US EPA ARCHIVE DOCUMENT
ConocoPhillips Mississippi River Pipeline Release

August 6 - October 3, 2003

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ConocoPhillips Mississippi River Pipeline Release

- Petroleum sheen reported on August 6, 2003
- Sheen originated approximately 30 yards from the Missouri shoreline in rural St. Charles County
- Source of sheen believed to be one of two ten-inch diameter abandoned crude oil pipelines
- Source located immediately across the river from ConocoPhillips dock in Hartford, Illinois
- Leak source located behind a wing dike, calm water with little current
Crude Oil Sheen from South Line - 8/06/03
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ConocoPhillips Mississippi River Pipeline Release

- Pipelines believed to be abandoned in the mid 1940s, although records are incomplete / non-existent
- There were no enforceable abandonment standards until 1980 – 49 CFR 195
- Pipelines are “capped” on both sides of the river.
- Emergency phase focused on mitigating the leak from the south line and containing / recovering the released petroleum.
Abandoned pipelines on Missouri side - 08/06/03
Initial containment of sheen / release - 08/07/03
Initial containment of sheen / release - 08/07/03
Containment boom - 08/08/03
Petroleum sheen at source - 08/06/03
ConocoPhillips Mississippi River Pipeline Release

- The south line was cut open on the Missouri side on 08/09/03 so material could be pumped out of the line.
- 400’ section of two inch diameter PVC pipe advanced into the south line to suck out remaining oil/water.
- Oil/water mix was pumped into a steel tub at the open end of the pipeline and pumped from there into a trailer mounted vacuum tank.
- Approximately 30 barrels of crude and 10 barrels of water were recovered from this operation.
Cutting of south line - 08/09/03
Pumping out remaining crude/water in South Line
Portable vac tank
TOR valves installed on lines to bleed off pressure / recover product - 08/08/03
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- Dive team hired by ConocoPhillips to find the leak and “patch” the line.
- The dive team found the leak and fastened a “sleeve clamp” to the leak area to stop the leak.
- The dive team disturbed the sediments around the south line causing a release of crude oil.
Absorbent boom saturated with crude oil - 08/09/03
Dive team disturbing contaminated sediments - 08/09/03
Dive team disturbing contaminated sediments - 08/09/03
Metal sleeve used to “patch” the leak on the south line
Initiating permanent abandonment of the pipelines

- Emergency phase completed
- Dive team assessed both the pipelines from “shore to shore”
- South line found to be intact
- North line found to be severed in the river channel and is missing a 100’ section near the Illinois shoreline
- Span of the pipelines is ~ 2,900’
Permanent abandonment of the pipelines

- Plan is to remove all remaining material from both lines
- Continue pumping out liquids
- Use a horizontal drill rig to insert a “pig” into the south line to “swab” the line
- Cap the severed end of the north line
- Fill both lines with concrete/drilling mud
Horizontal drill rig
Insertion of drill stem into south line
Steel sleeve used to cap the end of the north line
Eight inch diameter pig train
Push-head coming out of south line on Illinois side
Pig being pulled through the south line, Illinois side - 09/08/03
Secondary release of crude from the south line

- By September 19, 2003, the south line was ready to be filled with cement/grout.
- On September 25, 2003, a cement mixture was introduced into the Illinois side of the south line using a horizontal drill rig and pumps.
- Approximately 2,100’ of line was filled when a slug of crude oil was noticed in the water near the site of the original leak.
- The oil was apparently pushed out of hole in the line due to displacement by the concrete mixture.
Secondary release of crude oil - 09/25/03
Secondary release of crude oil - 09/25/03
Secondary release of crude oil - 09/25/03
Secondary release of crude from the south line

- Oil slick approximately 300 yards in length and 20’ in width
- Containment measures took approximately one hour to put in place
- Due to prevailing wind and current conditions the majority of the oil washed up on the Missouri shoreline just downstream from the leak site
Crude oil on beach - 09/25/03
Initial containment boom - 09/25/03
Initial clean up of crude oil - 09/25/03
Initial clean up of crude oil - 09/25/03
Initial clean up of crude oil - 09/25/03
Containment boom deployed around barges - 09/25/03
Permanent abandonment of the pipelines

- Drilling mud was pumped into the Missouri side of the south line to complete the filling of the line
- An additional 5 barrels of crude were recovered from this process
- Line permanently capped – abandonment complete
- Same process utilized on the north line
Oil discharging from south pipeline - 09/29/03
Oil staining on rocks - 09/29/03
South line filled with drilling mud
Drilling mud prior to mixing and inserting in the lines
Post clean-up view of beach
Abandoned Pipeline River Crossings

Lessons Learned

• Very difficult to remove all liquids/material prior to abandonment
• Avoid putting pressure on the line
• Horizontal drill stem/pigging operation very successful
• Response / containment must be in place and ready during all abandonment operations
• Filling the line with concrete/ drilling mud will help to displace residual oil in line
• Dive team was invaluable in assessing the integrity of lines and performing underwater operations
• Records for abandoned pipelines are scarce to non-existent
Abandoned Pipeline Leak on the Missouri River – 12/06/00
Sheen at confluence of Missouri and Mississippi Rivers
Site Safety Concerns ...
Heads up!
Slimed by a flying carp!
Questions????