ARCADIS

# Downstream Areas Pre-Design Study

May 9, 2014

ARCADIS

**Pre-Design Study – Revision 1**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

As requested by the Arkansas Department of Environmental Quality, please find enclosed tables, figures, and a photolog presenting the pre-design study data in the cove. The activities were completed in accordance with Appendix O of the Downstream Areas Data Assessment Report (ARCADIS 2014). These activities were completed between March 31 and April 9, 2014 in the Inlet Channel, Open Water Area, and Heavily Vegetated Area to:

- Confirm and refine the boundaries of the mitigation area
- Confirm the preferred remedial alternative approach
- Support the design and permitting of the preferred remedial alternative

Additional activities were completed on April 25, 2014 in the Open Water Area and May 7, 2014, in the Heavily Vegetated Area.

Activities included sediment probing and sheen stir tests from co-located sediment cores. Sediment probing activities were conducted in three increments: surface, 0 to 6 inches below sediment surface, and 6 to 12 inches below sediment surface. The sheen stir tests from these sediment cores were conducted for the following increments:

- *Inlet Channel ("IC-" sample locations):* 0 to 6 inches, 6 to 12 inches, and subsequent 6-inch intervals until a stir test with no sheen was observed. The relative amount of sheening was estimated for each interval.

- *Open Water Area ("OW-" sample locations):* 0 to 6 inches and 6 to 12 inches. The relative amount of sheening was estimated for each interval.

- *Heavily Vegetated Area ("VA-" sample locations):* 0 to 0.1 inch and 0.1 to 6 inches. The relative amount of sheening was estimated for the overall location.

Data collected during these activities are included in Tables 1 and 2. A data rating system is described in Table 3. Based on the data and the rating system described in these tables, sheens generated at each location were characterized as lighter, medium, or heavier (Tables 4 and 5). The qualitative sheening amounts observed at each location are shown on Figures 1 through 3. Photographs that were taken to record observations during probing and sheen stir tests are included in the attached photolog.

In addition to the activities described above, sediment probing was conducted in the downstream area of the Heavily Vegetated Area to assess the presence of sheen-bearing material (Table 6). These sample locations start with "PA-" and are located downstream and northeast of the area identified for potential sheen mitigation in the Downstream Areas Data Assessment Report (ARCADIS 2014). No sheens were observed at the majority of these locations during probing activities. There were light sheens observed at three locations: PA-3 and PA-2 were located close to the other VA- locations, PA-40 was located in an open area along the southeast bank of the cove.

The interpretation of the pre-design study data and the refined mitigation area will be included in the forthcoming Mitigation Action Plan submittal in May 2014.

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**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

## Attachments

### Tables



### Figures



### Downstream Areas Pre-Design Study Photolog

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**Tables**

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| **Cove Inlet Channel** | | | | | | | | |
| IC-1 | 4/1/2014 | 10:05 | 1.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-2 | 4/1/2014 | 10:20 | 1.2 | 12 | No | Surface | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen with oil spots (<0.25-inch wide) |
| IC-3 | 4/1/2014 | 10:40 | 1.2 | 12 | No | Surface | No | Patches/streamers of non-brittle sheen on the edge of the creek. |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | No | -- |
| IC-4 | 4/1/2014 | 11:00 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-5 | 4/1/2014 | 11:15 | 1.0 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-6 | 4/1/2014 | 11:35 | 1.1 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches of non-brittle silver gray sheen |
| IC-7 | 4/1/2014 | 11:50 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patch of non-brittle silver gray sheen (light) |
| | | | | | | 6-12 | No | -- |
| IC-8 | 4/1/2014 | 13:05 | 1.0 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen with <0.25-inch wide oil spots |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen with <0.25-inch wide oil spots |
| IC-9 | 4/1/2014 | 13:25 | 0.9 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen (quickly dissipated) |
| | | | | | | 6-12 | No | -- |
| IC-10 | 4/1/2014 | 13:40 | 1.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen (quickly dissipated) |
| | | | | | | 6-12 | No | -- |
| IC-11 | 4/1/2014 | 13:55 | 0.7 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-12 | 4/1/2014 | 14:20 | 1.0 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen with 0.25-inch wide oil spot (quickly dissipated) |
| | | | | | | 6-12 | Yes | Patches of non-brittle silver gray sheen with 0.25-inch wide oil spot (quickly dissipated) |

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| IC-13 | 4/1/2014 | 14:35 | 0.4 | 12 | Patches of brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-14 | 4/1/2014 | 14:50 | 0.9 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen (quickly dissipated) |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen (quickly dissipated) |
| IC-15 | 4/1/2014 | 15:05 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-16 | 4/1/2014 | 15:20 | 1.0 | 12 | Cover of brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | Yes | Streamers (< 2 inches) of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Streamer (< 2 inches) of non-brittle silver gray sheen |
| IC-17 | 4/1/2014 | 15:40 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-18 | 4/1/2014 | 15:55 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-19 | 4/1/2014 | 16:10 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-20 | 4/1/2014 | 16:25 | 1.0 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-21 | 4/1/2014 | 16:35 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen (quickly dissipated) |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen (quickly dissipated) |
| IC-22 | 4/1/2014 | 17:10 | 0.5 | 12 | Cover of brittle rainbow sheen | Surface | Yes | Streamers of non-brittle silver gray sheen (quickly dissipated) |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen |
| IC-23 | 4/2/2014 | 8:40 | 0.5 | 12 | Cover of non-brittle rainbow sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-24 | 4/2/2014 | 9:00 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| IC-25 | 4/2/2014 | 9:10 | 0.8 | 12 | No | Surface | Yes | Patches of non-brittle silver gray sheen with 1 oil spot (<0.25-inch wide; quickly dissipated) |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| **Cove Open Water Area** | | | | | | | | |
| OW-1 | 4/2/2014 | 10:00 | -- | 12 | Patches of brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-2 | 4/2/2014 | 10:55 | Dry land | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-3 | 4/2/2014 | 11:10 | 0.5 | 12 | Cover of brittle and non-brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-4 | 4/2/2014 | 13:10 | Dry land | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-5 | 4/2/2014 | 10:20 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-6 | 4/2/2014 | 10:40 | 0.2 | 12 | Cover of brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-7 | 4/3/2014 | 10:15 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-8 | 4/3/2014 | 11:03 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-9 | 4/3/2014 | 10:51 | 0.7 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-10 | 4/3/2014 | 10:30 | 0.2 | 12 | Cover of brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-11 | 4/2/2014 | 11:30 | 0.5 | 12 | Cover of brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-12 | 4/2/2014 | 13:00 | 0.3 | 12 | Patches of brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
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| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| OW-13 | 4/3/2014 | 11:15 | 0.2 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-14 | 4/4/2014 | 13:18 | 0.2 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-15 | 4/3/2014 | 9:22 | 1.0 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray (quickly dissipated) |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray (quickly dissipated) |
| OW-16 | 4/3/2014 | 9:02 | 1.0 | 12 | Patches/streamers of non-brittle silver gray (very light) | Surface | Yes | Patches/streamers of non-brittle silver gray (very small for picture) |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray (very small for picture) |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray (very small for picture) |
| OW-17 | 4/3/2014 | 8:46 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen |
| OW-18 | 4/2/2014 | 13:40 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-19 | 4/2/2014 | 13:25 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-20 | 4/3/2014 | 10:21 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-21 | 4/3/2014 | 9:48 | -- | 12 | Patches of non-brittle silver gray sheen | Surface | Yes | Streamers of non-brittle silver gray sheen (no photo) |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen with 4 oil spots (0.1 to 0.25-inch wide) |
| OW-22 | 4/2/2014 | 16:32 | 0.6 | 12 | Patches/streamers of non-brittle silver gray sheen | Surface | Yes | Patches/streamers of non-brittle silver gray sheen with 3 oil spots (0.1-inch wide) |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen with 0.1-inch wide oil spots |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen with 10 oil spots (0.1-inch wide) |
| OW-23 | 4/3/2014 | 10:50 | 0.3 | 12 | Streamers of brittle and non-brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-24 | 4/2/2014 | 15:00 | 1.0 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen with 1 oil spot (<0.13-inch wide; quickly dissipated) |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen with 1 oil spot (<0.13-inch wide; quickly dissipated) |

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| OW-25 | 4/2/2014 | 15:15 | Dry land | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-26 | 4/3/2014 | 10:05 | 0.4 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-27 | 4/2/2014 | 16:17 | 0.9 | 12 | No | Surface | Yes | Patches/streamers of non-brittle silver gray sheen with 10 oil spots (0.1-inch wide) |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen |
| OW-28 | 4/2/2014 | 16:51 | 1.1 | 12 | No | Surface | Yes | Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot |
| OW-29 | 4/2/2014 | 14:35 | 0.5 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen (light sheen; quickly dissipated) |
| | | | | | | 6-12 | Yes | Patches of non-brittle silver gray sheen (light sheen; quickly dissipated) |
| OW-30 | 4/2/2014 | 15:50 | 0.1 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-31 | 4/2/2014 | 16:00 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-32 | 4/2/2014 | 16:15 | 0.5 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen (light sheen; quickly dissipated) |
| | | | | | | 6-12 | Yes | Patches of non-brittle silver gray sheen (light sheen; quickly dissipated) |
| OW-33 | 4/2/2014 | 16:01 | 1.2 | 12 | No | Surface | Yes | Patches/streamers of silver gray sheen |
| | | | | | | 0-6 | Yes | Patches/streamers of silver gray sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of silver gray sheen |
| OW-34 | 4/2/2014 | 13:30 | 1.3 | 12 | Patch/streamer of non-brittle silver gray sheen | Surface | Yes | Patch/streamer of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patch/streamer of non-brittle silver gray sheen with 4 oil spots (0.1-inch wide) |
| | | | | | | 6-12 | Yes | Patch/streamer of non-brittle silver gray sheen |
| OW-35 | 4/3/2014 | 11:05 | 0.3 | 12 | Cover/patches of brittle silver gay sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-36 | 4/2/2014 | 16:50 | 0.6 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-37 | 4/2/2014 | 9:51 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |

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**Downstream Areas Pre-Design Study**
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| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| OW-38 | 4/2/2014 | 10:15 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-39 | 4/2/2014 | 15:47 | 0.9 | 12 | No | Surface | Yes | Patches/streamers of non-brittle silver gray |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray |
| | | | | | | 6-12 | No | -- |
| OW-40 | 4/2/2014 | 15:23 | 1.5 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patches/streamers of silver gray sheen with 1 oil spot (0.25-inch wide) |
| | | | | | | 6-12 | Yes | Streamers of silver gray sheen |
| OW-41 | 4/2/2014 | 15:08 | 1.6 | 12 | Streamers of non-brittle silver gray sheen (very light) | Surface | Yes | Patches/streamers of non-brittle silver gray sheen (very light sheen) |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen (very light sheen) |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen (very light sheen) |
| OW-42 | 4/2/2014 | 13:15 | 1.4 | 12 | Patches of non-brittle silver gray sheen | Surface | Yes | Patch/streamer of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patch/streamer of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patch/streamer of non-brittle silver gray sheen |
| OW-43 | 4/2/2014 | 9:31 | 0.7 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Patch of silver gray sheen |
| | | | | | | 6-12 | Yes | Patch of silver gray sheen |
| OW-44 | 4/2/2014 | 10:06 | 0.8 | 12 | Streamers of non-brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-45 | 4/2/2014 | 10:54 | 1.6 | 12 | Patches/streamers of non-brittle silver gray sheen | Surface | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle rainbow sheen (heavy sheen) |
| OW-46 | 4/2/2014 | 11:24 | 1.7 | 12 | 4-5 patches of non-brittle silver gray sheen | Surface | Yes | Streamers of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen |
| OW-47 | 4/3/2014 | 11:20 | 0.5 | 12 | Streamers of non-brittle rainbow sheen | Surface | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches of non-brittle silver gray sheen |
| OW-48 | 4/3/2014 | 8:45 | 0.3 | 12 | Patches/streamers of non-brittle silver gray sheen with oil spot (<0.25-inch wide) | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |

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**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| OW-49 | 4/2/2014 | 10:29 | 0.9 | 12 | Streamers of non-brittle rainbow sheen with 8 oil spots (<0.25-inch wide) | Surface | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen |
| OW-50 | 4/2/2014 | 11:09 | 2.0 | 12 | Streamers of non-brittle rainbow sheen with about 100 oil spots (0.25 to 0.5-inch wide) | Surface | Yes | Streamers of non-brittle silver gray sheen with 5 oil spots (0.25-inch wide) |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen with oil spots (0.25-inch wide) |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen with oil spots (0.25-inch wide) |
| OW-51 | 4/2/2014 | 12:56 | 1.4 | 12 | Patch/streamer of non-brittle rainbow sheen with about 100 oil spots | Surface | Yes | Patches/streamers of non-brittle silver gray sheen with 2 oil spots (<0.25-inch wide) |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen with 4 oil spots (<0.25-inch wide) |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen with 5 oil spots (0.1-inch wide) |
| OW-52 | 4/3/2014 | 9:00 | Dry land | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-53 | 4/3/2014 | 9:15 | Dry land | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-54 | 4/3/2014 | 9:25 | 0.3 | 12 | Cover of brittle rainbow sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-55 | 4/9/2014 | 10:20 | 0.7 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen |
| OW-56 | 4/9/2014 | 10:40 | 0.2 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-57 | 4/9/2014 | 10:50 | -- | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-58 | 4/9/2014 | 11:10 | Dry land | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-59 | 4/9/2014 | 12:45 | 0.7 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-60 | 4/9/2014 | 13:10 | 0.1 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| OW-61 | 4/9/2014 | 13:25 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-62 | 4/9/2014 | 13:40 | 0.7 | 12 | No | Surface | Yes | Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide) |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide) |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide) |
| OW-63 | 4/25/2014 | 15:10 | 0.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-64 | 4/25/2014 | 14:48 | -- | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-65 | 4/25/2014 | 15:37 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen |
| OW-66 | 4/25/2014 | 15:58 | 0.4 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-67 | 4/25/2014 | 14:20 | 0.5 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-68 | 4/25/2014 | 11:50 | 1.7 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen (very light sheen) |
| OW-69 | 4/25/2014 | 11:17 | 1.5 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-70 | 4/25/2014 | 10:50 | 0.5 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| OW-71 | 4/25/2014 | 16:18 | 2.0 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | Heavy sheen after agitation |

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| **Cove Heavily Vegetated Area** | | | | | | | | |
| VA-1 | 4/1/2014 | 9:51 | 0.2 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-2 | 4/1/2014 | 10:15 | 1.0 | 12 | Patches of brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-3 | 4/1/2014 | 10:35 | 0.9 | 12 | No | Surface | Yes | Patches/streamers of non-brittle silver gray sheen (light) |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen (light) |
| | | | | | | 6-12 | No | -- |
| VA-4 | 4/1/2014 | 10:58 | 0.9 | 12 | Patches of non-brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | Yes | Streamer (< 6") of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Streamer (< 6") of non-brittle silver gray sheen (light) |
| VA-5 | 4/1/2014 | 11:25 | 1.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | Yes | Patch (< 1") of non-brittle silver gray sheen (more sheen with very aggressive agitation) |
| VA-6 | 4/1/2014 | 13:16 | 1.7 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-7 | 4/1/2014 | 13:26 | 1.9 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-8 | 4/1/2014 | 13:38 | 2.1 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-9 | 4/1/2014 | 13:57 | 1.8 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-10 | 4/1/2014 | 14:18 | 1.5 | 12 | Streamer of non-brittle silver gray sheen with 4 oil spots (<0.1-inch) | Surface | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen |
| VA-11 | 4/1/2014 | 14:39 | 0.7 | 12 | Patches/streamers of non-brittle silver gray sheen | Surface | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen (light) |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen |
| VA-12 | 4/1/2014 | 14:57 | 0.7 | 12 | Patches/streamers of non-brittle silver gray sheen | Surface | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Streamer of non-brittle rainbow sheen with 3 oil spots (<0.25-inch wide) |
| | | | | | | 6-12 | Yes | Streamer of non-brittle silver gray sheen |

