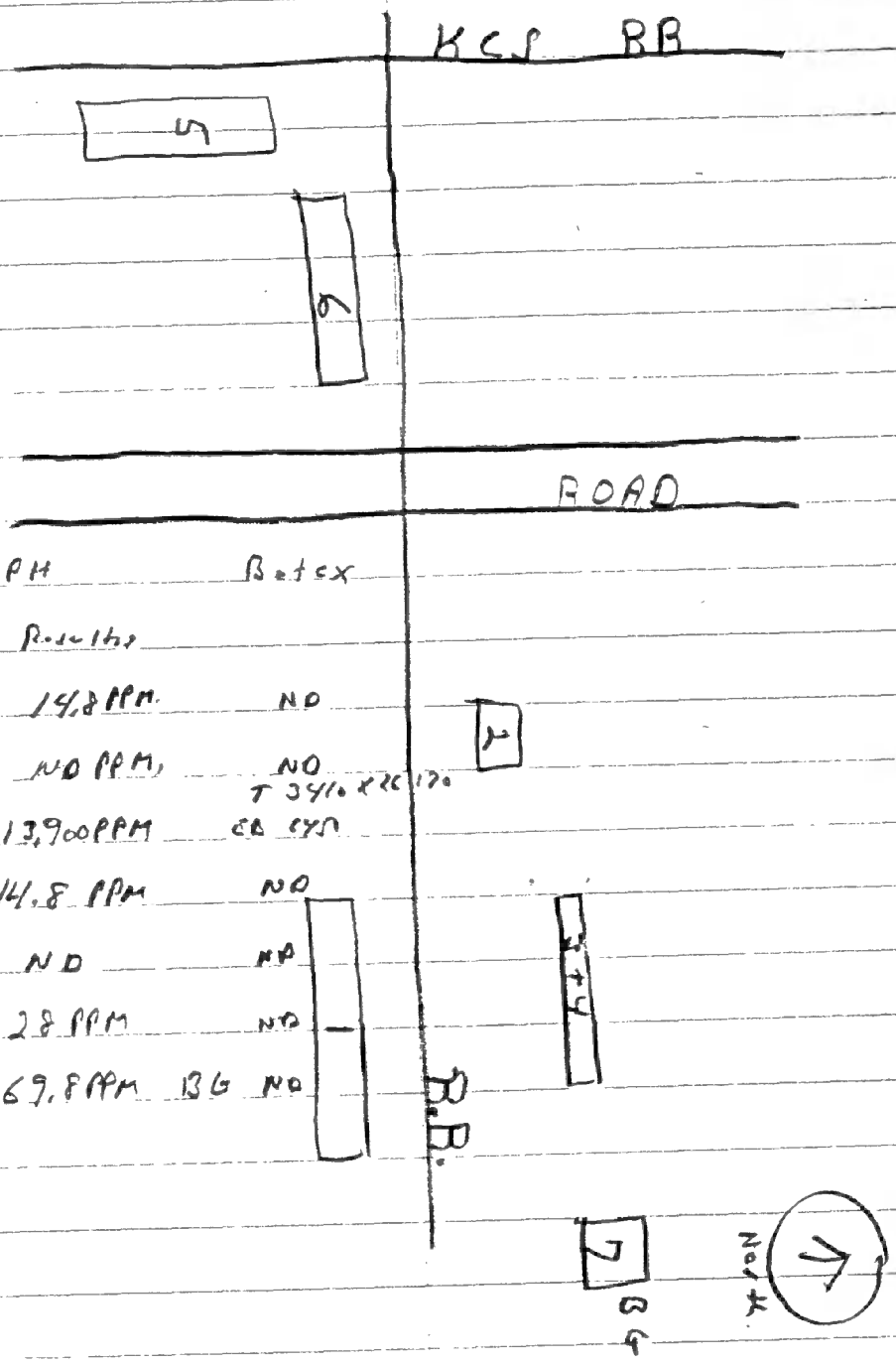
Armco Site - Diesel Spill

| PARAMETER | METHOD | DET. LIMIT (ug/Kg) | CONC. (ug/Kg) |
|---|---|---|---|
| Benzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Toluene | SW-846-8240 | : 250 ug/Kg | : ND |
| Ethylbenzene | SW-846-8240 | : 250 ug/Kg | : ND |
| Xylenes (Total) | SW-846-8240 | : 250 ug/Kg | : ND |

ND = NOT DETECTED

Kevin L. Fillmore for
Kevin L. Fillmore

Job 92461 3-9-92




| Sample | TPH Results | Betex |
|---|---|---|
| 1 | 14.8 PPM | ND |
| 2 | ND PPM, | ND T 3410 X 26 170 |
| 3 | 13,900 PPM | ED CYS |
| 4) | 14.8 PPM | ND |
| 5) | ND | ND |
| 6) | 28 PPM | ND |
| 7) | 69.8 PPM BG | ND |

# KC Southern & Santa Fe Railway Train Collision

## Big Blue Junction

## Kansas City, Missouri

## Photographic Log

## March 7–11, 1992

ecology and environment, inc.
CLOVERLEAF BUILDING 3, 6405 METCALF
OVERLAND PARK, KANSAS 66202

# Ecology and Environment, Inc.
## Photographic Log: KC Southern & Santa Fe Railway Train Collision, Kansas City, Missouri

TDD/PAN: T07-9203-006/EMO1031SAA Camera: Olympus 35mm OM77AF 724266 Lens: Olympus AF 50mm 1037681

