ARCADIS
Infrastructure, environment, facilities

Mayflower Pipeline Incident Response

Mayflower, Arkansas

Sheen Monitoring Report #7

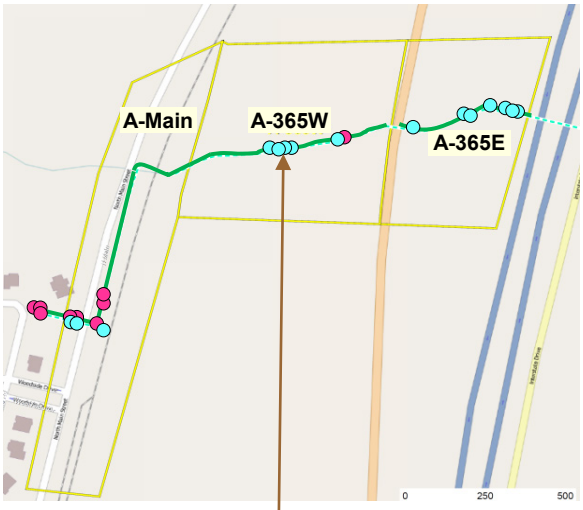
Monitoring Period: Daily* from 12/02/2013 through 12/08/2013
**No monitoring on 12/06/2013 due to inclement weather*

Legend:
Green Line – No Sheen
Aqua Circle – "Brittle" Sheen Location
Pink Circle – "Non-Brittle" Sheen Location

Mitigation: Suspected petrogenic sheens were removed using absorbent materials.

Observations in Drainage Ways:

- A-Main
  - One patch of metallic sheens and two patches of rainbow sheens observed. Sheens broke apart when disturbed ("brittle")[1].
  - One patch of metallic/rainbow sheens; two covers (no particular structure) of metallic sheens; and two streamers and three patches (two with 0.25-inch wide oil spots) of rainbow sheens observed. Sheens did not break when disturbed ("non-brittle")[2].
- A365W
  - Five patches of brittle[1] metallic sheens observed.
  - One patch of non-brittle[2] metallic sheens observed.
- A365E
  - Six patches and one cover (no particular structure) of brittle[1] metallic sheens observed.



Drainage Ways (Summary of Observations from 12/02/2013 to 12/08/2013)

Metallic Sheen Patch Observation on 12/05/2013

Observations in Dawson Cove Inlet Channel:

- One cover (no particular structure) and one patch of brittle[1] metallic sheens observed.
- Three patches, two covers (no particular structure), and one streamer of non-brittle[2] metallic sheens; two streamers and one patch (with 0.1-inch wide oil spots) of non-brittle[2] rainbow sheens; and one streamer of non-brittle[2] metallic/rainbow sheens observed.

Dawson Cove Inlet Channel (Summary of Observations from 12/02/2013 to 12/08/2013)

Notes:
1. Brittle sheens are often of natural biogenic origin.
2. Non-brittle sheens are often related to anthropogenic sources, including petrogenic sources (e.g., petroleum hydrocarbons).
3. Laboratory testing is required to distinguish sheen sources (e.g., crude oil, roadway runoff, natural biologic activity).
4. Sheen color (dark/metallic/rainbow/silver gray) and structure (patches/streamers/cover) terminology reference: NOAA 2007. NOAA Open Water Oil Identification Job Aid.

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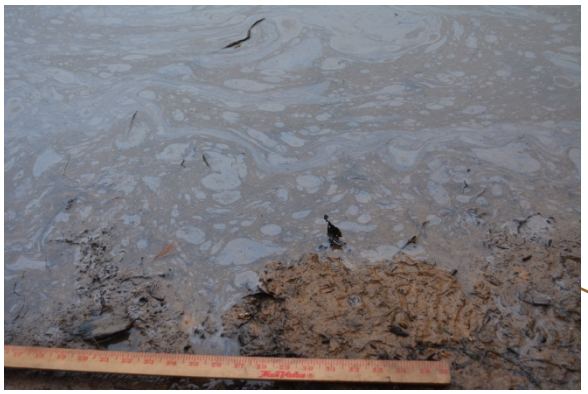
Sheen Monitoring Report #7 (continued)

Monitoring Period: Daily from 12/02/2013 through 12/08/2013

Observations in Dawson Cove:

- One patch of brittle[1] metallic sheens observed.
- Four covers (no particular structure) and one patch (with 0.1-inch wide oil spots) of non-brittle[2] metallic sheens; five streamers, two patches/streamers, and one cover (no particular structure) with 0.1-, 0.25-, 0.5-, and 1-inch wide oil spots, and two patches (one with 0.1-inch wide oil spots) of non-brittle[2] rainbow sheens; and one streamer of non-brittle[2] metallic/rainbow sheens observed.



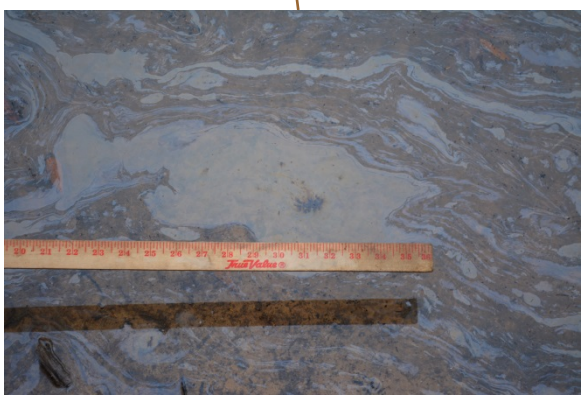
Rainbow Sheen Patch/Streamer with Small Oil Spots (0.5-inch Wide) Observation on 12/03/2013

Legend:
Aqua Circle – "Brittle" Sheen Location
Pink Circle – "Non-Brittle" Sheen Location
OW-1 – Shoreline Observation Location

Dawson Cove (Summary of Observations from 12/02/2013 to 12/08/2013)

Path Forward for 12/09/2013 to 12/15/2013:

- Continue sheen monitoring in all areas.



Rainbow Sheen Streamer with Small Oil Spots (1-inch Wide) Observation on 12/02/2013

Notes:

1. Brittle sheens are often of natural biogenic origin.
2. Non-brittle sheens are often related to anthropogenic sources, including petrogenic sources (e.g., petroleum hydrocarbons).
3. Laboratory testing is required to distinguish sheen sources (e.g., crude oil, roadway runoff, natural biologic activity).
4. Sheen color (dark/metallic/rainbow/silver gray) and structure (patches/streamers/cover) terminology reference: NOAA 2007. NOAA Open Water Oil Identification Job Aid.