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| VA-13 | 4/1/2014 | 15:19 | 1.4 | 12 | Patches of non-brittle silver gray sheen | Surface | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen |
| VA-14 | 4/1/2014 | 15:42 | 1.1 | 12 | Patches/streamers of non-brittle silver gray sheen (3-4 patches, 1 streamer) | Surface | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Streamers of non-brittle rainbow sheen with 2 oil spots (<0.5-inch wide) |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen |
| VA-15 | 4/1/2014 | 15:56 | 1.1 | 12 | No | Surface | No | Few small patches after heavy agitation |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-16 | 4/1/2014 | 16:24 | 0.9 | 12 | Patch of non-brittle rainbow sheen with 1 oil spot (0.25-inch wide) | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-17 | 4/1/2014 | 16:40 | 1.0 | 12 | No | Surface | No | Small streamer and patches after heavy agitation |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-18 | 4/1/2014 | 16:55 | 2.0 | 12 | Streamers of non-brittle silver gray sheen | Surface | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen with 1 oil spot (<0.25-inch wide) |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen with 1 oil spot (<0.25-inch wide) |
| VA-19 | 4/4/2014 | 9:07 | 1.1 | 12 | Streamers of non-brittle silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-20 | 4/4/2014 | 9:26 | 1.4 | 12 | Streamers of silver gray sheen | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-21 | 4/4/2014 | 9:41 | 1.4 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | Yes | Streamers of non-brittle silver gray sheen with 1 oil spot (0.1-inch wide, very light) |
| | | | | | | 6-12 | No | -- |
| VA-22 | 4/4/2014 | 9:54 | 1.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-23 | 4/4/2014 | 10:07 | 1.2 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-24 | 4/4/2014 | 10:22 | 1.5 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | Yes | Patches of non-brittle silver gray sheen with 1 oil spot (0.1-inch wide) |

**Table 1**
**Summary of Sediment Probing Activities for Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Probing Sheen Characterization |
|---|---|---|---|---|---|---|---|---|
| VA-25 | 4/4/2014 | 10:43 | 1.7 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-26 | 4/4/2014 | 11:03 | 1.1 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-27 | 4/4/2014 | 11:20 | 2.1 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | No | -- |
| VA-28 | 4/4/2014 | 13:50 | 0.9 | 12 | No | Surface | Yes | Patches/streamers of non-brittle silver gray sheen with 1 oil spot (0.25-inch wide) |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle rainbow sheen with 3 oil spots |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen with 4 oil spots (0.1-inch wide) |
| VA-29 | 4/4/2014 | 14:19 | 0.8 | 12 | No | Surface | Yes | Patches/streamers of non-brittle silver gray sheen with 2 oil spots (0.1-inch wide) |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle silver gray sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle silver gray sheen |
| VA-30 | 4/4/2014 | 14:34 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen |
| VA-31 | 4/4/2014 | 14:50 | 0.9 | 12 | Patches/streamers of non-brittle silver gray sheen | Surface | Yes | Patches of non-brittle silver gray sheen |
| | | | | | | 0-6 | Yes | Patches/streamers of non-brittle rainbow sheen |
| | | | | | | 6-12 | Yes | Patches/streamers of non-brittle rainbow sheen |
| VA-32 | 4/4/2014 | 15:15 | 0.3 | 12 | No | Surface | No | -- |
| | | | | | | 0-6 | No | -- |
| | | | | | | 6-12 | Yes | Streamers of non-brittle silver gray sheen |

**Notes:**
1. The surface probing included a gentle probing of the surface of the sediment.

-- = not applicable or not measured

**Table 2**
**Summary of Sheen Stir Test**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Penetration Depth (inches) | Recovery (inches) | Sample Interval (inches) | Sheen Observed | Sheen Characterization | Qualitative Sheening Amount | Sediment Description |
|---|---|---|---|---|---|---|---|---|---|
| **Cove Inlet Channel** | | | | | | | | | |
| IC-1 | 4/1/2014 | 10:05 | 18 | 12 | 0-6 | No | -- | -- | Light reddish brown (0-3") grading to gray (3-6") silt with clay (MH) |
| | | | | | 6-12 | No | -- | -- | Gray silt with clay (MH) |
| IC-2 | 4/1/2014 | 10:20 | 24 | 20 | 0-6 | Yes | Cover of rainbow sheen | Heavier | Gray silty humic material |
| | | | | | 6-12 | Yes | Cover of rainbow sheen | Heavier | Gray silty humic material (6-10") and gray and reddish brown clayey sand (SC; 10-12") |
| | | | | | 12-18 | No | -- | -- | Gray and reddish brown clayey sand (SC) |
| IC-3 | 4/1/2014 | 10:40 | 24 | 20 | 0-6 | No | -- | -- | Light brown silt (ML) |
| | | | | | 6-12 | No | -- | -- | Light brown silt (with clay from 8-12") |
| | | | | | 12-18 | No | -- | -- | Light brown silt with clay (12-18"), gray and reddish brown silty clay (CL) (18-20") |
| IC-4 | 4/1/2014 | 11:00 | 12 | 12 | 0-6 | No | -- | -- | Reddish brown silty clay (CL), soft |
| | | | | | 6-12 | No | -- | -- | 6-8" - Reddish brown silty clay (CL), soft; 8-12" - Gray clayey sand (SC) |
| IC-5 | 4/1/2014 | 11:15 | 30 | 12 | 0-6 | No | -- | -- | Gray humic material with clay, soft |
| | | | | | 6-12 | No | -- | -- | 6-9" - Coarse sand (SW); 9-12" - Gray clayey sand |
| IC-6 | 4/1/2014 | 11:35 | 20 | 12 | 0-6 | Yes | Streamers of silver gray sheen | Medium | 0-3" - Gray silt with humic material; 3-6" - Light reddish brown and gray mottled silty sand (SM), very firm sand |
| | | | | | 6-12 | No | -- | -- | Light reddish brown and gray mottled silty sand (SM), very firm sand |
| IC-7 | 4/1/2014 | 11:50 | 24 | 15 | 0-6 | No | -- | -- | -- |
| | | | | | 6-12 | No | -- | -- | -- |
| | | | | | 12-15 | No | -- | -- | -- |
| IC-8 | 4/1/2014 | 13:05 | 24 | 24 | 0-6 | Yes | Cover of rainbow sheen | Heavier | Gray silty clay (CL) with humic material, soft |
| | | | | | 6-12 | Yes | Patch of silver gray sheen | Lighter | Gray silty clay (CL) with humic material, soft |
| | | | | | 12-18 | No | -- | -- | Gray silty clay (CL) with humic material, soft |
| | | | | | 18-24 | No | -- | -- | 18-20" - Gray silty clay (CL) with humic material, soft; 20-24" Gray clayey silt (MH) |
| IC-9 | 4/1/2014 | 13:25 | 24 | 18 | 0-6 | No | -- | -- | Coarse sand (SW) with humic material |
| | | | | | 6-12 | No | -- | -- | Gray silty clay (CL) with humic material |
| | | | | | 12-18 | No | -- | -- | Gray silty clay (CL) with humic material; black wood at 14-18" |
| IC-10 | 4/1/2014 | 13:40 | 18 | 12 | 0-6 | No | -- | -- | -- |
| | | | | | 6-12 | No | -- | -- | -- |
| IC-11 | 4/1/2014 | 13:55 | 15 | 15 | 0-6 | No | -- | -- | Reddish brown silty clay (CL), soft |
| | | | | | 6-12 | Yes | Streamer of silver gray sheen | Lighter | Reddish brown silty clay (CL), soft |
| | | | | | 12-15 | No | -- | -- | Silty clay with woody material |
| IC-12 | 4/1/2014 | 14:20 | 24 | 24 | 0-6 | Yes | Streamers of silver gray sheen | Medium | Gray silty clay with humic material |
| | | | | | 6-12 | No | -- | -- | Gray silty clay with humic material |
| | | | | | 12-18 | No | -- | -- | Gray silty clay with humic material |
| | | | | | 18-24 | No | -- | -- | Gray silty clay with humic material |
| IC-13 | 4/1/2014 | 14:35 | 18 | 12 | 0-6 | No | -- | -- | Gray clayey silt (MH) with humic material to 5" |
| | | | | | 6-12 | No | -- | -- | Gray clayey silt (MH) |
| IC-14 | 4/1/2014 | 14:50 | 18 | 14 | 0-6 | Yes | Streamer of silver gray sheen | Lighter | Gray and reddish brown silty clay (CL), soft |
| | | | | | 6-12 | Yes | Streamer of silver gray sheen | Lighter | Gray and reddish brown silty clay (CL), soft |
| | | | | | 12-14 | No | -- | -- | Gray and reddish brown silty clay (CL), soft |

**Table 2**
**Summary of Sheen Stir Test**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Penetration Depth (inches) | Recovery (inches) | Sample Interval (inches) | Sheen Observed | Sheen Characterization | Qualitative Sheening Amount | Sediment Description |
|---|---|---|---|---|---|---|---|---|---|
| IC-15 | 4/1/2014 | 15:05 | 15 | 15 | 0-6 | No | -- | -- | Gray silty clay with humic material |
| | | | | | 6-12 | No | -- | -- | 6-10" - Gray silty clay with humic material; 10-12" Light brown silt with clay (MH) |
| | | | | | 12-15 | No | -- | -- | Light brown silt with clay (MH) |
| IC-16 | 4/1/2014 | 15:20 | 18 | 16 | 0-6 | No | -- | -- | Gray and reddish brown silt with clay |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown silt with clay |
| | | | | | 12-16 | No | -- | -- | Gray and reddish brown silt with clay |
| IC-17 | 4/1/2014 | 15:40 | 15 | 14 | 0-6 | No | -- | -- | -- |
| | | | | | 6-12 | Yes | Streamers of silver gray sheen | Lighter | -- |
| | | | | | 12-14 | No | -- | -- | -- |
| IC-18 | 4/1/2014 | 15:55 | 28 | 28 | 0-6 | No | -- | -- | Gray silty clay with humic material, soft |
| | | | | | 6-12 | No | -- | -- | Reddish brown silty sand (SM) |
| | | | | | 12-18 | No | -- | -- | 12-17" - Reddish brown silty sand (SM); 17-28" - Gray clayey silt (MH) |
| IC-19 | 4/1/2014 | 16:10 | 18 | 16 | 0-6 | No | -- | -- | 0-4" - Gray clayey silt (MH), soft; 4-6" - Reddish brown silty sand (SM) |
| | | | | | 6-12 | No | -- | -- | 6-10"- Reddish brown silty sand (SM); 10-12" Gray silt with clay (MH) and humic material |
| | | | | | 12-16 | No | -- | -- | Gray silt with clay (MH) and humic material, wood at 13" |
| IC-20 | 4/1/2014 | 16:25 | 18 | 18 | 0-6 | No | -- | -- | Light brown and red mottled clayey silt (MH) |
| | | | | | 6-12 | No | -- | -- | Light brown and red mottled clayey silt (MH) |
| | | | | | 12-18 | No | -- | -- | Gray clayey sand (SC) |
| IC-21 | 4/1/2014 | 16:35 | 18 | 17 | 0-6 | No | -- | -- | 0-3" - Gray humic material with silty clay; 3-6" - Light reddish brown clayey sand (SC) |
| | | | | | 6-12 | No | -- | -- | Light reddish brown clayey sand (SC) |
| | | | | | 12-17 | No | -- | -- | 12-15" - Light reddish brown clayey sand (SC); 15-17" - Gray silty clay with humic material |
| IC-22 | 4/1/2014 | 17:10 | 24 | 24 | 0-6 | Yes | Streamer of silver gray sheen | Lighter | Gray silty clay with humic material |
| | | | | | 6-12 | Yes | Streamer of silver gray sheen | Lighter | Gray silty clay with humic material |
| | | | | | 12-15 | Yes | Streamer of silver gray sheen | Lighter | Light brown clayey silt |
| | 4/2/2014 | | | | 18-24 | No | -- | -- | Light brown clayey silt |
| IC-23 | 4/2/2014 | 8:40 | 24 | 22 | 0-6 | No | -- | -- | Gray silty clay with humic material, soft |
| | | | | | 6-12 | Yes | Streamer of silver gray sheen | Lighter | Gray silty clay with humic material, soft |
| | | | | | 12-18 | Yes | Streamer of silver gray sheen | Lighter | Light brown silt with clay |
| | | | | | 18-22 | No | -- | -- | Light brown silt with clay |
| IC-24 | 4/2/2014 | 9:00 | 18 | 18 | 0-6 | No | -- | -- | Light brown clayey silt (MH) |
| | | | | | 6-12 | No | -- | -- | Light brown clayey silt (MH) |
| | | | | | 12-18 | No | -- | -- | Light brown clayey sand (SC) |
| IC-25 | 4/2/2014 | 9:10 | 24 | 24 | 0-6 | No | -- | -- | Gray silt (ML) |
| | | | | | 6-12 | No | -- | -- | Light brown and reddish brown mottled silt (ML) |
| | | | | | 12-18 | No | -- | -- | Light brown and reddish brown mottled silt (ML) |
| | | | | | 18-22 | No | -- | -- | Light brown and reddish brown mottled silt (ML) |
| **Cove Open Water Area** | | | | | | | | | |
| OW-1 | 4/2/2014 | 10:00 | 12 | 12 | 0-6 | No | -- | -- | Light brown and reddish mottled silt with clay (MH), humic material at 0-2" |
| | | | | | 6-12 | No | -- | -- | Light brown and reddish mottled silt with clay (MH) |
| OW-2 | 4/2/2014 | 10:55 | 15 | 15 | 0-6 | No | -- | -- | Gray and reddish brown mottled silt with clay (MH) |
| | | | | | 6-12 | Yes | Patch of silver gray sheen | Lighter | Gray and reddish brown mottled silt with clay (MH) |

**Table 2**
**Summary of Sheen Stir Test**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Penetration Depth (inches) | Recovery (inches) | Sample Interval (inches) | Sheen Observed | Sheen Characterization | Qualitative Sheening Amount | Sediment Description |
|---|---|---|---|---|---|---|---|---|---|
| OW-3 | 4/2/2014 | 11:10 | 15 | 15 | 0-6 | No | -- | -- | Gray and reddish brown mottled clayey silt (MH) |
| | | | | | 6-12 | Yes | Patches/streamers of silver gray sheen | Lighter | Gray and reddish brown mottled clayey silt (MH) |
| OW-4 | 4/2/2014 | 13:10 | 12 | 12 | 0-6 | No | -- | -- | Light brown and reddish brown mottled silt (ML) |
| | | | | | 6-12 | No | -- | -- | Light brown and reddish brown mottled silt (ML) |
| OW-5 | 4/2/2014 | 10:20 | 15 | 12 | 0-6 | No | -- | -- | Light brown and reddish brown mottled silt with clay, some humic material at 0-2" |
| | | | | | 6-12 | No | -- | -- | Gray and light brown mottled silt with clay |
| OW-6 | 4/2/2014 | 10:40 | 15 | 12 | 0-6 | No | -- | -- | Gray and reddish brown clayey silt (MH), humic material at 0-2" |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown grading to light brown and reddish brown mottled clayey silt (MH) |
| OW-7 | 4/3/2014 | 10:15 | 19 | 19 | 0-6 | No | -- | -- | Gray silty clay (CL) with roots and organic material |
| | | | | | 6-12 | No | -- | -- | 6-8" - Gray silty clay (CL) with roots and organic material; 8-12" - Gray and reddish brown mottled clayey silt (MH) |
| OW-8 | 4/3/2014 | 11:03 | 24 | 12 | 0-6 | No | -- | -- | Brown clayey silt with roots |
| | | | | | 6-12 | No | -- | -- | Brown clay, medium stiff |
| OW-9 | 4/3/2014 | 10:51 | 24 | 18 | 0-6 | No | -- | -- | Brown clay, some silt, soft |
| | | | | | 6-12 | No | -- | -- | Brown clay, stiff |
| OW-10 | 4/3/2014 | 10:30 | 14 | 14 | 0-6 | No | -- | -- | -- |
| | | | | | 6-12 | No | -- | -- | -- |
| OW-11 | 4/2/2014 | 11:30 | 15 | 15 | 0-6 | No | -- | -- | Gray silt with clay (MH), roots, humic material |
| | | | | | 6-12 | No | -- | -- | Light brown and reddish silt (ML) |
| OW-12 | 4/2/2014 | 13:00 | 12 | 10 | 0-6 | No | -- | -- | Gray and reddish brown mottled silt with clay (MH); organic material (roots and grass) at 0-2" |
| | | | | | 6-10 | No | -- | -- | Gray and reddish brown mottled silt with clay (MH) |
| OW-13 | 4/3/2014 | 11:15 | 24 | 12 | 0-6 | No | -- | -- | Brown silty clay |
| | | | | | 6-12 | No | -- | -- | Brown clay |
| OW-14 | 4/4/2014 | 13:18 | Not recorded | 15 | 0-6 | No | -- | -- | Brown clayey silt |
| | | | | | 6-12 | No | -- | -- | Brown clayey silt |
| OW-15 | 4/3/2014 | 9:22 | 24 | 14 | 0-6 | Yes | Patches/streamers of silver gray sheen | Lighter | Brown silty clay, soft, very light sheen at 0-5" |
| | | | | | 6-12 | No | -- | -- | Brown clay, medium stiff |
| OW-16 | 4/3/2014 | 9:02 | 24 | 12 | 0-6 | Yes | Patches/streamers of rainbow sheen with 10 oil spots (0.1-0.25-inch wide) | Medium | Brown silty clay, very light sheen at 0-4" |
| | | | | | 6-12 | No | -- | -- | Red brown clay, stiff |
| OW-17 | 4/3/2014 | 8:46 | 24 | 11 | 0-6 | No | -- | -- | Brown silt, very little sheen at 0-2.4" |
| | | | | | 6-11 | No | -- | -- | Brown clay, medium stiff |
| OW-18 | 4/2/2014 | 13:40 | 12 | 12 | 0-6 | Yes | Streamer of rainbow sheen | Heavier | 0-3" - Gray silty clay (CL), soft; 3-6" - Gray and reddish brown clayey silt (MH) |
| | | | | | 6-12 | Yes | Patch of silver gray sheen | Lighter | 6-10" - Gray and reddish brown clayey silt (MH); 10-12" - Gray silty clay (CL) |
| OW-19 | 4/2/2014 | 13:25 | 12 | 12 | 0-6 | Yes | Patches of silver gray sheen | Medium | Gray and reddish brown silt with clay (MH), roots and plant material at 0-2" |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown silt with clay (MH) |
| OW-20 | 4/3/2014 | 10:21 | 24 | 11 | 0-6 | Yes | Patches/streamers of rainbow sheen with oil spots | Heavier | Brown silt, soft, light sheen 0-5" |
| | | | | | 6-11 | No | -- | -- | Reddish brown clay, soft |