| Roll #/Frame # | Date/Time | Photographer | Direction | Description |
|---|---|---|---|---|
| 1/1 | 03/07/92 1721 | Dave Tyson | South | Santa Fe train after collison. |
| 1/2 | 03/07/92 1725 | Dave Tyson | Southwest | Point of train collision |
| 1/3 | 03/07/92 1730 | Dave Tyson | Southeast | Collision point in center. |
| 1/4 | 03/07/92 1732 | Dave Tyson | East | Collision point; K.C. Southern train at left. |
| 1/6 | 03/07/92 1737 | Dave Tyson | North | ESI laying absorbent material on diesel fuel spill. |
| 1/7 | 03/07/92 1739 | Dave Tyson | Southeast | Hulcher crew assemblying for meeting. |
| 1/8 | 03/07/92 1741 | Dave Tyson | Southeast | ESI pumping diesel fuel out of broken Santa Fe train fuel tank. Note the soil to the left of the truck which is saturated with diesel fuel. |
| 1/9 | 03/07/92 1742 | Dave Tyson | East | Pool of diesel fuel on ground. |
| 1/10 | 03/07/92 1800 | Dave Tyson | North | Absorbent material placed on diesel fuel. |
| 1/11 | 03/07/92 1801 | Dave Tyson | Northeast | Hulcher crew preparing for the uprighting of a K.C. Southern engine. |
| 1/12 | 03/07/92 1805 | Dave Tyson | Southeast | K.C.MO fire department standing by during uprighting of train engines. |
| 1/13 | 03/07/92 1810 | Dave Tyson | Southeast | Hulcher lifting K.C. Southern engine back onto track. |
| 2/1 | 03/07/92 1815 | Dave Tyson | Southeast | K.C. Southern engine on its side in location where signal lights were located. |
| 2/2 | 03/07/92 1820 | Dave Tyson | North | Hulcher lifting K.C. Southern engine back onto track. |
| 2/3 | 03/07/92 1820 | Dave Tyson | North | Same as photo 2/2. |
| 2/4 | 03/08/92 1315 | Dave Tyson | Southwest | Initial stockpile of contaminated soil. |
| 2/5 | 03/08/92 1430 | Dave Tyson | Northwest | ESI off-loading contaminated soil onto stockpile. |
| 2/6 | 03/08/92 1505 | Dave Tyson | West | ESI loader removing contaminated soil. |
| 2/7 | 03/08/92 1505 | Dave Tyson | East | ESI loaders removing contaminated soil from spill areas #5 and #6. |
| 2/8 | 03/08/92 1745 | Dave Tyson | Northwest | ESI covering stockpile prior to departure from site for the day. |
| 2/9 | 03/08/92 1759 | Dave Tyson | Northeast | Crawler-mounted dozer removing contaminated dirt from spill area #1. |

**Ecology and Environment, Inc.**
**Photographic Log: KC Southern & Santa Fe Railway Train Collision, Kansas City, Missouri**

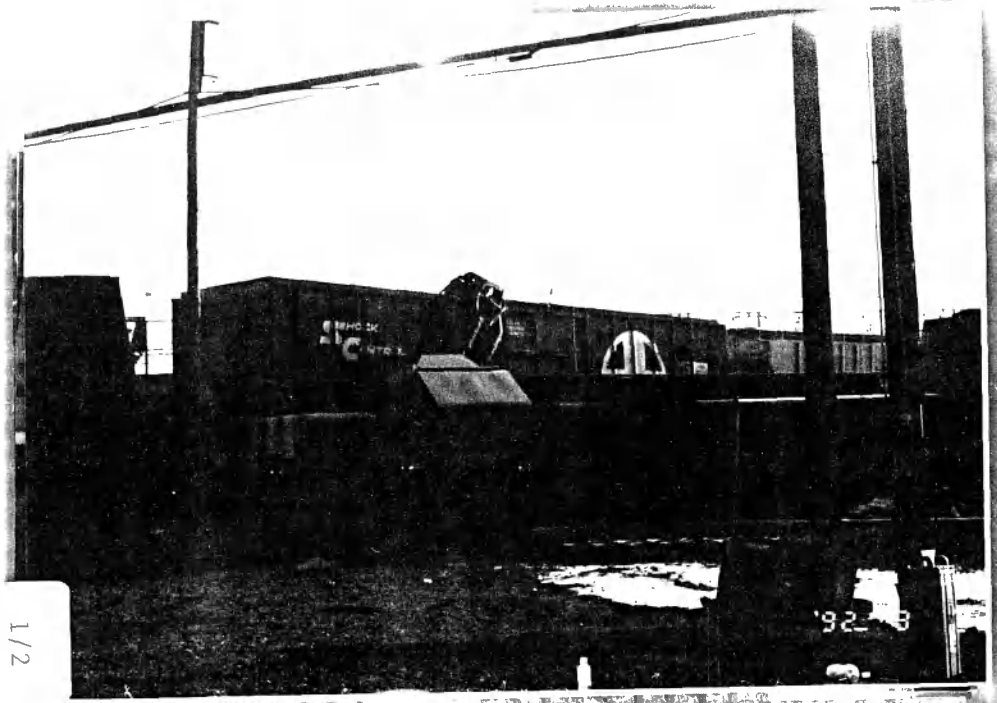
TDD/PAN: T07-9203-006/EMO1031SAA Camera: Olympus 35mm OM77AF 724266 Lens: Olympus AF 50mm 1037681

| Roll #/Frame # | Date/Time | Photographer | Direction | Description |
|---|---|---|---|---|
| 2/10 | 03/09/92 1021 | Dave Tyson | North | Digging out a "hot spot" near singal box by areas #5 and #6. |
| 2/11 | 03/09/92 1535 | Dave Tyson | Northwest | Pocket of diesel fuel in soil. Note saturation of surrounding soil. |
| 2/12 | 03/09/92 1602 | Dave Tyson | West | A clay and gravel bed being established in areas #5 and #6 after areas cleaned up. |
| 2/13 | 03/10/92 0820 | Dave Tyson | West | Diesel fuel migration. |
| 3/1 | 03/10/92 1015 | Dave Tyson | Northwest | Loading transport truck from west stockpile. |
| 3/2 | 03/10/92 1015 | Dave Tyson | Northwest | Same as photo 3/1. |
| 3/3 | 03/10/92 1022 | Dave Tyson | West | Backhoe being used to dig out contaminated soil in area #2. |
| 3/4 | 03/10/92 1025 | Dave Tyson | West | ESI preparing paperwork for transport of contaminated soil to state permitted landfill. |
| 3/5 | 03/10/92 1114 | Dave Tyson | West | Cutting track near roadway as part of re-establishment of railroad track. |
| 3/6 | 03/10/92 1116 | Dave Tyson | Northwest | Digging out contaminated soil in area #2. |
| 3/7 | 03/10/92 1119 | Dave Tyson | Southwest | Loading transport truck with contaminated soil from west stockpile. |
| 3/8 | 03/10/92 1129 | Dave Tyson | West | Wheel-mounted loader off-loading contaminated soil onto east stockpile. |
| 3/9 | 03/10/92 1129 | Dave Tyson | West | Same as photo 3/8. |
| 3/10 | 03/10/92 1132 | Dave Tyson | Northwest | Railcar loaded with Mercedes-Benz cars which was involved in train collision. |
| 3/11 | 03/10/92 1137 | Dave Tyson | East | Same as photo 3/10. |
| 3/12 | 03/10/92 1142 | Dave Tyson | Northeast | 20,000 gallon diesel tank; same style and capacity as those involved in collision. |
| 3/13 | 03/10/92 1147 | Dave Tyson | Southwest | Off-loading contaminated soil onto east stockpile. |
| 3/14 | 03/10/92 1340 | Dave Tyson | Southeast | Signal cable with perforated rubber tubing. |
| 3/15 | 03/10/92 1346 | Dave Tyson | West | Same as photo 3/14. Note saturated soil surrounding line. |
| 3/16 | 03/10/92 1419 | Dave Tyson | Southwest | Preparing to lay down new track. |
| 3/17 | 03/10/92 1554 | Dave Tyson | Northeast | Re-establishing signal crossing lights. |
| 3/18 | 03/10/92 1641 | Dave Tyson | Southwest | Smoothing out soil after removal of west stockpile of contaminated soil. |