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| Location ID | Date | Time | Penetration Depth (inches) | Recovery (inches) | Sample Interval (inches) | Sheen Observed | Sheen Characterization | Qualitative Sheening Amount | Sediment Description |
|---|---|---|---|---|---|---|---|---|---|
| OW-21 | 4/3/2014 | 9:48 | Not recorded | 12 | 0-6 | Yes | Patches/streamers of rainbow sheen | Medium | Brown silt, light sheen 0-4" (rainbow sheen patch after agitation of ground using EPA method) |
| | | | | | 6-12 | No | -- | -- | Red brown clay, soft |
| OW-22 | 4/2/2014 | 16:32 | 24 | 12 | 0-6 | Yes | Patches/streamers of silver gray sheen | Lighter | Brown silt, very light sheen at 0-2.4" |
| | | | | | 6-12 | No | -- | -- | Brown clay, stiff |
| OW-23 | 4/3/2014 | 10:50 | 15 | 15 | 0-6 | No | -- | -- | Gray and reddish brown silt with clay (MH) |
| | | | | | 6-12 | No | -- | -- | Light brown and reddish brown mottled silt with clay (MH), soft |
| OW-24 | 4/2/2014 | 15:00 | 18 | 18 | 0-6 | Yes | Streamer of silver gray sheen | Lighter | Gray and reddish brown mottled clayey silt (MH) with roots and plan material |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown mottled clayey silt (MH) with roots and plan material |
| OW-25 | 4/2/2014 | 15:15 | 15 | 12 | 0-6 | No | -- | -- | Gray and reddish brown mottled clayey silt (MH) |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown mottled clayey silt (MH) |
| OW-26 | 4/3/2014 | 10:05 | 24 | 12 | 0-6 | No | -- | -- | Brown silt, rootlets |
| | | | | | 6-12 | No | -- | -- | Red brown clay |
| OW-27 | 4/2/2014 | 16:17 | 24 | 12 | 0-6 | Yes | Patches/streamers of silver gray sheen with 0.25-inch wide oil spot | Heavier | Brown clayey silt, very light sheen at 0-2.4" |
| | | | | | 6-12 | No | -- | -- | Brown clay, soft |
| OW-28 | 4/2/2014 | 16:51 | 24 | 14.4 | 0-6 | Yes | Patches/streamers of silver gray sheen with 3 oil spots | Heavier | Silty clay, light sheen at 0-2.4" |
| | | | | | 6-12 | No | -- | -- | Reddish brown clay, stiff |
| OW-29 | 4/2/2014 | 14:35 | 12 | 12 | 0-6 | No | -- | -- | Gray and reddish brown silt with clay |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown silt with clay |
| OW-30 | 4/2/2014 | 15:50 | 12 | 12 | 0-6 | No | -- | -- | 0-5" - Gray silty clay (CL) with humic material, soft; 5-6" - Gray and reddish brown mottled silt with clay (MH) |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown mottled silt with clay (MH) |
| OW-31 | 4/2/2014 | 16:00 | 12 | 12 | 0-6 | No | -- | -- | Gray and reddish brown mottled silt with clay (MH) |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown mottled silt with clay (MH) |
| OW-32 | 4/2/2014 | 16:15 | 12 | 12 | 0-6 | No | -- | -- | -- |
| | | | | | 6-12 | No | -- | -- | -- |
| OW-33 | 4/2/2014 | 16:01 | 24 | 13.2 | 0-6 | Yes | Patches/streamers of silver gray sheen | Medium | Silty humic material, light sheen |
| | | | | | 6-12 | No | -- | -- | Brown silty clay to clay |
| OW-34 | 4/2/2014 | 13:30 | 24 | 16 | 0-6 | Yes | Patches/streamers of rainbow sheen with oil spots | Heavier | Silt with humic material, light sheen at 0-6" |
| | | | | | 6-12 | Yes | Patches/streamers of rainbow sheen | Medium | Clayey silt, light sheen at 6-10" (Clay at 16" didn't produce sheen) |
| OW-35 | 4/3/2014 | 11:05 | 14 | 14 | 0-6 | No | -- | -- | Gray and reddish brown silt with clay (MH) |
| | | | | | 6-12 | No | -- | -- | 6-7" Gray and reddish brown silt with clay (MH); 7-12" - Light brown and reddish brown clayey silt (MH) |
| OW-36 | 4/2/2014 | 16:50 | 12 | 12 | 0-6 | No | -- | -- | 0-4" - Gray silty clay (CL) with humic material, soft; 4-6" - Light brown and reddish brown mottled silty clay (CL) |
| | | | | | 6-12 | No | -- | -- | Light brown and reddish brown mottled silty clay (CL) |
| OW-37 | 4/2/2014 | 9:51 | 24 | 12 | 0-6 | No | -- | -- | Reddish brown silty clay |
| | | | | | 6-12 | No | -- | -- | Red clay |

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|---|---|---|---|---|---|---|---|---|---|
| OW-38 | 4/2/2014 | 10:15 | 24 | 13 | 0-6 | No | -- | -- | Brown clay |
| | | | | | 6-12 | Yes | Patches/streamers of silver gray sheen | Medium | Brown silty clay |
| OW-39 | 4/2/2014 | 15:47 | 24 | 12 | 0-6 | Yes | Streamers of silver gray sheen | Lighter | Brown silty clay, algae 0-2.4" |
| | | | | | 6-12 | No | -- | -- | Reddish brown clay, soft |
| OW-40 | 4/2/2014 | 15:23 | 24 | 13 | 0-6 | Yes | Patches/streamers of rainbow sheen with 20 oil spots | Heavier | Silty clay, some roots at 5-6", very light sheen at 0-2.4" |
| | | | | | 6-12 | Yes | Streamers of silver gray sheen with oil spot | Medium | Red brown clay, medium stiff |
| OW-41 | 4/2/2014 | 15:08 | 24 | 12 | 0-6 | Yes | Patches/streamers of rainbow sheen | Heavier | Brown silt, very light sheen at 0-2.4" |
| | | | | | 6-12 | No | -- | -- | Reddish brown clay, soft |
| OW-42 | 4/2/2014 | 13:15 | 24 | 12 | 0-6 | Yes | Patches/streamers of rainbow sheen | Heavier | Brown silt, humic material at 3", light sheen at 0-6" |
| | | | | | 6-12 | No | -- | -- | Brown clay |
| OW-43 | 4/2/2014 | 9:31 | 24 | 12 | 0-6 | No | -- | -- | Gray brown clayey silt with rootlets (during mobilization heavy sheen was observed after disturbing oil globule) |
| | | | | | 6-12 | No | -- | -- | Dark brown clayey silt with rootlets |
| OW-44 | 4/2/2014 | 10:06 | 24 | 11 | 0-6 | No | -- | -- | Brown clay |
| | | | | | 6-11 | No | -- | -- | Red brown clay |
| OW-45 | 4/2/2014 | 10:54 | 24 | 15.6 | 0-6 | Yes | Patches/streamers of rainbow sheen with oil spots | Heavier | Brown silt with rootlets, medium sheen at 0-4" |
| | | | | | 6-12 | No | -- | -- | Red silty clay |
| OW-46 | 4/2/2014 | 11:24 | 24 | 12 | 0-6 | Yes | Patches/streamers of rainbow sheen with oil spots | Heavier | Brown silt, medium sheen at 0-5" |
| | | | | | 6-12 | Yes | Patches/streamers of rainbow sheen with oil spots | Heavier | Brown silty clay |
| OW-47 | 4/3/2014 | 11:20 | 12 | 12 | 0-6 | Yes | Streamers of silver gray sheen | Medium | -- |
| | | | | | 6-12 | Yes | Streamers of silver gray sheen | Lighter | -- |
| OW-48 | 4/3/2014 | 8:45 | 12 | 12 | 0-6 | No | -- | -- | Gray and reddish brown mottled silt with clay (MH) |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown mottled silt with clay (MH) |
| OW-49 | 4/2/2014 | 10:29 | 24 | 12 | 0-6 | Yes | Patches/streamers of rainbow sheen with 5 oil spots | Heavier | Humic material, visible sheen at 0-5" |
| | | | | | 6-12 | No | -- | -- | Brown silty clay, roots |
| OW-50 | 4/2/2014 | 11:09 | 24 | 10 | 0-6 | Yes | Patches of silver gray sheen | Lighter | Humic material, light sheen at 0-4" |
| | | | | | 6-10 | No | -- | -- | Brown clay |
| OW-51 | 4/2/2014 | 12:56 | 24 | 18 | 0-6 | Yes | Patches/streamers of rainbow sheen with oil spots | Heavier | Brown silt, twigs, odor of benzene, medium sheen at 0-4" |
| | | | | | 6-12 | Yes | Streamers of silver gray sheen | Lighter | Brown clayey silt |
| OW-52 | 4/3/2014 | 9:00 | 12 | 11 | 0-6 | No | -- | -- | -- |
| | | | | | 6-11 | No | -- | -- | -- |
| OW-53 | 4/3/2014 | 9:15 | 10 | 10 | 0-6 | No | -- | -- | Gray and reddish brown mottled clayey silt (MH) |
| | | | | | 6-10 | No | -- | -- | Gray and reddish brown mottled clayey silt (MH) |
| OW-54 | 4/3/2014 | 9:25 | 13 | 13 | 0-6 | No | -- | -- | -- |
| | | | | | 6-12 | No | -- | -- | -- |

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|---|---|---|---|---|---|---|---|---|---|
| OW-55 | 4/9/2014 | 10:20 | 18 | 18 | 0-6 | No | -- | -- | Gray clayey silt with organic material |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown mottled clayey silt (MH) |
| OW-56 | 4/9/2014 | 10:40 | 16 | 16 | 0-6 | No | -- | -- | 0-5" - Gray silty clay with organic material; 5-6" - Gray and reddish brown mottled clayey silt (MH) |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown mottled clayey silt (MH) |
| OW-57 | 4/9/2014 | 10:50 | 12 | 12 | 0-6 | No | -- | -- | 0-4" - Gray silty clay with organic material; 4-6" - Gray and reddish brown clayey silt (MH) |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown clayey silt (MH) |
| OW-58 | 4/9/2014 | 11:10 | 12 | 9 | 0-6 | No | -- | -- | 0-4" - Reddish brown clayey silt (MH); 4-6" - Reddish brown silty clay (CL) |
| | | | | | 6-9 | No | -- | -- | Reddish brown silty clay (CL) |
| OW-59 | 4/9/2014 | 12:45 | 15 | 15 | 0-6 | No | -- | -- | 0-4" - Gray silty clay (CL) with organic material, soft; 4-6" - Gray and reddish brown clayey silt (MH) |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown clayey silt (MH) |
| OW-60 | 4/9/2014 | 13:10 | 12 | 10.5 | 0-6 | No | -- | -- | 0-2" - Gray silty clay (CL) with organic material; 2-6" - Gray and reddish brown clayey silt (MH) |
| | | | | | 6-10.5 | No | -- | -- | Gray and reddish brown clayey silt (MH) |
| OW-61 | 4/9/2014 | 13:25 | 16 | 16 | 0-6 | No | -- | -- | Gray and reddish brown mottled silt with clay |
| | | | | | 6-12 | No | -- | -- | Gray and reddish brown mottled silt with clay |
| OW-62 | 4/9/2014 | 13:40 | 18 | 18 | 0-6 | Yes | Streamers of rainbow sheen | Heavier | Gray silty clay (CL), soft |
| | | | | | 6-12 | Yes | Patch of silver gray sheen | Lighter | Gray silty clay (CL), soft |
| OW-63 | 4/25/2014 | 15:10 | 24 | 17 | 0-6 | Yes | Streamers of silver gray sheen (quickly dissipated) | Lighter | Brownish gray sandy silt loam with organic material and roots |
| | | | | | 6-12 | Yes | Patches/streamers of silver gray sheen (quickly dissipated) | Lighter | Grayish brown clay loam |
| OW-64 | 4/25/2014 | 14:48 | 26 | 20 | 0-6 | No | -- | -- | Brown silt loam with organic material |
| | | | | | 6-12 | Yes | Streamers of silver gray sheen (very light) | Lighter | Grayish brown clay sand loam |
| OW-65 | 4/25/2014 | 15:37 | 24 | 17 | 0-6 | No | -- | -- | Grayish brown silt loam |
| | | | | | 6-12 | Yes | Streamers of silver gray sheen | Lighter | Brownish gray clay loam with redox |
| OW-66 | 4/25/2014 | 15:58 | 24 | 18 | 0-6 | No | -- | -- | Gray clay loam with redox |
| | | | | | 6-12 | No | -- | -- | Light brown silt loam, friable |
| OW-67 | 4/25/2014 | 14:20 | 24 | 14 | 0-6 | No | -- | -- | Brownish gray silt loam with organic material |
| | | | | | 6-12 | No | -- | -- | Brownish gray sand loam |
| OW-68 | 4/25/2014 | 11:50 | Not recorded | 13 | 0-6 | Yes | Streamers of silver gray sheen | Lighter | Brownish gray silt loam with organic material |
| | | | | | 6-12 | Yes | Patches/streamers of rainbow sheen | Heavier | Brownish gray silty clay loam |
| OW-69 | 4/25/2014 | 11:17 | 24 | 14 | 0-6 | Yes | Patches/streamers of silver gray sheen | Medium | Gray silty clay loam with roots and organic material |
| | | | | | 6-12 | No | -- | -- | Gray clay loam with rootlets |
| OW-70 | 4/25/2014 | 10:50 | 18 | 12 | 0-6 | No | -- | -- | Gray clay loam with rootlets |
| | | | | | 6-12 | No | -- | -- | Gray clay loam |
| OW-71 | 4/25/2014 | 16:18 | Not recorded | 16 | 0-6 | Yes | Patches/streamers of silver gray sheen | Lighter | Brownish gray silt loam, some sheen at 0-4" |
| | | | | | 6-12 | No | -- | -- | Brown silt-clay loam, friable |
| **Cove Heavily Vegetated Area** | | | | | | | | | |
| VA-1 | 4/1/2014 | 9:51 | 18 | 8 | 0-0.1 | No | -- | -- | Humic material with organics |
| | | | | | 0.1-6 | No | -- | -- | Reddish brown clay, no plasticity |