**Ecology and Environment, Inc.**
**Photographic Log: KC Southern & Santa Fe Railway Train Collision, Kansas City, Missouri**

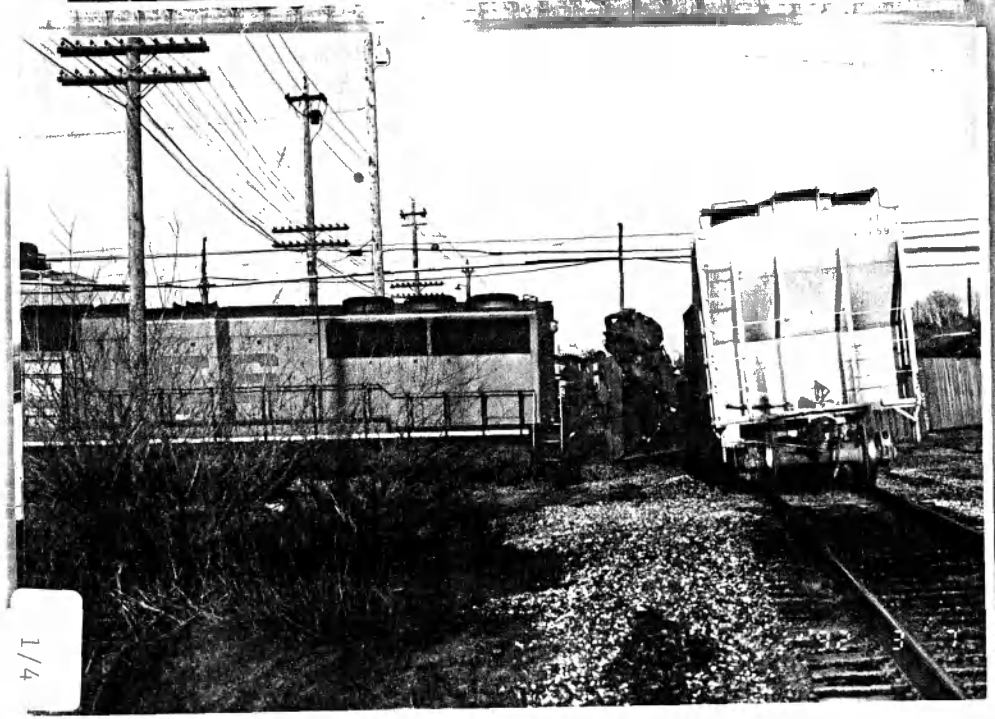
| TDD/PAN: T07-9203-006/EMO1031SAA | | Camera: Olympus 35mm OM77AF 724266 | | Lens: Olympus AF 50mm 1037681 |
|---|---|---|---|---|
| Roll #/Frame # | Date/Time | Photographer | Direction | Description |
| 3/19 | 03/11/92 1656 | Dave Tyson | West | Smoothed out area upon completion of removal of east stockpile. |
| 3/20 | 03/11/92 1659 | Dave Tyson | Southwest | Rolloff boxes of contaminated soil and debris awaiting removal from site. |
| 3/21 | 03/11/92 1705 | Dave Tyson | Northwest | Area where west stockpile was located. |
| 3/22 | 03/11/92 1710 | Dave Tyson | East | Railroad line re-established upon completion of removal; signal lights being tested. |
| 3/23 | 03/11/92 1711 | Dave Tyson | East | Re-establishing signal line along area #2 upon completion of removal. |

1/1




1/2

1/3




1/4

'92 3 7

'92 3 7

20
RAIL
CROSSING
ROAD
STOP

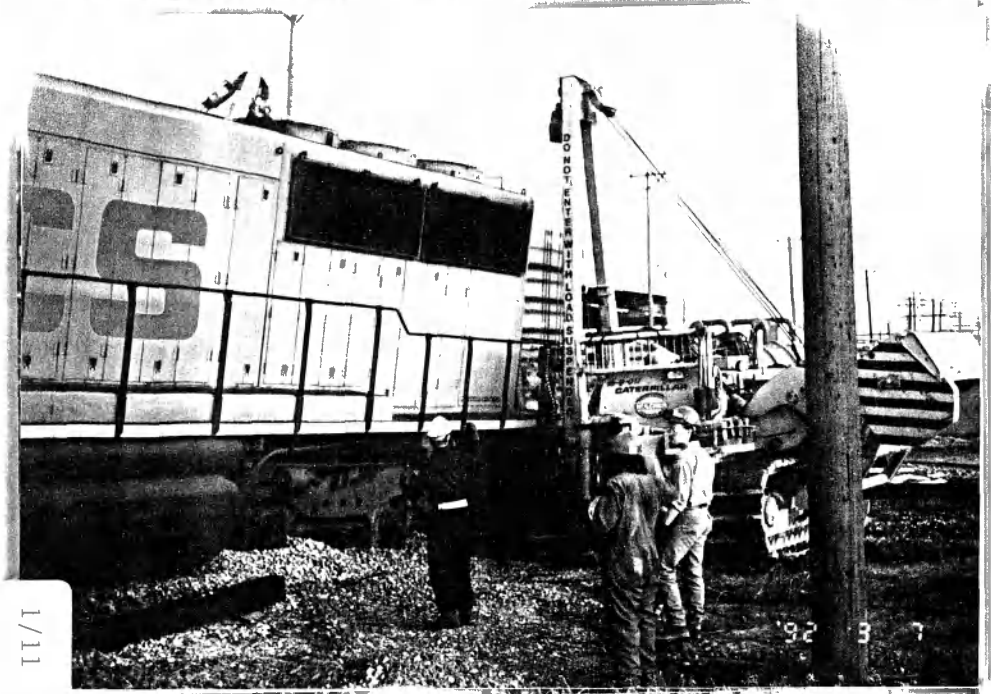
1/6

GATEWAY WESTERN
1203
'92 3 7

1/8

1/8

1/10

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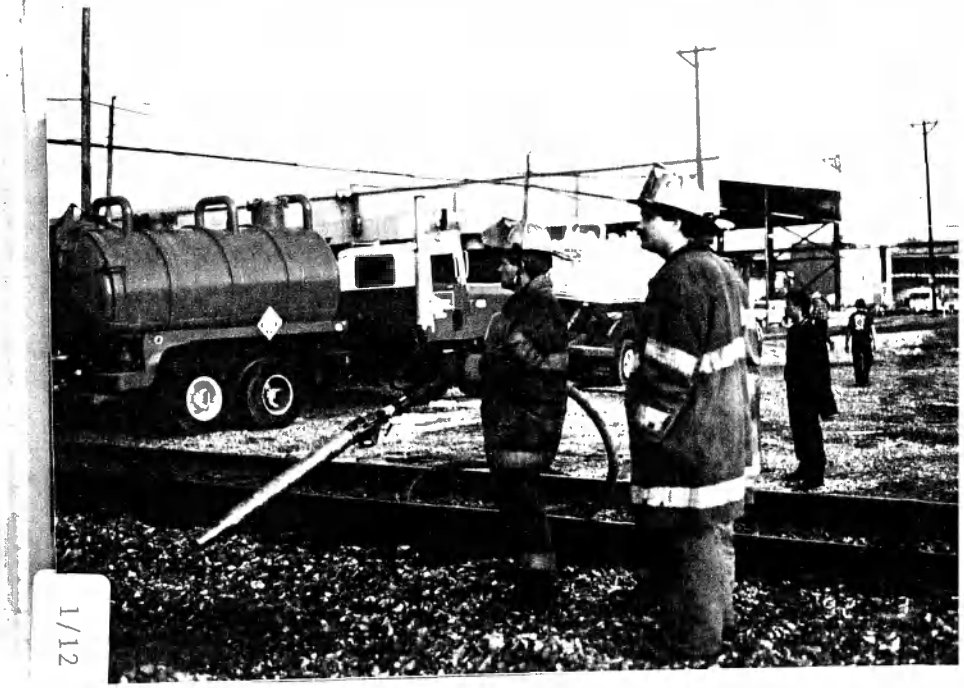
1/11

1/13



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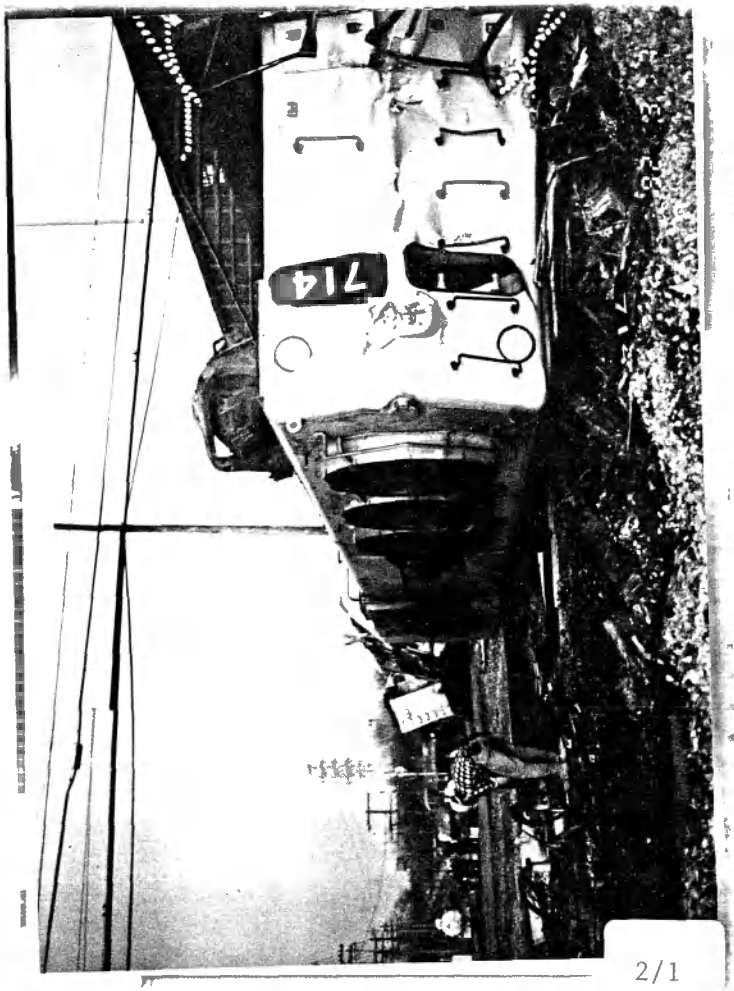