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|---|---|---|---|---|---|---|---|---|---|
| VA-2 | 4/1/2014 | 10:15 | 18 | 3 | 0-0.1 | No | -- | -- | -- |
| | | | | | 0.1-3 | No | -- | -- | -- |
| VA-3 | 4/1/2014 | 10:35 | 24 | 10.8 | 0-0.1 | No | -- | -- | Humic material with organics |
| | | | | | 0.1-6 | No | -- | -- | Brown silty clay with rootlets |
| VA-4 | 4/1/2014 | 10:58 | 30 | 10.8 | 0-0.1 | Yes | Patches of silver gray sheen | Lighter | Humic material with organics |
| | | | | | 0.1-6 | No | -- | -- | Humic material, some clay |
| VA-5 | 4/1/2014 | 11:25 | 30 | 9.6 | 0-0.1 | No | -- | -- | Humic material with twigs |
| | | | | | 0.1-6 | No | -- | -- | Reddish brown clay, soft |
| VA-6 | 4/1/2014 | 13:16 | 24 | 5 | 0-0.1 | No | -- | -- | Humic material with twigs |
| | | | | | 0.1-5 | No | -- | -- | Humic material with twigs and roots, some clay |
| VA-7 | 4/1/2014 | 13:26 | 30 | 9.6 | 0-0.1 | No | -- | -- | Humic material |
| | | | | | 0.1-6 | No | -- | -- | Gray clayey silt |
| VA-8 | 4/1/2014 | 13:38 | 24 | 15.6 | 0-0.1 | No | -- | -- | Brown silt |
| | | | | | 0.1-6 | Yes | Streamers of silver gray sheen | Lighter | Silt with humic material, some clay |
| VA-9 | 4/1/2014 | 13:57 | 24 | 10.8 | 0-0.1 | No | -- | -- | Silt, organic matter (light sheen observed) |
| | | | | | 0.1-6 | No | -- | -- | Silty clay, soft |
| VA-10 | 4/1/2014 | 14:18 | 24 | 15.6 | 0-0.1 | Yes | Streamers of rainbow/silver gray sheen | Heavier | Brown silt |
| | | | | | 0.1-6 | No | -- | -- | Humic material with rootlets |
| VA-11 | 4/1/2014 | 14:39 | 24 | 12 | 0-0.1 | No | -- | -- | Brown silt, very little visible sheen |
| | | | | | 0.1-6 | Yes | Streamers of silver gray sheen | Medium | Silt, humic material, roots, very little sheen in 0.1-4" |
| VA-12 | 4/1/2014 | 14:57 | 30 | 12 | 0-0.1 | Yes | Patches of silver gray sheen | Lighter | Dark brown silt, very little sheen |
| | | | | | 0.1-6 | No | -- | -- | Brown silty clay |
| VA-13 | 4/1/2014 | 15:19 | 24 | 12 | 0-0.1 | Yes | Streamers of silver gray sheen with occasional oil spots | Heavier | Humic material with organics |
| | | | | | 0.1-6 | No | -- | -- | Clayey silt with roots |
| VA-14 | 4/1/2014 | 15:42 | 18 | 6 | 0-0.1 | Yes | Patch of silver gray sheen | Lighter | Gray silt with rootlets |
| | | | | | 0.1-6 | No | -- | -- | Gray clayey silt with rootlets |
| VA-15 | 4/1/2014 | 15:56 | 18 | 8.4 | 0-0.1 | No | -- | -- | Silt with humic material |
| | | | | | 0.1-6 | No | -- | -- | Brown silt with some clay and rootlets |
| VA-16 | 4/1/2014 | 16:24 | 18 | 4 | 0-0.1 | No | -- | -- | Brown humic material with roots |
| | | | | | 0.1-4 | No | -- | -- | Clayey silt with roots |
| VA-17 | 4/1/2014 | 16:40 | 24 | 6 | 0-0.1 | No | -- | -- | Brown silt with roots |
| | | | | | 0.1-6 | No | -- | -- | Brown silty clay |
| VA-18 | 4/1/2014 | 16:55 | 24 | 13.2 | 0-0.1 | Yes | Streamers of silver gray sheen | Medium | Brown silt with humic material |
| | | | | | 0.1-6 | No | -- | -- | Brown silt with some clay |
| VA-19 | 4/4/2014 | 9:07 | 48 | 6 | 0-0.1 | No | -- | -- | Brown humic material |
| | | | | | 0.1-6 | No | -- | -- | Brown clay, soft |
| VA-20 | 4/4/2014 | 9:26 | 24 | 12 | 0-0.1 | No | -- | -- | Silt, some clay, roots (minor sheen when boat operated agitated using EPA method) |
| | | | | | 0.1-6 | No | -- | -- | Brown clay, soft |
| VA-21 | 4/4/2014 | 9:41 | 48 | 12 | 0-0.1 | No | -- | -- | Brown silt, roots at 2.4" |
| | | | | | 0.1-6 | No | -- | -- | Brown clay, soft |

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|---|---|---|---|---|---|---|---|---|---|
| VA-22 | 4/4/2014 | 9:54 | 48 | 13 | 0-0.1 | No | -- | -- | Brown silt |
| | | | | | 0.1-6 | No | -- | -- | Brown clay, soft |
| VA-23 | 4/4/2014 | 10:07 | Not recorded | | 0-0.1 | No | -- | -- | Humic material, roots |
| | | | | | 0.1-6 | No | -- | -- | Brown clay, soft |
| VA-24 | 4/4/2014 | 10:22 | 42 | 21.6 | 0-0.1 | Yes | Patches of rainbow sheen with 1 oil spot (0.25-inch wide) | Heavier | Brown silt, saturated (minor sheen when boat operated agitated using EPA method) |
| | | | | | 0.1-6 | No | -- | -- | Brown silt, saturated |
| VA-25 | 4/4/2014 | 10:43 | 48 | 7.2 | 0-0.1 | No | -- | -- | Brown clayey humic material |
| | | | | | 0.1-6 | No | -- | -- | Gray clayey silt, soft |
| VA-26 | 4/4/2014 | 11:03 | 36 | 18 | 0-0.1 | No | -- | -- | Humic material with roots |
| | | | | | 0.1-6 | No | -- | -- | Brown clayey silt, soft |
| VA-27 | 4/4/2014 | 11:20 | 48 | 6 | 0-0.1 | No | -- | -- | Brown silt with roots |
| | | | | | 0.1-6 | No | -- | -- | Brown silt with roots |
| VA-28 | 4/4/2014 | 13:50 | 36 | 12 | 0-0.1 | Yes | Streamers of silver gray sheen | Lighter | Brown clayey silt, rootlets |
| | | | | | 0.1-6 | No | -- | -- | Brown clayey silt, soft |
| VA-29 | 4/4/2014 | 14:19 | 48 | 12 | 0-0.1 | Yes | Patches/streamers of silver gray sheen with oil spots (0.25-inch wide) | Medium | Humic material with silt |
| | | | | | 0.1-6 | No | -- | -- | Humic material with silt |
| VA-30 | 4/4/2014 | 14:34 | 36 | 18 | 0-0.1 | Yes | Patches/Streamers of rainbow sheen with 10 oil spots | Heavier | Brown silt, soft |
| | | | | | 0.1-6 | Yes | Patches/Streamers of rainbow sheen with 5 oil spots | Medium | Brown silt, roots, light sheen at 0-3" |
| VA-31 | 4/4/2014 | 14:50 | 36 | 13 | 0-0.1 | Yes | Streamers of silver gray sheen with 1 oil spot | Lighter | Brown silt, very light sheen |
| | | | | | 0.1-6 | No | -- | -- | Humic material, rootlets |
| VA-32 | 4/4/2014 | 15:15 | 36 | 24 | 0-0.1 | No | -- | -- | Humic material, rootlets |
| | | | | | 0.1-6 | No | -- | -- | Brown silt, minor sheet spot at 5" |
| **Cove Probing Area** | | | | | | | | | |
| PA-43 | 5/7/2014 | 13:35 | 12 | 12 | 0-6 | No | -- | -- | Gray organic material with clay |
| | | | | | 6-12 | No | -- | -- | Gray clayey silt (ML) |

**Notes:**
-- = not applicable or not measured

**Table 3**
**Rating System for Overall Qualitative Sheening Amount**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Probing Result (Yes / No) | Sheen Test (No Sheen, Lighter, Medium, Heavier) | Overall Rating (No Sheen, Lighter, Medium, Heavier) |
|---|---|---|
| No | No Sheen | No Sheen |
| No | Lighter | Lighter |
| No | Medium | Medium |
| No | Heavier | Heavier |
| Yes[1] | No Sheen | Lighter |
| Yes[1] | Lighter | Lighter |
| Yes[1] | Medium | Medium |
| Yes[1] | Heavier | Heavier |

**Notes:**

1. The sediment probing activities were conducted to primarily determine horizontal extent of sheen-bearing material. The probing results are considered for overall rating of the surface interval only (0 to 6 inches) because there is a potential for the sheen observed during the probing of the "deeper" interval to be a result of the sheen-bearing material in the "shallower" interval.

**Table 4**
**Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Surface Water Sheen | Sample Depth (inches) | Sheen Presence in Probing[1] | Qualitative Sheening Amount for Sheen Stir Test | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|
| **Cove Inlet Channel** | | | | | |
| IC-1 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| IC-2 | No | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes | Heavier | Heavier |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| IC-3 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| IC-4 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| IC-5 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| IC-6 | No | 0-6 | Yes | Medium | Medium |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| IC-7 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-15 | -- | No Sheen | No Sheen |
| IC-8 | No | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes | Lighter | Lighter |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| | -- | 18-24 | -- | No Sheen | No Sheen |
| IC-9 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| IC-10 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | No | No Sheen | No Sheen |
| IC-11 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | Lighter | Lighter |
| | -- | 12-15 | -- | No Sheen | No Sheen |
| IC-12 | No | 0-6 | Yes | Medium | Medium |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| | -- | 18-24 | -- | No Sheen | No Sheen |
| IC-13 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| IC-14 | No | 0-6 | Yes | Lighter | Lighter |
| | -- | 6-12 | Yes | Lighter | Lighter |
| | -- | 12-14 | -- | No Sheen | No Sheen |
| IC-15 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-15 | -- | No Sheen | No Sheen |

**Table 4**
**Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Surface Water Sheen | Sample Depth (inches) | Sheen Presence in Probing[1] | Qualitative Sheening Amount for Sheen Stir Test | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|
| IC-16 | Yes | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| | -- | 12-16 | -- | No Sheen | No Sheen |
| IC-17 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | Lighter | Lighter |
| | -- | 12-14 | -- | No Sheen | No Sheen |
| IC-18 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| IC-19 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-16 | -- | No Sheen | No Sheen |
| IC-20 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| IC-21 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| | -- | 12-17 | -- | No Sheen | No Sheen |
| IC-22 | Yes | 0-6 | Yes | Lighter | Lighter |
| | -- | 6-12 | Yes | Lighter | Lighter |
| | -- | 12-15 | -- | Lighter | Lighter |
| | -- | 18-24 | -- | No Sheen | No Sheen |
| IC-23 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | Lighter | Lighter |
| | -- | 12-18 | -- | Lighter | Lighter |
| | -- | 18-22 | -- | No Sheen | No Sheen |
| IC-24 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| IC-25 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | No | No Sheen | No Sheen |
| | -- | 12-18 | -- | No Sheen | No Sheen |
| | -- | 18-22 | -- | No Sheen | No Sheen |
| **Cove Open Water Area** | | | | | |
| OW-1 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-2 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | Lighter | Lighter |
| OW-3 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | Lighter | Lighter |
| OW-4 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-5 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |

**Table 4**
**Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Surface Water Sheen | Sample Depth (inches) | Sheen Presence in Probing[1] | Qualitative Sheening Amount for Sheen Stir Test | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|
| OW-6 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-7 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-8 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-9 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-10 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-11 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-12 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-10 | No | No Sheen | No Sheen |
| OW-13 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-14 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-15 | No | 0-6 | Yes | Lighter | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-16 | Yes | 0-6 | Yes | Medium | Medium |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-17[3] | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-11 | Yes | No Sheen | Lighter |
| OW-18 | No | 0-6 | No | Heavier | Heavier |
| | -- | 6-12 | No | Lighter | Lighter |
| OW-19 | No | 0-6 | No | Medium | Medium |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-20 | No | 0-6 | No | Heavier | Heavier |
| | -- | 6-11 | No | No Sheen | No Sheen |
| OW-21 | Yes | 0-6 | Yes | Medium | Medium |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-22 | Yes | 0-6 | Yes | Lighter | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-23 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-24 | No | 0-6 | Yes | Lighter | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-25 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-26 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-27 | No | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |

**Table 4**
**Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Surface Water Sheen | Sample Depth (inches) | Sheen Presence in Probing[1] | Qualitative Sheening Amount for Sheen Stir Test | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|
| OW-28 | No | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-29 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-30 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-31 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-32 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-33 | No | 0-6 | Yes | Medium | Medium |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-34 | Yes | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes | Medium | Medium |
| OW-35 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-36 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-37 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-38 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | Medium | Medium |
| OW-39 | No | 0-6 | Yes | Lighter | Lighter |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-40 | No | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes | Medium | Medium |
| OW-41 | Yes | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-42 | Yes | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-43 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-44 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-11 | No | No Sheen | No Sheen |
| OW-45 | Yes | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-46 | Yes | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes | Heavier | Heavier |
| OW-47 | Yes | 0-6 | Yes | Medium | Medium |
| | -- | 6-12 | Yes | Lighter | Lighter |
| OW-48 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-49 | Yes | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |

**Table 4**
**Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Surface Water Sheen | Sample Depth (inches) | Sheen Presence in Probing[1] | Qualitative Sheening Amount for Sheen Stir Test | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|
| OW-50 | Yes | 0-6 | Yes | Lighter | Lighter |
| | -- | 6-10 | Yes[1] | No Sheen | No Sheen |
| OW-51 | Yes | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes | Lighter | Lighter |
| OW-52 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-11 | No | No Sheen | No Sheen |
| OW-53 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-10 | No | No Sheen | No Sheen |
| OW-54 | Yes | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-55 | No | 0-6 | Yes | No Sheen | Lighter |
| | -- | 6-12 | Yes[1] | No Sheen | No Sheen |
| OW-56 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-57 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-58 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-9 | No | No Sheen | No Sheen |
| OW-59 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-60 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-10.5 | No | No Sheen | No Sheen |
| OW-61 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-62 | No | 0-6 | Yes | Heavier | Heavier |
| | -- | 6-12 | Yes | Lighter | Lighter |
| OW-63 | No | 0-6 | No | Lighter | Lighter |
| | -- | 6-12 | No | Lighter | Lighter |
| OW-64 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | Lighter | Lighter |
| OW-65 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | Yes | Lighter | Lighter |
| OW-66 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-67 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-68 | No | 0-6 | No | Lighter | Lighter |
| | -- | 6-12 | Yes | Heavier | Heavier |
| OW-69 | No | 0-6 | No | Medium | Medium |
| | -- | 6-12 | No | No Sheen | No Sheen |
| OW-70 | No | 0-6 | No | No Sheen | No Sheen |
| | -- | 6-12 | No | No Sheen | No Sheen |

**Table 4**

**Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area**

**Downstream Areas Pre-Design Study**

**ExxonMobil Environmental Services Company**

**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Surface Water Sheen | Sample Depth (inches) | Sheen Presence in Probing[1] | Qualitative Sheening Amount for Sheen Stir Test | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|
| OW-71 | No | 0-6 | No | Lighter | Lighter |
| | -- | 6-12 | No | No Sheen | No Sheen |

**Notes:**

1. Sediment probing results are presented for 0 to 6 inches and 6 to 12 inches below sediment surface. As described in Table 3, subsurface probing results (below 6 inches) are not included in the overall qualitative sheening determination, unless otherwise stated.

2. The rating system for the overall qualitative sheening amount is provided in Table 3.

3. At OW-17, sheen was observed in the probing at the deeper interval (6-11 inches) and therefore, the overall qualitative sheening amount is lighter for that interval.