714

2/1

DO NOT ENTER WITH LOW SUSPENDED
725
725
DO NOT ENTER WITH LOW SUSPENDED

2/3

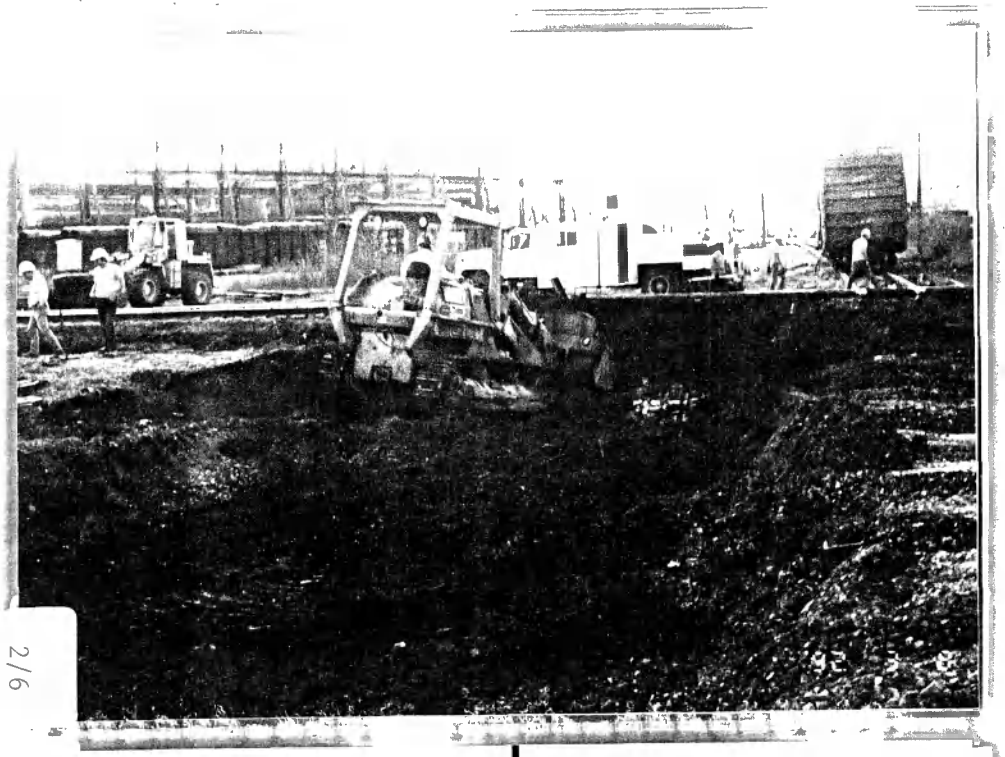
NOT ENTER WITH LOW SUSPENDED
725
725
NOT ENTER WITH LOW SUSPENDED

2/3

2/5

2/7

2/4

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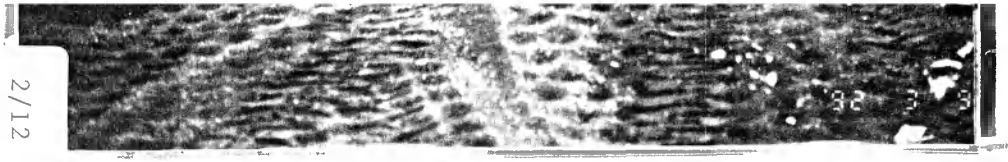
2/9



2/11



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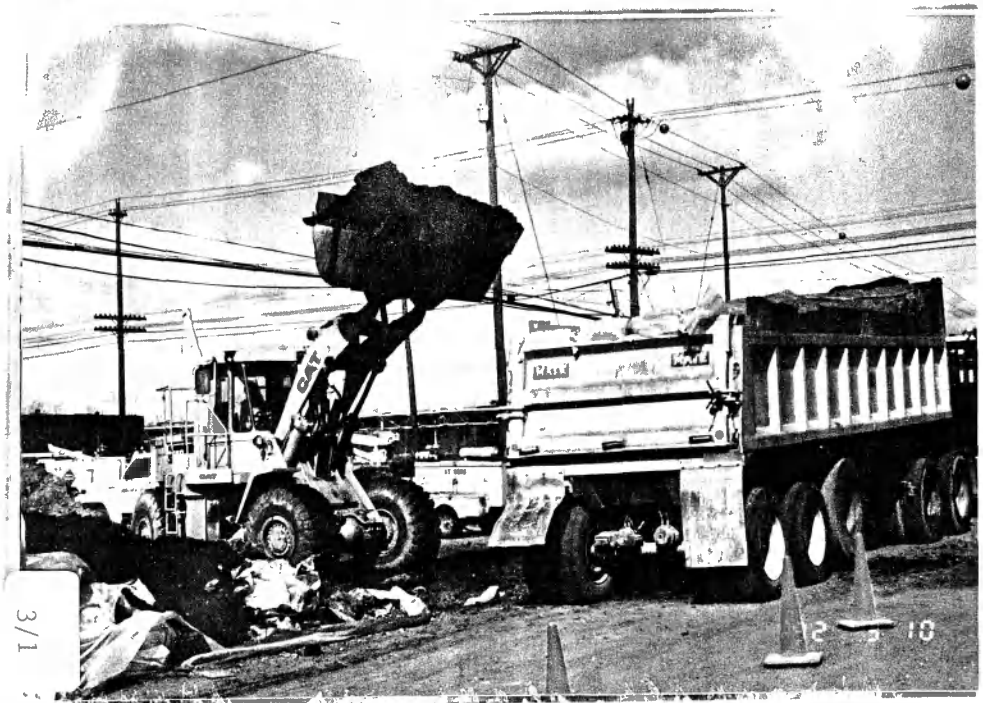
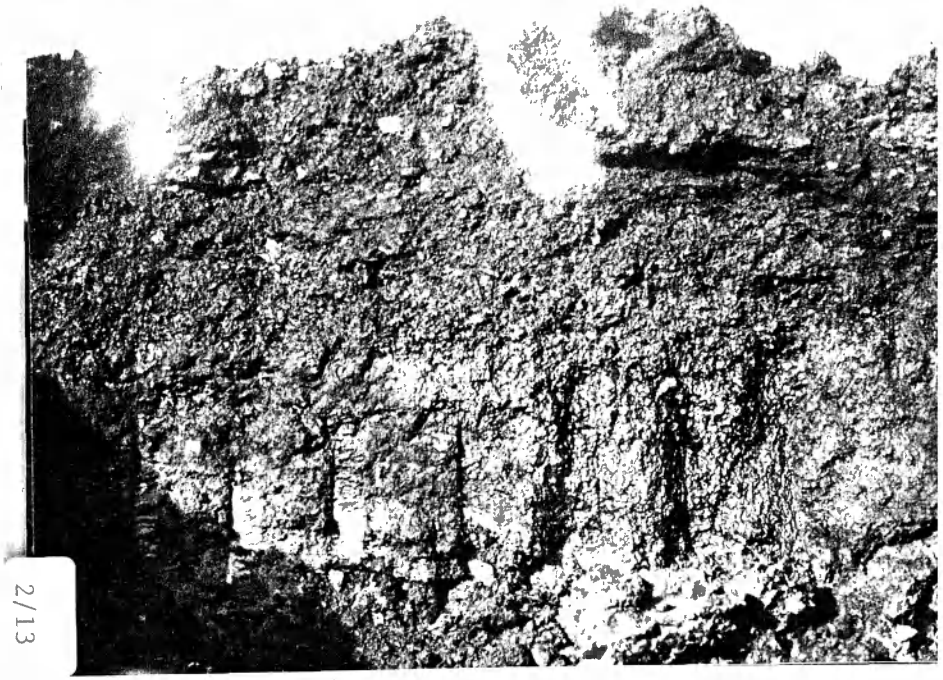