-- = not applicable

**Table 5**
**Summary of Pre-Design Study Activities - Cove Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Surface Water Sheen | Sheen Presence in Probing[1] | Sample Depth for Sheen Stir Test (inches) | Qualitative Sheening Amount for Sheen Stir Test | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|
| VA-1 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-2 | Yes | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-3 | No Sheen | |
| VA-3 | No | Yes | 0-0.1 | No Sheen | Lighter |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-4 | Yes | Yes | 0-0.1 | Lighter | Lighter |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-5 | No | No | 0-0.1 | No Sheen | Lighter |
| | -- | Yes (6-12") | 0.1-6 | No Sheen | |
| VA-6 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-5 | No Sheen | |
| VA-7 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-8 | No | No | 0-0.1 | No Sheen | Lighter |
| | -- | No | 0.1-6 | Lighter | |
| VA-9 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-10 | Yes | Yes | 0-0.1 | Heavier | Heavier |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-11 | Yes | Yes | 0-0.1 | No Sheen | Medium |
| | -- | Yes | 0.1-6 | Medium | |
| VA-12 | Yes | Yes | 0-0.1 | Lighter | Lighter |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-13 | Yes | Yes | 0-0.1 | Heavier | Heavier |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-14 | Yes | Yes | 0-0.1 | Lighter | Lighter |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-15 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-16 | Yes | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-4 | No Sheen | |
| VA-17 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-18 | Yes | Yes | 0-0.1 | Medium | Medium |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-19 | Yes | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-20 | Yes | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-21 | No | No | 0-0.1 | No Sheen | Lighter |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-22 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |

**Table 5**
**Summary of Pre-Design Study Activities - Cove Heavily Vegetated Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Surface Water Sheen | Sheen Presence in Probing[1] | Sample Depth for Sheen Stir Test (inches) | Qualitative Sheening Amount for Sheen Stir Test | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|
| VA-23 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-24 | No | No | 0-0.1 | Heavier | Heavier |
| | -- | Yes (6-12") | 0.1-6 | No Sheen | |
| VA-25 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-26 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-27 | No | No | 0-0.1 | No Sheen | No Sheen |
| | -- | No | 0.1-6 | No Sheen | |
| VA-28 | No | Yes | 0-0.1 | Lighter | Lighter |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-29 | No | Yes | 0-0.1 | Medium | Medium |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-30 | No | No | 0-0.1 | Heavier | Heavier |
| | -- | Yes (6-12") | 0.1-6 | Medium | |
| VA-31 | Yes | Yes | 0-0.1 | Lighter | Lighter |
| | -- | Yes | 0.1-6 | No Sheen | |
| VA-32 | No | No | 0-0.1 | No Sheen | Lighter |
| | -- | Yes (6-12") | 0.1-6 | No Sheen | |

**Notes:**

1. The sediment probing activities in the VA- locations were conducted in top 12 inches to determine horizontal extent of sheen-bearing material.

2. The rating system for the overall qualitative sheening amount is provided in Table 3.

-- = not applicable or probing/sheen stir test not conducted

**Table 6**
**Summary of Pre-Design Study Activities for Cove Probing Area**

**Downstream Areas Pre-Design Study**
**ExxonMobil Environmental Services Company**
**Mayflower Pipeline Incident Response, Mayflower, Arkansas**

| Location ID | Date | Time | Water Depth (feet) | Probe Depth (inches) | Surface Water Sheen Observation | Probing Interval (inches) | Sheen Observed | Overall Qualitative Sheening Amount[2] |
|---|---|---|---|---|---|---|---|---|
| PA-1 | 3/31/2014 | 10:53 | 1.5 | 1 | No | 0-1 | No | No Sheen |
| PA-2 | 3/31/2014 | 14:16 | 1.3 | 1 | No | 0-1 | Yes | Lighter |
| PA-3 | 3/31/2014 | 14:45 | 1.3 | 1 | No | 0-1 | Yes | Lighter |
| PA-4 | 3/31/2014 | 11:01 | 2.1 | 1 | No | 0-1 | No | No Sheen |
| PA-5 | 3/31/2014 | 11:44 | 0.7 | 1 | No | 0-1 | No | No Sheen |
| PA-6 | 3/31/2014 | 14:24 | 1.9 | 1 | No | 0-1 | No | No Sheen |
| PA-7 | 3/31/2014 | 15:03 | 0.3 | 1 | No | 0-1 | No | No Sheen |
| PA-8 | 3/31/2014 | 11:11 | 1.0 | 1 | No | 0-1 | No | No Sheen |
| PA-9 | 3/31/2014 | 14:13 | 0.8 | 1 | No | 0-1 | No | No Sheen |
| PA-10 | 3/31/2014 | 14:36 | 1.0 | 1 | No | 0-1 | No | No Sheen |
| PA-11 | 3/31/2014 | 10:46 | 0.9 | 1 | No | 0-1 | No | No Sheen |
| PA-12 | 3/31/2014 | 11:41 | 2.0 | 1 | No | 0-1 | No | No Sheen |
| PA-13 | 3/31/2014 | 14:29 | 1.7 | 1 | No | 0-1 | No | No Sheen |
| PA-14 | 3/31/2014 | 11:14 | 2.2 | 1 | No | 0-1 | No | No Sheen |
| PA-15 | 3/31/2014 | 14:11 | 2.3 | 1 | No | 0-1 | No | No Sheen |
| PA-16 | 3/31/2014 | 10:42 | 1.0 | 1 | No | 0-1 | No | No Sheen |
| PA-17 | 3/31/2014 | 11:39 | 2.0 | 1 | No | 0-1 | No | No Sheen |
| PA-18 | 3/31/2014 | 14:32 | 1.1 | 1 | No | 0-1 | No | No Sheen |
| PA-19 | 3/31/2014 | 10:14 | 0.2 | 1 | No | 0-1 | No | No Sheen |
| PA-20 | 3/31/2014 | 11:17 | 2.7 | 1 | No | 0-1 | No | No Sheen |
| PA-21 | 3/31/2014 | 14:07 | 1.1 | 1 | No | 0-1 | No | No Sheen |
| PA-22 | 3/31/2014 | 10:08 | 0.3 | 1 | No | 0-1 | No | No Sheen |
| PA-23 | 3/31/2014 | 10:38 | 2.8 | 1 | No | 0-1 | No | No Sheen |
| PA-24 | 3/31/2014 | 11:36 | 2.3 | 1 | No | 0-1 | No | No Sheen |
| PA-25 | 3/31/2014 | 10:20 | 2.5 | 1 | No | 0-1 | No | No Sheen |
| PA-26 | 3/31/2014 | 11:20 | 2.9 | 1 | No | 0-1 | No | No Sheen |
| PA-27 | 3/31/2014 | 14:05 | 1.4 | 1 | No | 0-1 | No | No Sheen |
| PA-28 | 3/31/2014 | 10:00 | 4.5 | 1 | No | 0-1 | No | No Sheen |
| PA-29 | 3/31/2014 | 10:36 | 3.8 | 1 | No | 0-1 | No | No Sheen |
| PA-30 | 3/31/2014 | 11:33 | 1.5 | 1 | No | 0-1 | No | No Sheen |
| PA-31 | 3/31/2014 | 10:25 | 3.5 | 1 | No | 0-1 | No | No Sheen |
| PA-32 | 3/31/2014 | 11:23 | 4.0 | 1 | No | 0-1 | No | No Sheen |
| PA-33 | 3/31/2014 | 9:51 | 3.3 | 1 | No | 0-1 | No | No Sheen |
| PA-34 | 3/31/2014 | 10:33 | 1.0 | 1 | No | 0-1 | No | No Sheen |
| PA-35 | 3/31/2014 | 11:30 | 1.2 | 1 | No | 0-1 | No | No Sheen |
| PA-36 | 3/31/2014 | 10:28 | 2.2 | 1 | No | 0-1 | No | No Sheen |
| PA-37 | 3/31/2014 | 11:26 | 0.8 | 1 | No | 0-1 | No | No Sheen |
| PA-38 | 3/31/2014 | 9:42 | 4.8 | 1 | No | 0-1 | No | No Sheen |
| PA-39 | 3/31/2014 | 13:57 | 1.6 | 1 | No | 0-1 | No | No Sheen |
| PA-40 | 5/7/2014 | 12:50 | 1.0 | 6 | No | 0-6 | No | No Sheen |
| PA-41 | 5/7/2014 | 13:25 | 1.0 | 6 | No | 0-6 | No | No Sheen |
| PA-42 | 5/7/2014 | 13:50 | 1.3 | 6 | No | 0-6 | No | No Sheen |
| PA-43[2] | 5/7/2014 | 13:35 | 1.7 | 6 | No | 0-6 | Yes | Lighter |
| PA-44 | 5/7/2014 | 14:00 | 1.6 | 6 | No | 0-6 | No | No Sheen |
| PA-45 | 5/7/2014 | 14:05 | 1.8 | 6 | No | 0-6 | No | No Sheen |
| PA-46 | 5/7/2014 | 14:10 | 1.7 | 6 | No | 0-6 | No | No Sheen |
| PA-47 | 5/7/2014 | 14:15 | 2.2 | 6 | No | 0-6 | No | No Sheen |

**Notes:**

1. The rating system for the overall qualitative sheening amount is provided in Table 3.

2. The sheen observed during probing at PA-43 was described as patches/streamers of brittle and non-bittle silver gray sheen. Summary of sheen stir test conducted at PA-43 is included in Table 2. No sheen was observed during the sheen stir tests.

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**Figures**

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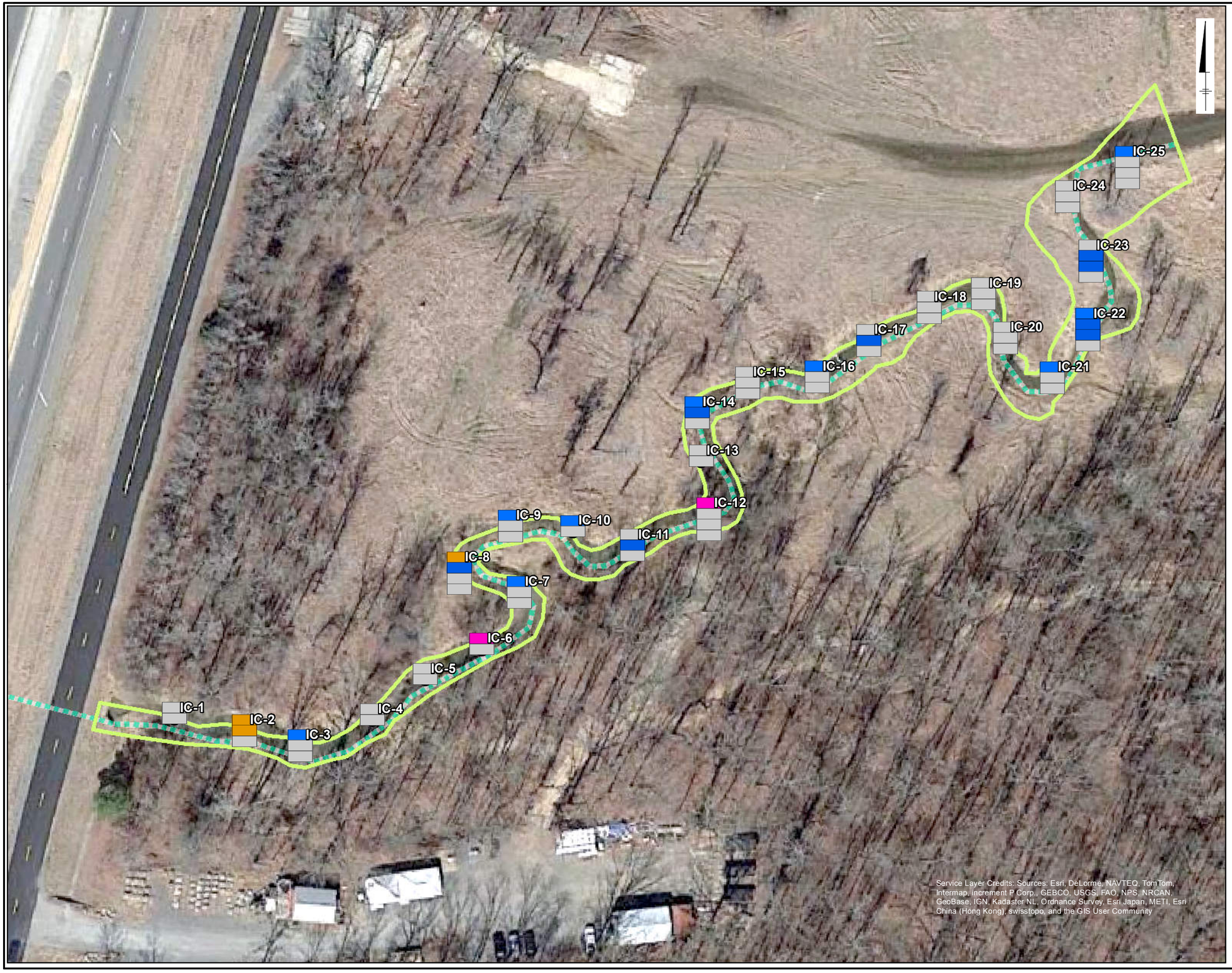



## Legend

Drainage Path

Cove Inlet Channel

**Relative Sheening Observed During Pre-Design Study**

- No Sheen
- Lighter Sheen
- Medium Sheen
- Heavier Sheen

- Sampling Depth 0-6 inches
- Sampling Depth 6-12 inches
- Sampling Depth 12-18 inches*
- Sampling Depth 18-24 inches*

* = Varies for some samples

NOTES:
1. Details regarding pre-design study activities are described in Appendix O of the DADAR (ARCADIS 2014). Pre-design study activities were completed between March 31 and April 9, 2014.

2. Figure shows overall qualitative sheen amount for each sample interval based on probing and/or sheen stir-test results.

0 70 140
Feet

**MAYFLOWER PIPELINE INCIDENT RESPONSE**
**EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY**
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

# COVE INLET CHANNEL SAMPLING LOCATIONS

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**FIGURE**
**1**

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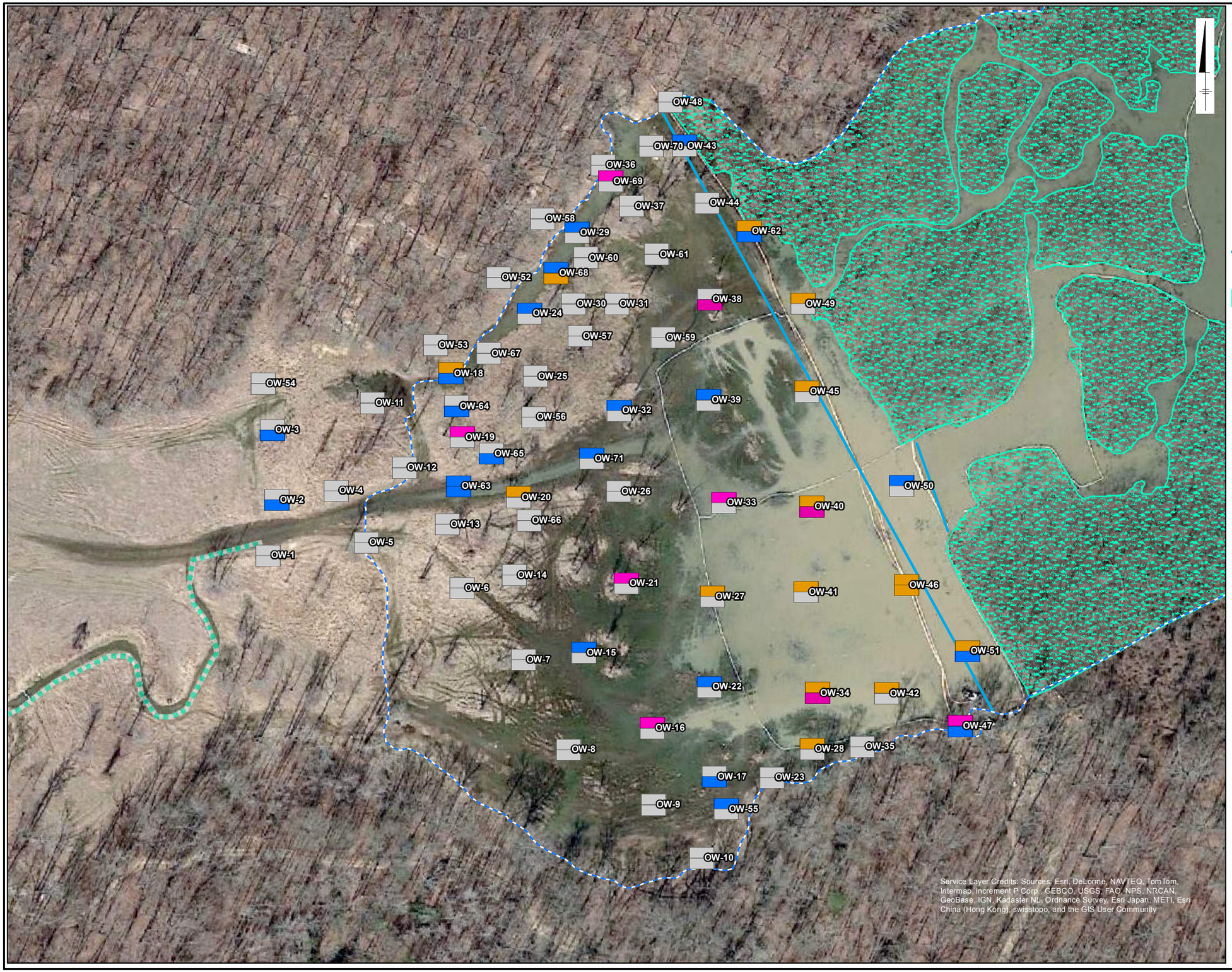


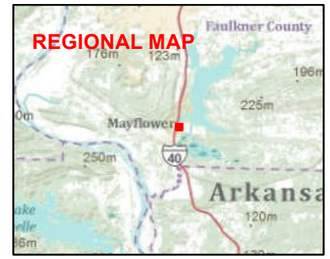


## Legend

- Water's Edge (At Time of Pre-Design study, April 2014)
- Containment Boom
- Drainage Path
- Areas with Heavy Vegetation

**Relative Sheening Observed During Pre-Design Study**

- No Sheen
- Lighter Sheen
- Medium Sheen
- Heavier Sheen

- Sampling Depth 0-6 inches
- Sampling Depth 6-12 inches*

* = Varies for some samples

NOTES:
1. Details regarding pre-design study activities are described in Appendix O of the DADAR (ARCADIS 2014). Pre-design study activities were completed between March 31 and April 9, 2014. Additional activities were completed on April 25, 2014.
2. Figure shows overall qualitative sheen amount for each sample interval based on probing and/or sheen stir-test results.

0 100 200
Feet

**MAYFLOWER PIPELINE INCIDENT RESPONSE**
**EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY**
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

# COVE OPEN WATER AREA SAMPLING LOCATIONS

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FIGURE
**2**

Office: CITRIX Author: MNesta Last Saved By: ssutton
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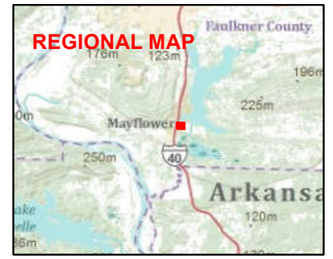


## Legend

- Water's Edge (At time of Pre-Design Study, April 2014)
- Containment Boom
- Areas with Heavy Vegetation

**Relative Sheening Observed During Pre-Design Study**

- No Sheen
- Lighter Sheen
- Medium Sheen
- Heavier Sheen

NOTES:
1. Details regarding pre-design study activities are described in Appendix O of the DADAR (ARCADIS 2014). Pre-design study activities were completed between March 31 and April 9, 2014. Additional activities were completed on May 7, 2014.
2. Figure shows overall qualitative sheen amount for each VA- location based on probing and/or sheen stir-test results. Figure shows amount of sheen for each PA- location based on probing results.
3. The Heavily Vegetated Area shown on this figure was digitized based on the February 2014 aerial that was acquired via Google Enterprise Geo Master License.

0 125 250
Feet

**MAYFLOWER PIPELINE INCIDENT RESPONSE**
**EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY**
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

# COVE HEAVILY VEGETATED AREA AND PROBING AREA SAMPLING LOCATIONS

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FIGURE
3

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**Photolog**

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-3 inches : Light reddish brown silt with clay (MH)
3-12 inches : Gray silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-1**

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FIGURE
1

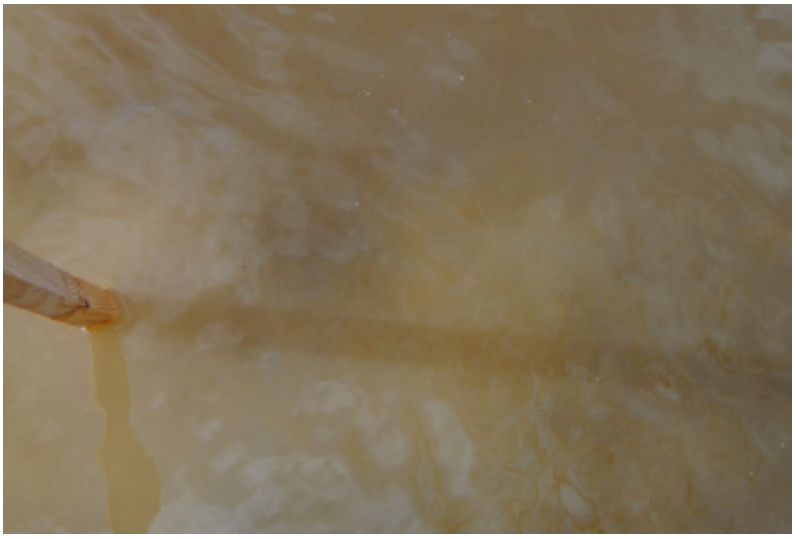
**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : Yes | 0-6 inches | : Yes | 0-6 inches | : Heavier |
| 0-6 inches | : Yes | 6-12 inches | : Yes | 6-12 inches | : Heavier |
| 6-12 inches | : Yes | 12-18 inches | : No | 12-18 inches | : No Sheen |

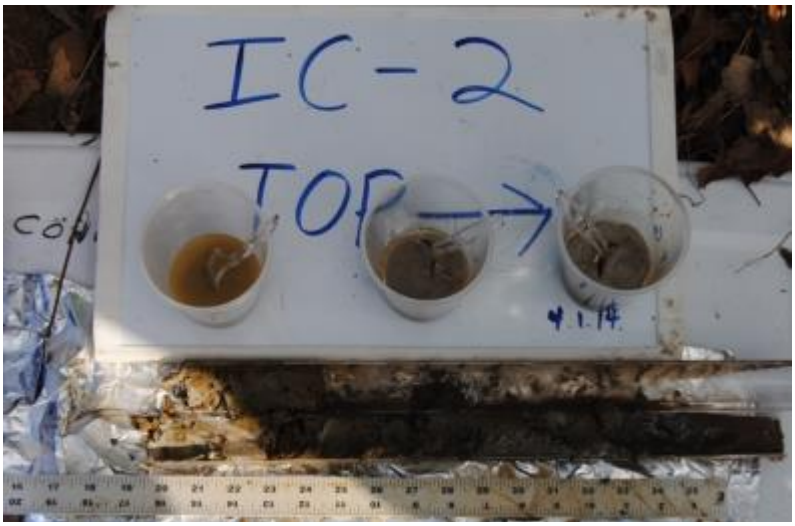
**Probing Observation:**

| | |
|---|---|
| Surface | : Patches/streamers of non-brittle silver gray sheen |
| 0-6 inches | : Patches/streamers of non-brittle silver gray sheen |



**Probing Observation:**

| | |
|---|---|
| 6-12 inches | : Patches/streamers of non-brittle silver gray sheen with oil spots (<0.25-inch wide) |




**Core Description:**

| | |
|---|---|
| 0-10 inches | : Gray silty humic material |
| 10-18 inches | : Gray and reddish brown clayey sand (SC) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-2**

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FIGURE
2

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : Yes | 0-6 inches | : Yes | 0-6 inches | : Heavier |
| 0-6 inches | : Yes | 6-12 inches | : Yes | 6-12 inches | : Heavier |
| 6-12 inches | : Yes | 12-18 inches | : No | 12-18 inches | : No Sheen |

**Sheen Stir-Test:**

0-6 inches : Cover of rainbow sheen (Heavier)

**Sheen Stir-Test:**

6-12 inches : Cover of rainbow sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-2 (continued)**

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FIGURE
3

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : Lighter |
| 0-6 inches | : Yes | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-18 inches | : No | 12-18 inches | : No Sheen |

**Probing Observation:**

0-6 inches : Patches/streamers of non-brittle silver gray sheen


**Core Description:**

0-8 inches : Light brown silt (ML)

8-18 inches : Light brown silt with clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-3**

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FIGURE
4

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-12 inches | : No Sheen |


**Core Description:**

| | |
|---|---|
| 0-8 inches | : Reddish brown silty clay (CL), soft |
| 8-12 inches | : Gray clayey sand (SC) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-4**

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FIGURE
5

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-6 inches : Gray humic material with clay, soft
6-9 inches : Coarse sand (SW)
9-12 inches : Gray clayey sand

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-5**

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FIGURE
6

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

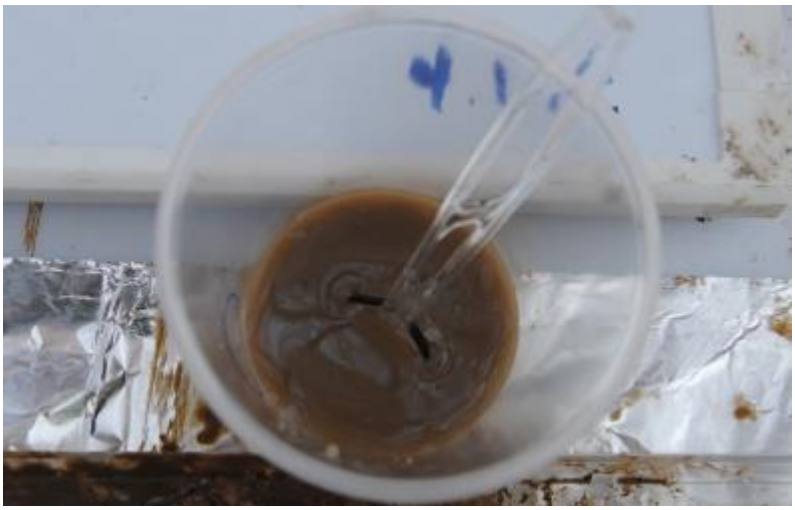
| | |
|---|---|
| 0-6 inches | : Medium |
| 6-12 inches | : No Sheen |

**Probing Observation:**

| | |
|---|---|
| 0-6 inches | : Patches of non-brittle silver gray sheen |
| 6-12 inches | : Patches of non-brittle silver gray sheen |


**Core Description:**

| | |
|---|---|
| 0-3 inches | : Gray silt with humic material |
| 3-12 inches | : Light reddish brown and gray mottled silty sand (SM), very firm sand |



**Sheen Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Streamers of silver gray sheen (Medium) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-6**

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FIGURE
7

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : Lighter |
| 0-6 inches | : Yes | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-15 inches | : No | 12-15 inches | : No Sheen |

No Photo

**Probing Observation:**

0-6 inches : Patch of non-brittle silver gray sheen (very light sheen to capture in the photograph)


**Core Description:**

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-7**

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FIGURE
8

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | |
|---|---|
| Surface | : No |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

| **Sheen During Stir-Test:** | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |
| 12-18 inches | : No |
| 18-24 inches | : No |

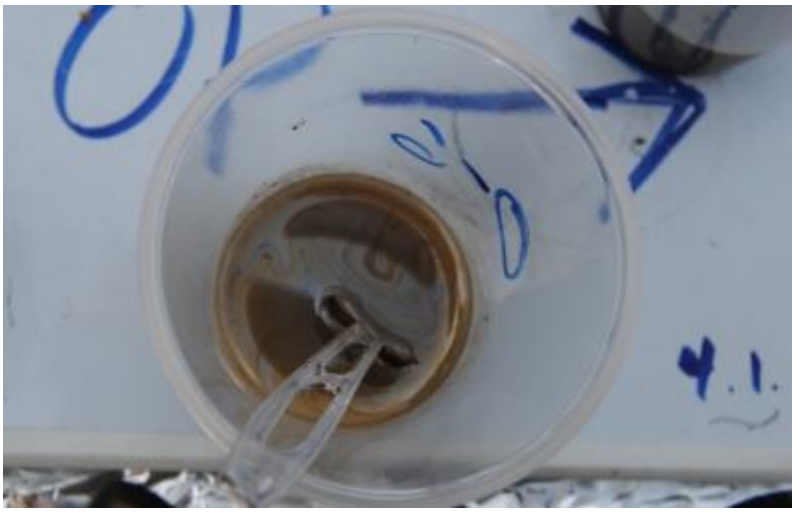
| **Overall Qualitative Sheening Amount:** | |
|---|---|
| 0-6 inches | : Heavier |
| 6-12 inches | : Lighter |
| 12-18 inches | : No Sheen |
| 18-24 inches | : No Sheen |

**Probing Observation:**

| | |
|---|---|
| 0-6 inches | : Patches/streamers of non-brittle silver gray sheen with oil spots (<0.25-inch wide) |
| 6-12 inches | : Patches/streamers of non-brittle silver gray sheen with oil spots (<0.25-inch wide) |


**Core Description:**

| | |
|---|---|
| 0-20 inches | : Gray silty clay (CL) with humic material, soft |
| 20-24 inches | : Gray clayey silt (MH) |



**Sheen Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Cover of rainbow sheen (Heavier) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-8**

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FIGURE
9

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : Yes | 0-6 inches | : Heavier |
| 0-6 inches | : Yes | 6-12 inches | : Yes | 6-12 inches | : Lighter |
| 6-12 inches | : Yes | 12-18 inches | : No | 12-18 inches | : No Sheen |
| | | 18-24 inches | : No | 18-24 inches | : No Sheen |

**Sheen Stir-Test:**

6-12 inches : Patch of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-8 (continued)**

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FIGURE
10

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : Lighter |
| 0-6 inches | : Yes | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-18 inches | : No | 12-18 inches | : No Sheen |

No Photo

**Probing Observation:**

0-6 inches : Patches of non-brittle silver gray sheen (quickly dissipated before capturing in the photograph)


**Core Description:**

0-14 inches : Coarse sand (SW) with humic material

14-18 inches : Black wood

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-9**

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FIGURE
11

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : Yes
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

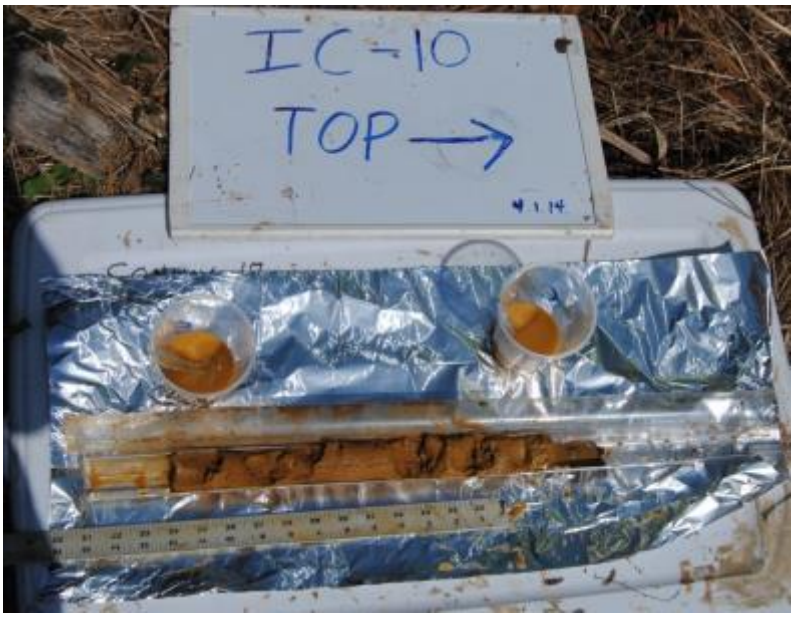
**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

**Probing Observation:**

0-6 inches : Patch of non-brittle silver gray sheen (quickly dissipated before capturing in the photograph)