3/1

3/3

2/11



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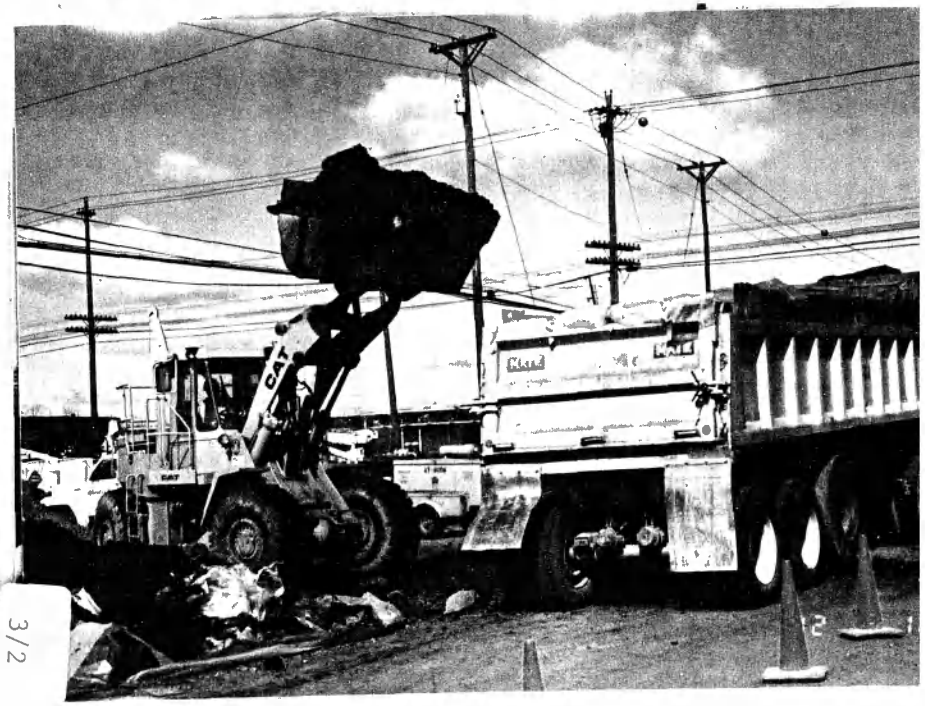


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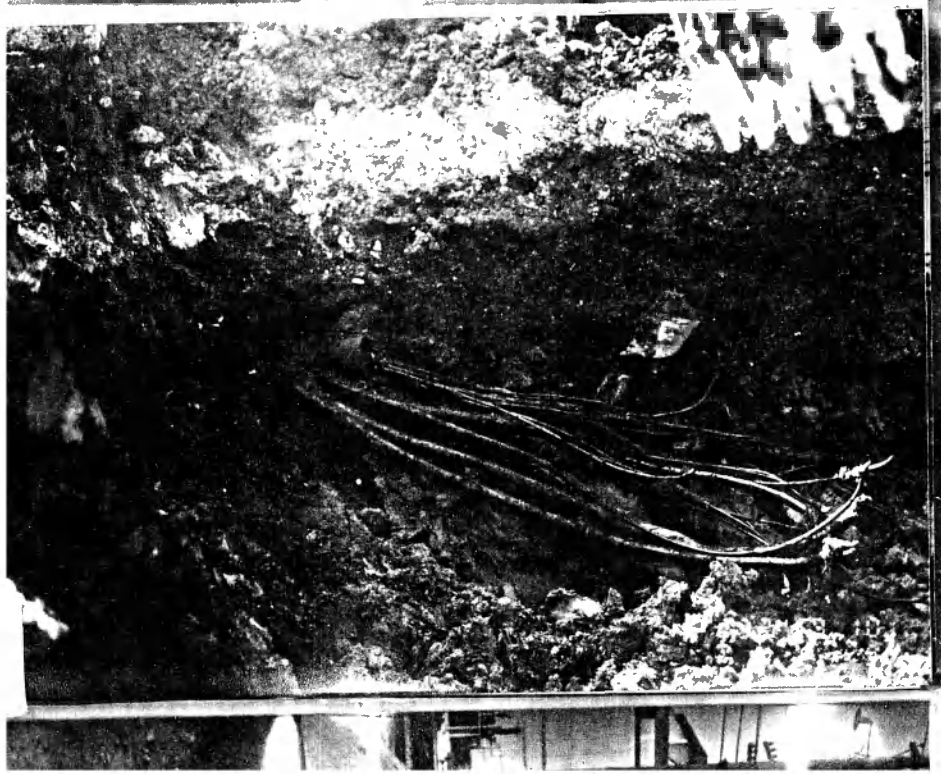
3/9