**Core Description:**

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-10**

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FIGURE
12

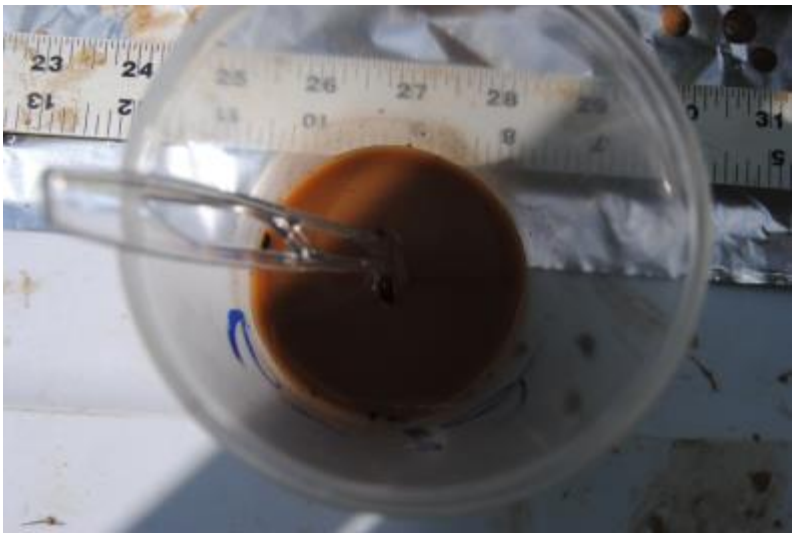
**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : Yes | 6-12 inches | : Lighter |
| 6-12 inches | : No | 12-15 inches | : No | 12-15 inches | : No Sheen |


**Core Description:**

| | | |
|---|---|---|
| 0-12 inches | : | Reddish brown silty clay (CL), soft |
| 12-15 inches | : | Silty clay with woody material |



**Sheen Stir-Test:**

| | | |
|---|---|---|
| 6-12 inches | : | Streamer of silver gray sheen (Lighter) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-11**

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FIGURE
13

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : Yes | 0-6 inches | : Medium |
| 0-6 inches | : Yes | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : Yes | 12-18 inches | : No | 12-18 inches | : No Sheen |
| | | 18-24 inches | : No | 18-24 inches | : No Sheen |

No Photo

**Probing Observation:**

0-6 inches : Patches of non-brittle silver gray sheen with 0.25-inch wide oil spot (quickly dissipated before capturing in the photograph)

6-12 inches : Patches of non-brittle silver gray sheen with 0.25-inch wide oil spot (quickly dissipated before capturing in the photograph)


**Core Description:**

0-24 inches : Gray silty clay with humic material

**Sheen Stir-Test:**

0-6 inches : Streamers of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-12**

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FIGURE
14

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen

**Initial Observation:**

Patches of brittle silver gray sheen


**Core Description:**

0-12 inches : Gray clayey silt (MH) with humic material at 0-5”

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-13**

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FIGURE
15

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : Yes | 0-6 inches | : Lighter |
| 0-6 inches | : Yes | 6-12 inches | : Yes | 6-12 inches | : Lighter |
| 6-12 inches | : Yes | 12-14 inches | : No | 12-14 inches | : No Sheen |

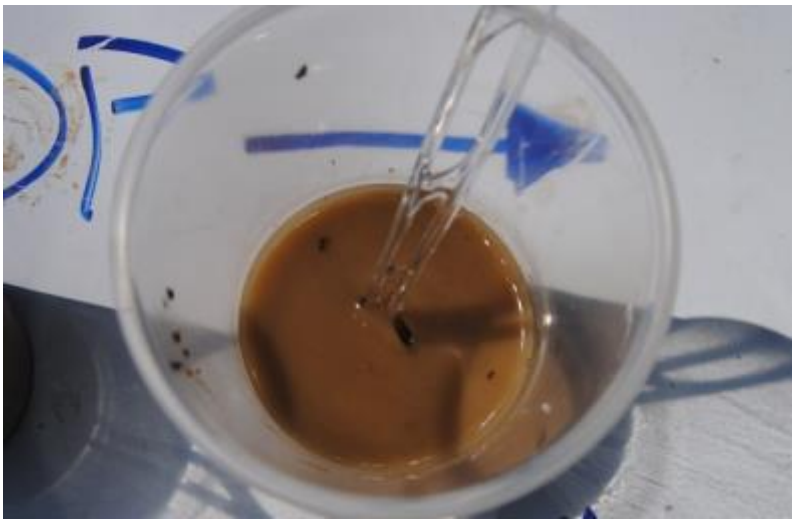
**Probing Observation:**

0-6 inches : Patches/streamers of non-brittle silver gray sheen (quickly dissipated)

6-12 inches : Patches/streamers of non-brittle silver gray sheen (quickly dissipated)


**Core Description:**

0-14 inches : Gray and reddish brown silty clay (CL), soft



**Sheen Stir-Test:**

0-6 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-14**

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FIGURE
16

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : Yes | 0-6 inches | : Lighter |
| 0-6 inches | : Yes | 6-12 inches | : Yes | 6-12 inches | : Lighter |
| 6-12 inches | : Yes | 12-14 inches | : No | 12-14 inches | : No Sheen |

**Sheen Stir-Test:**

6-12 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-14 (continued)**

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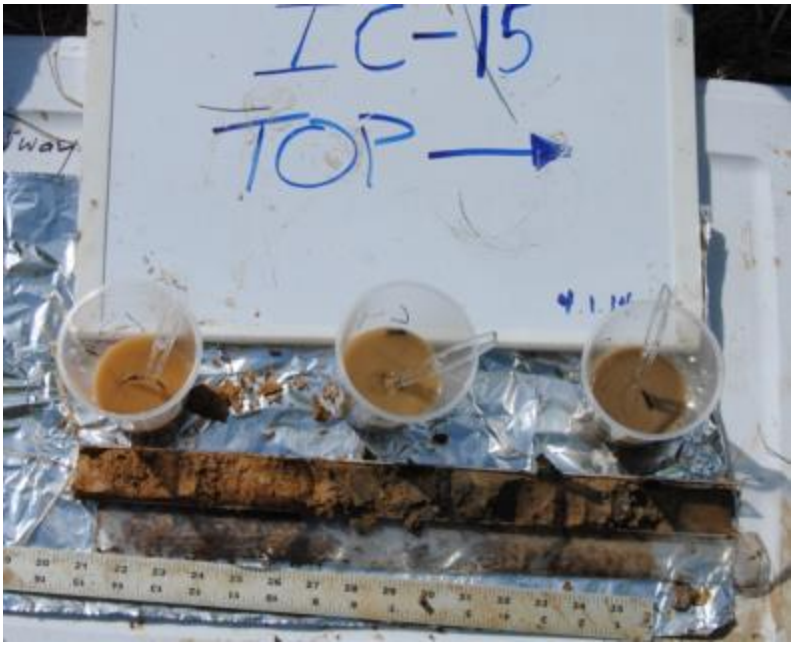
FIGURE
17

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-15 inches | : No | 12-15 inches | : No Sheen |




**Core Description:**

| | | |
|---|---|---|
| 0-10 inches | : | Gray silty clay with humic material |
| 10-15 inches | : | Light brown silt with clay (MH) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-15**

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FIGURE
18

**Sheen Present During Initial Observation:** Yes

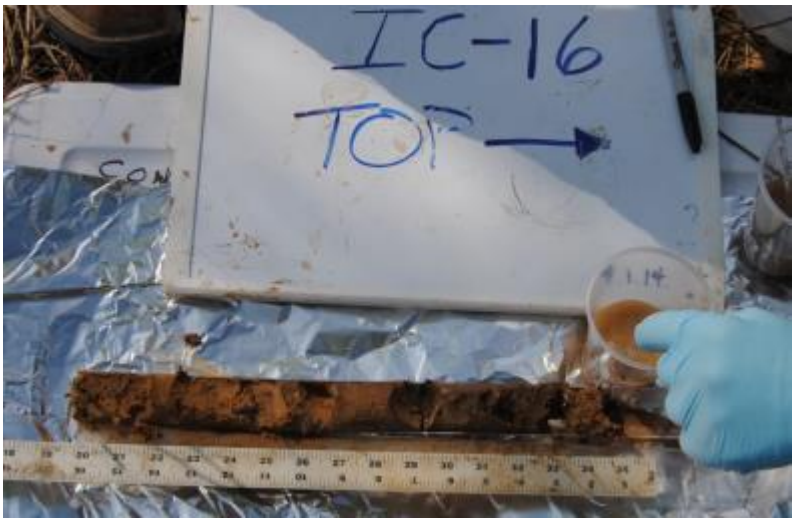
*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : Lighter |
| 0-6 inches | : Yes | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : Yes | 12-16 inches | : No | 12-16 inches | : No Sheen |

**Initial Observation:**
Cover of brittle silver gray sheen

**Probing Observation:**

| | | |
|---|---|---|
| 0-6 inches | : | Streamers (< 2 inches) of non-brittle silver gray sheen |
| 6-12 inches | : | Streamers (< 2 inches) of non-brittle silver gray sheen |




**Core Description:**

| | | |
|---|---|---|
| 0-16 inches | : | Gray and reddish brown silt with clay |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-16**

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FIGURE
19

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : Yes | 6-12 inches | : Lighter |
| 6-12 inches | : No | 12-14 inches | : No | 12-14 inches | : No Sheen |


**Core Description:**
No description

**Sheen Stir-Test:**

| | | |
|---|---|---|
| 6-12 inches | : | Streamers of silver gray sheen (Lighter) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-17**

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FIGURE
20

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-18 inches | : No | 12-18 inches | : No Sheen |


**Core Description:**

| | | |
|---|---|---|
| 0-6 inches | : | Gray silty clay with humic material, soft |
| 6-17 inches | : | Reddish brown silty sand (SM) |
| 17-28 inches | : | Gray clayey silt (MH) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-18**

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FIGURE
21

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-16 inches | : No | 12-16 inches | : No Sheen |


**Core Description:**

| | | |
|---|---|---|
| 0-4 inches | : | Gray clayey silt (MH), soft |
| 4-10 inches | : | Reddish brown silty sand (SM) |
| 10-16 inches | : | Gray silt with clay (MH) and humic material, wood at 13” |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-19**

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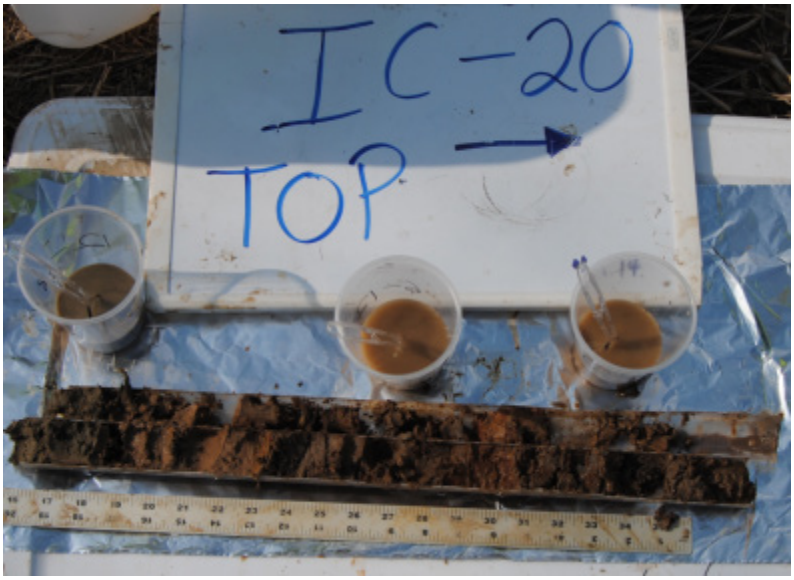
FIGURE
22

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-18 inches | : No | 12-18 inches | : No Sheen |




**Core Description:**

| | | |
|---|---|---|
| 0-12 inches | : | Light brown and red mottled clayey silt (MH) |
| 12-18 inches | : | Gray clayey sand (SC) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-20**

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FIGURE
23

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : Lighter |
| 0-6 inches | : Yes | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : Yes | 12-17 inches | : No | 12-17 inches | : No Sheen |

**Probing Observation:**

| | |
|---|---|
| 0-6 inches | : Patches/streamers of non-brittle silver gray sheen (quickly dissipated) |
| 6-12 inches | : Patches/streamers of non-brittle silver gray sheen (quickly dissipated) |


**Core Description:**

| | |
|---|---|
| 0-3 inches | : Gray humic material with silty clay |
| 3-15 inches | : Light reddish brown clayey sand (SC) |
| 15-17 inches | : Gray silty clay with humic material |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-21**

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FIGURE
24

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

| **Sheen During Stir-Test:** | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |
| 12-15 inches | : Yes |
| 18-24 inches | : No |

| **Overall Qualitative Sheening Amount:** | |
|---|---|
| 0-6 inches | : Lighter |
| 6-12 inches | : Lighter |
| 12-15 inches | : Lighter |
| 18-24 inches | : No Sheen |

**Initial Observation:**
Cover of brittle rainbow sheen


**Core Description:**

| | |
|---|---|
| 0-12 inches | : Gray silty clay with humic material |
| 12-24 inches | : Light brown clayey silt |

**Sheen Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Streamer of silver gray sheen (Lighter) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-22**

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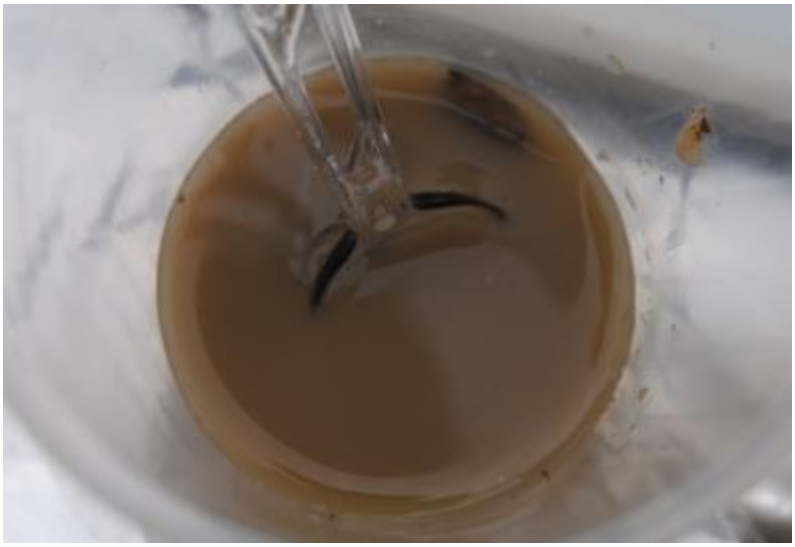
FIGURE
25

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : Yes | 0-6 inches | : Lighter |
| 0-6 inches | : No | 6-12 inches | : Yes | 6-12 inches | : Lighter |
| 6-12 inches | : No | 12-15 inches | : Yes | 12-15 inches | : Lighter |
| | | 18-24 inches | : No | 18-24 inches | : No Sheen |



**Sheen Stir-Test:**

6-12 inches : Streamer of silver gray sheen (Lighter)

**Sheen Stir-Test:**

12-15 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-22 (continued)**

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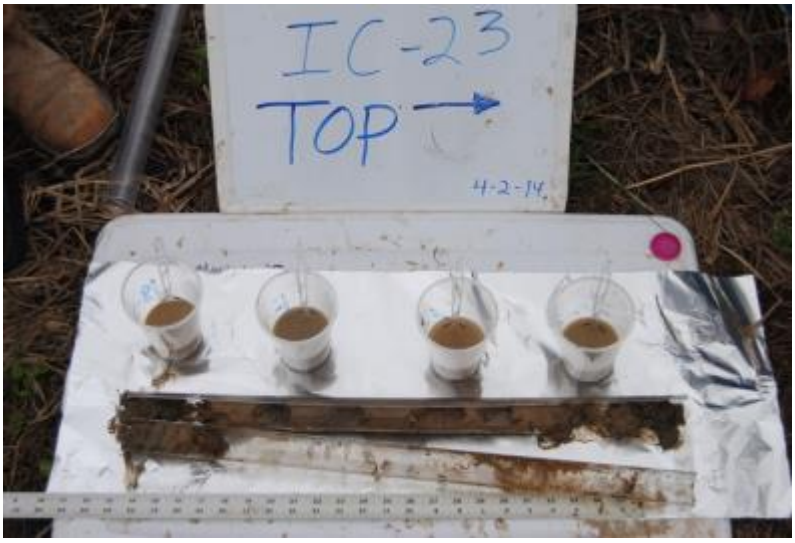
FIGURE
26