3/11



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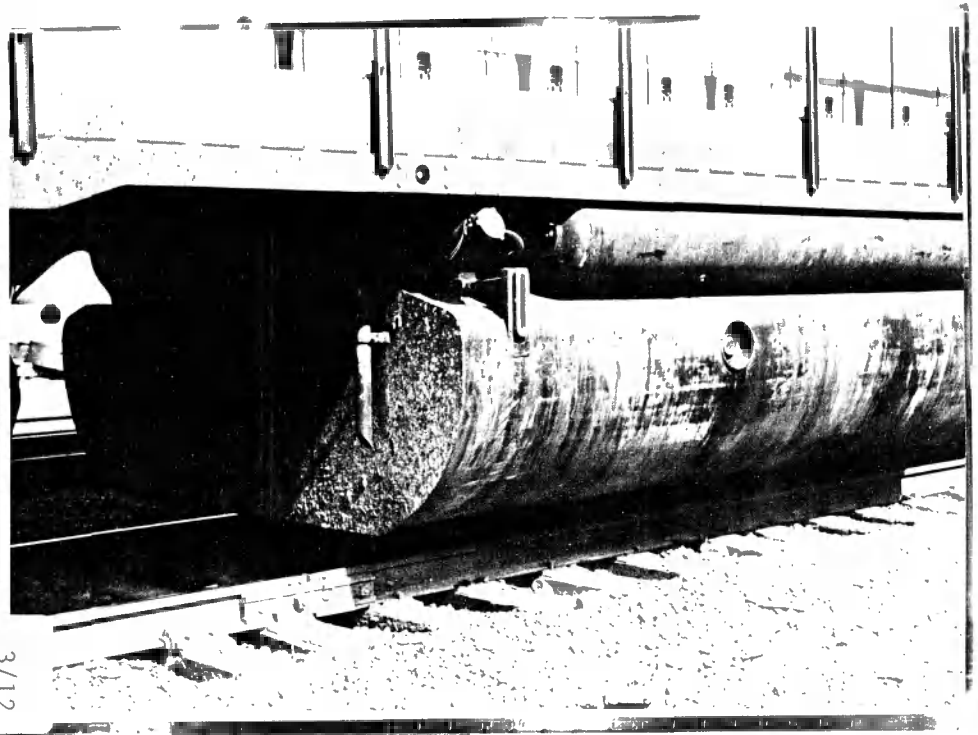

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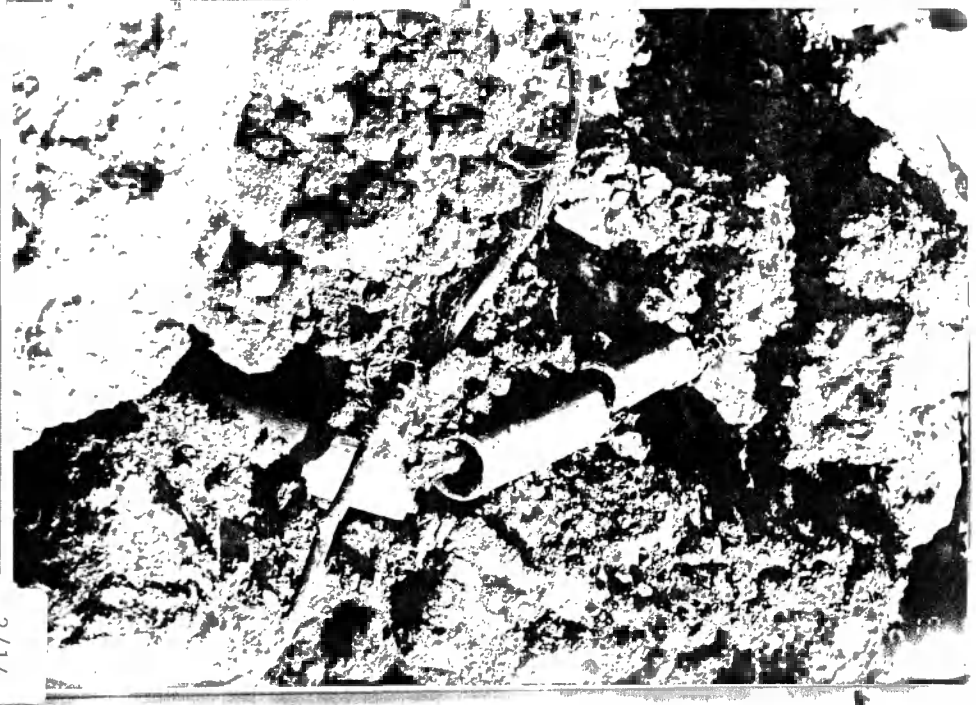

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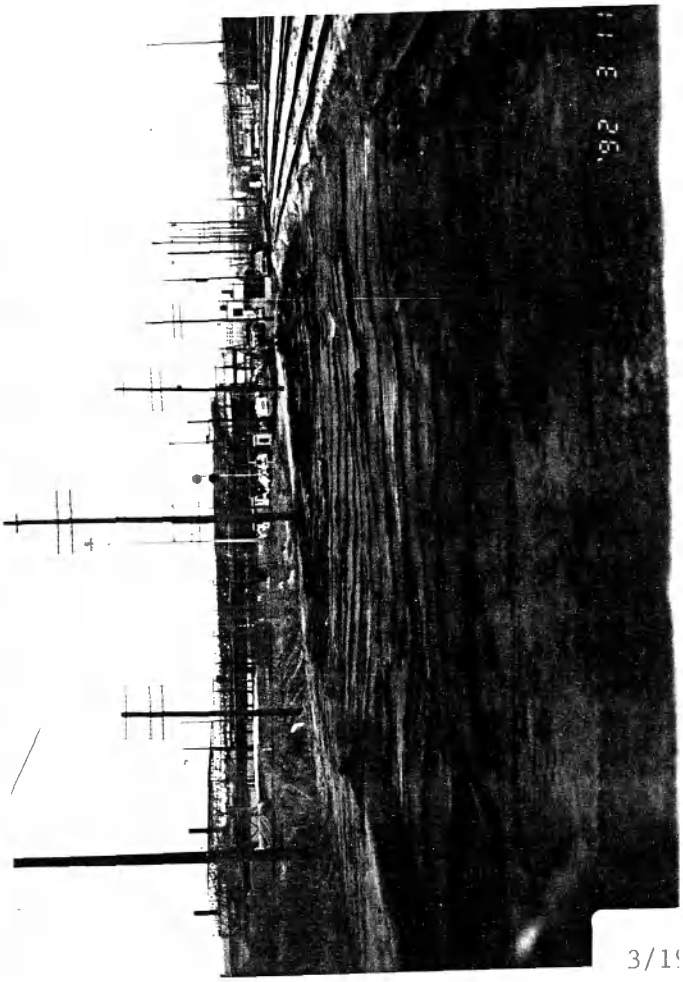
3/18

3/15

3/17



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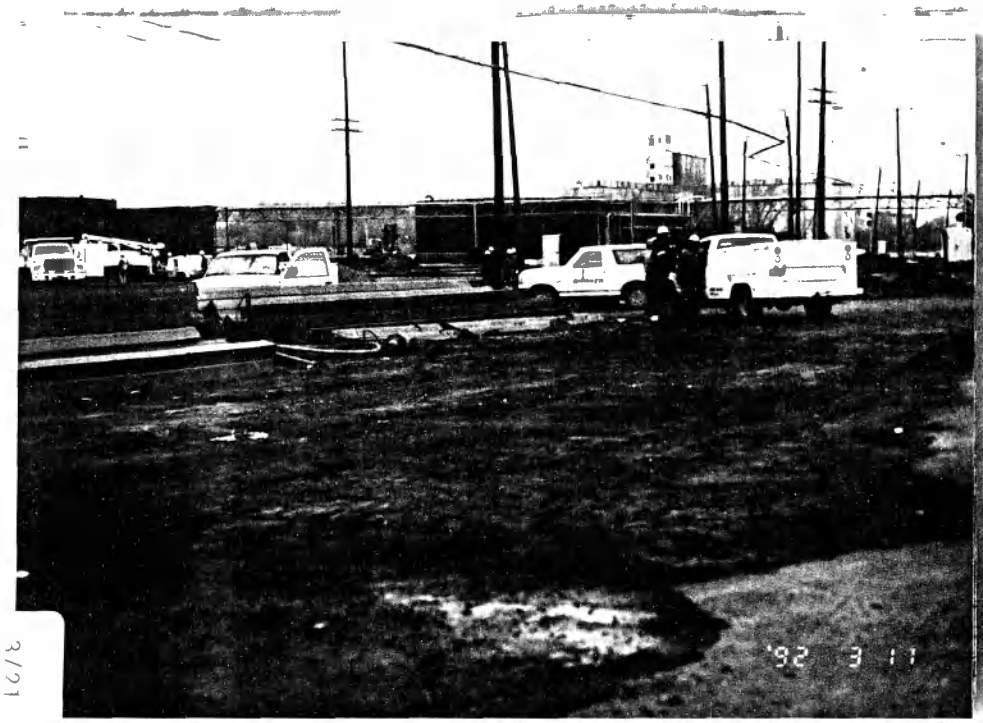


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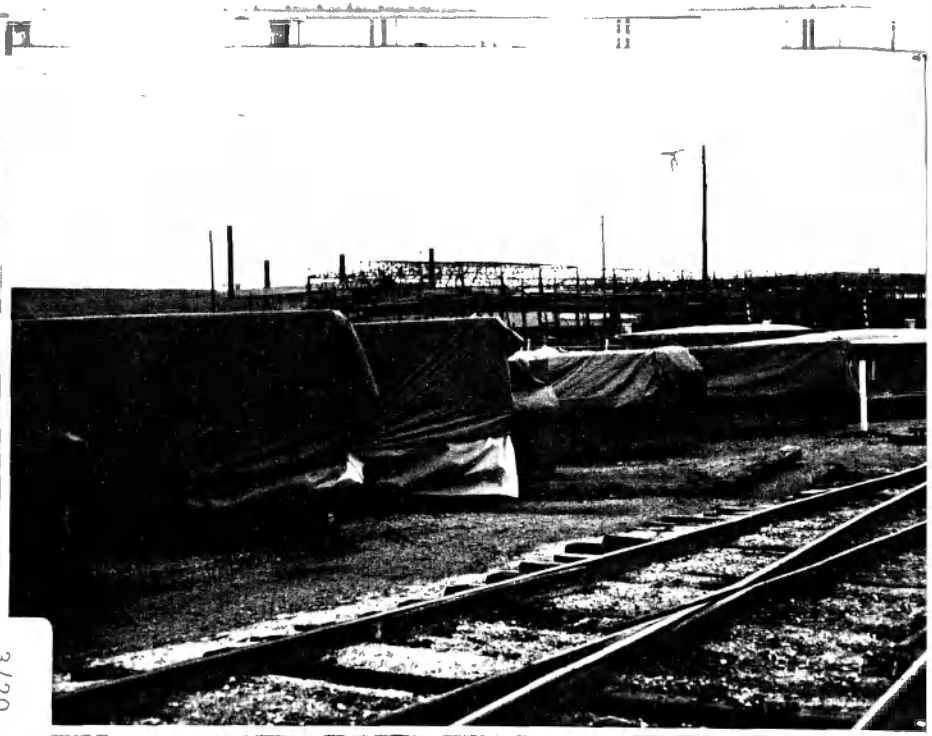
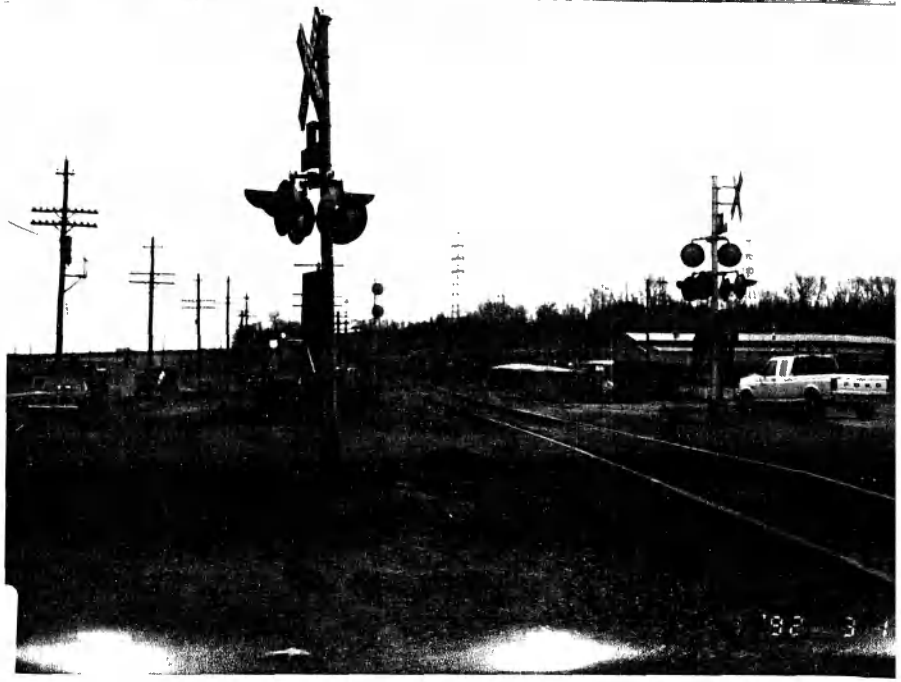


3/20

3/22

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