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

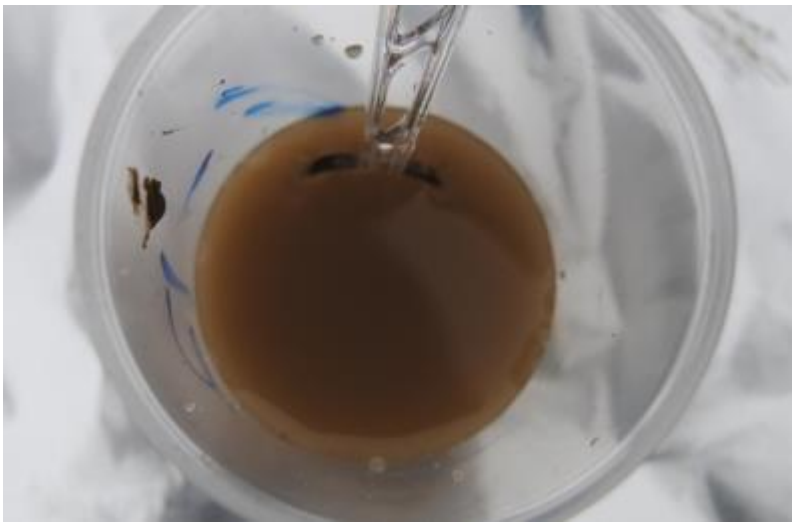
| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : Yes | 6-12 inches | : Lighter |
| 6-12 inches | : No | 12-18 inches | : Yes | 12-18 inches | : Lighter |
| | | 18-22 inches | : No | 18-22 inches | : No Sheen |

**Initial Observation:**
Cover of non-brittle rainbow sheen




**Core Description:**

| | | |
|---|---|---|
| 0-12 inches | : | Gray silty clay with humic material, soft |
| 12-22 inches | : | Light brown silt with clay |



**Sheen Stir-Test:**

| | | |
|---|---|---|
| 6-12 inches | : | Streamer of silver gray sheen (Lighter) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-23**

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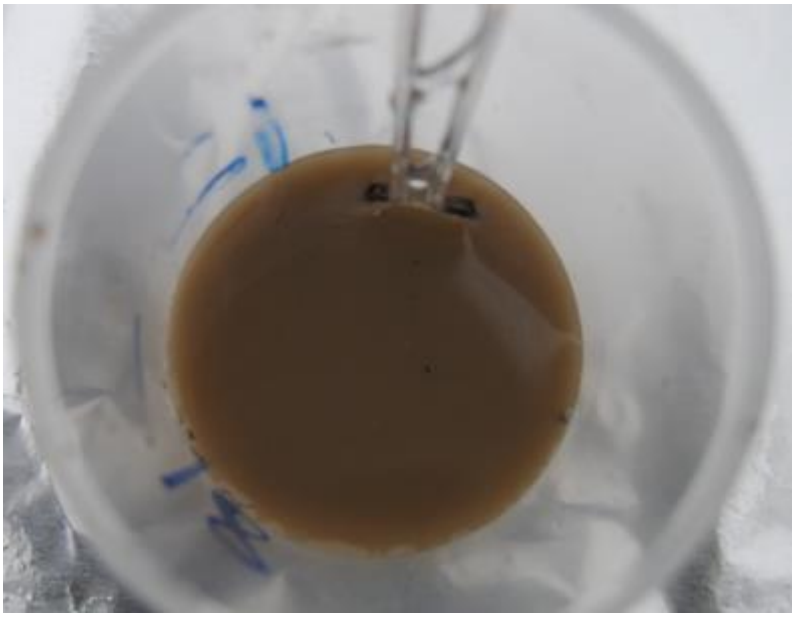
FIGURE
27

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : Yes | 6-12 inches | : Lighter |
| 6-12 inches | : No | 12-18 inches | : Yes | 12-18 inches | : Lighter |
| | | 18-22 inches | : No | 18-22 inches | : No Sheen |



**Sheen Stir-Test:**

12-18 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-23 (continued)**

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FIGURE
28

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | 0-6 inches | : No Sheen |
| 0-6 inches | : No | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-18 inches | : No | 12-18 inches | : No Sheen |


**Core Description:**

| | |
|---|---|
| 0-12 inches | : Light brown clayey silt (MH) |
| 12-18 inches | : Light brown clayey sand (SC) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-24**

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FIGURE
29

**Sheen Present During Initial Observation:** No

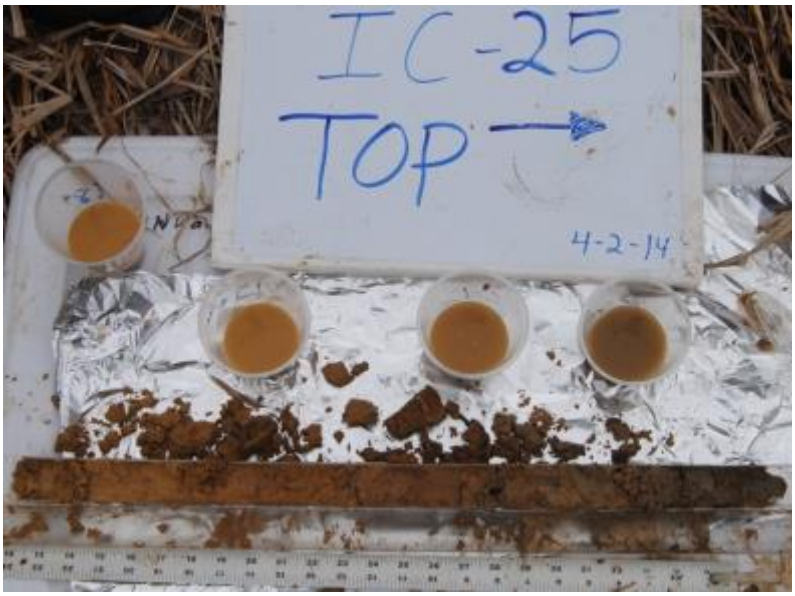
*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** | |
|---|---|---|---|---|---|
| Surface | : Yes | 0-6 inches | : No | 0-6 inches | : Lighter |
| 0-6 inches | : No | 6-12 inches | : No | 6-12 inches | : No Sheen |
| 6-12 inches | : No | 12-18 inches | : No | 12-18 inches | : No Sheen |
| | | 18-22 inches | : No | 18-22 inches | : No Sheen |

No Photo

**Probing Observation:**

Surface : Patches of non-brittle silver gray sheen with one oil spot (<0.25-inch wide; quickly dissipated before capturing in the photograph)




**Core Description:**

0-6 inches : Gray silt (ML)

6-22 inches : Light brown and reddish brown mottled silt (ML)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Inlet Channel**
**Location – IC-25**

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FIGURE
30

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen

**Initial Observation:**

Patches of brittle silver gray sheen


**Core Description:**

0-12 inches : Light brown and reddish mottled silt with clay (MH), humic material at 0-2”

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-1**

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FIGURE
31

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : Lighter


**Core Description:**

0-12 inches : Gray and reddish brown mottled silt with clay (MH)

**Sheen Stir-Test:**

6-12 inches : Patch of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-2**

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FIGURE
32

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : Lighter

**Initial Observation:**

Cover of brittle and non-brittle silver gray sheen


**Core Description:**

0-12 inches : Gray and reddish brown mottled clayey silt (MH)

**Sheen Stir-Test:**

6-12 inches : Patches/streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-3**

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FIGURE
33

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-12 inches : Light brown and reddish brown mottled silt (ML)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-4**

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FIGURE
34

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

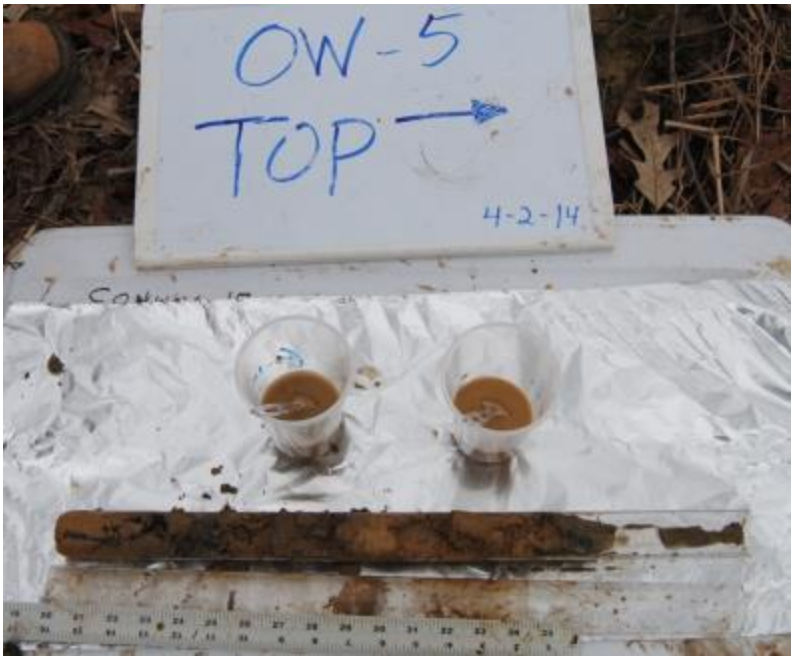
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Light brown and reddish brown mottled silt with clay, some humic material at 0-2”

6-12 inches : Gray and light brown mottled silt with clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-5**

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FIGURE
35

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen

**Initial Observation:**
Cover of brittle silver gray sheen


**Core Description:**

0-10 inches : Gray and reddish brown clayey silt (MH), humic material at 0-2”
10-12 inches : Light brown and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-6**

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FIGURE
36

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

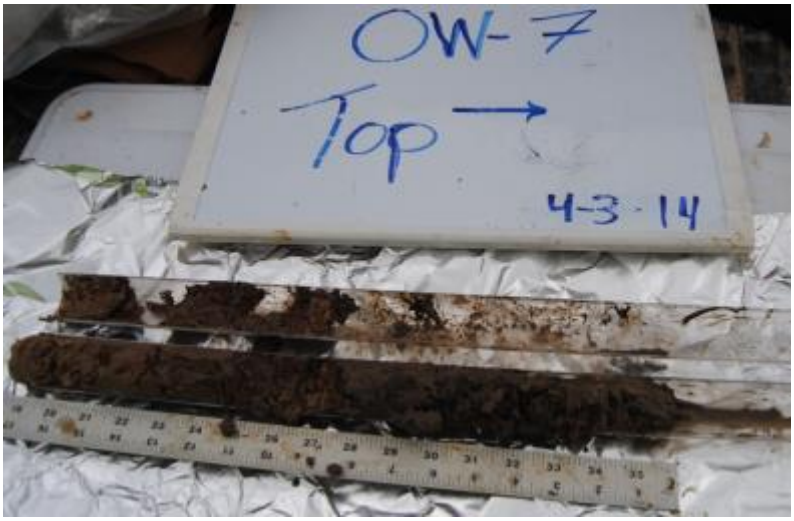
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen




**Core Description:**

0-8 inches : Gray silty clay (CL) with roots and organic material

8-12 inches : Gray and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-7**

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FIGURE
37

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-6 inches : Brown clayey silt with roots
6-12 inches : Brown clay, medium stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-8**

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FIGURE
38

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-8 inches : Brown clay, some silt, soft
8-12 inches : Brown clay, stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-9**

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FIGURE
39

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen

**Initial Observation:**
Cover of brittle silver gray sheen


**Core Description:**
No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-10**

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FIGURE
40

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen

**Initial Observation:**
Cover of brittle silver gray sheen


**Core Description:**

0-6 inches : Gray silt with clay (MH), roots, humic material
6-12 inches : Light brown and reddish silt (ML)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-11**

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FIGURE
41

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-10 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-10 inches : No Sheen

**Initial Observation:**

Patches of brittle silver gray sheen


**Core Description:**

0-10 inches : Gray and reddish brown mottled silt with clay (MH); organic material (roots and grass) at 0-2”

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-12**

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FIGURE
42

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-6 inches : Brown silty clay
6-12 inches : Brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-13**

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FIGURE
43

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-12 inches : Brown clayey silt

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-14**

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FIGURE
44

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

**Probing Observation:**

0-6 inches : Streamers of non-brittle silver gray (quickly dissipated before capturing in the photograph)

6-12 inches : Streamers of non-brittle silver gray (quickly dissipated before capturing in the photograph)


**Core Description:**

0-6 inches : Brown silty clay, soft, very light sheen at 0-5”

6-12 inches : Brown clay, medium stiff

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-15**

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FIGURE
45

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Medium
6-12 inches : No Sheen

No Photo

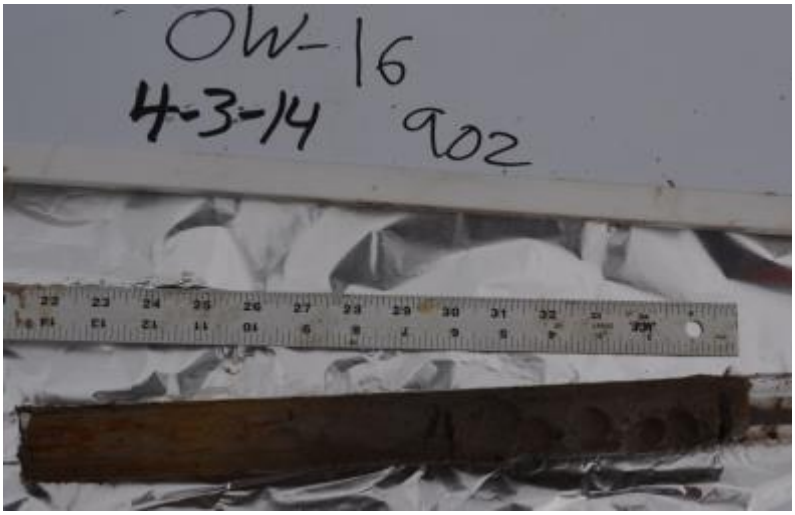
**Initial Observation:**

Patches/streamers of non-brittle silver gray (very light to capture in the photograph)

No Photo

**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray (very small to capture in the photograph)
0-6 inches : Patches/streamers of non-brittle silver gray (very small to capture in the photograph)
6-12 inches : Patches/streamers of non-brittle silver gray (very small to capture in the photograph)




**Core Description:**

0-6 inches : Brown silty clay, very light sheen at 0-4”
6-12 inches : Red brown clay, stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-16**

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FIGURE
46

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Medium
6-12 inches : No Sheen

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen with 10 oil spots (0.1- to 0.25-inch wide) (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-16 (continued)**

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FIGURE
47

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

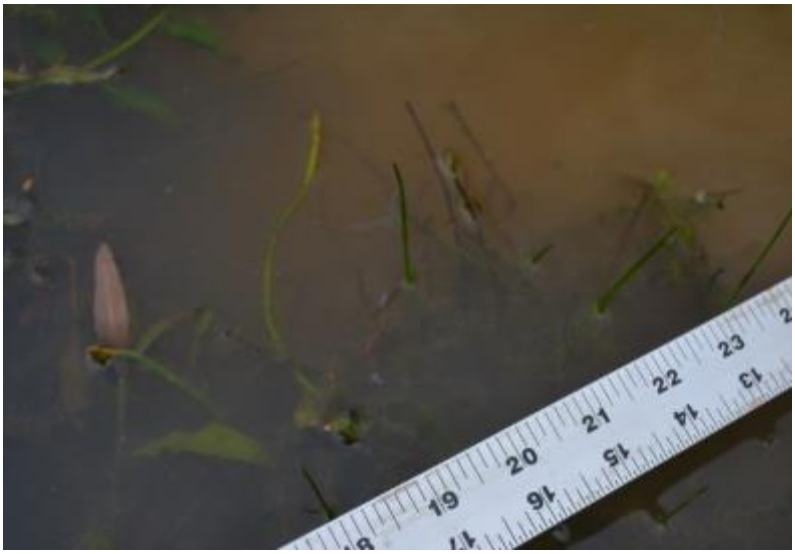
Surface : No
0-6 inches : No
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : No
6-11 inches : No

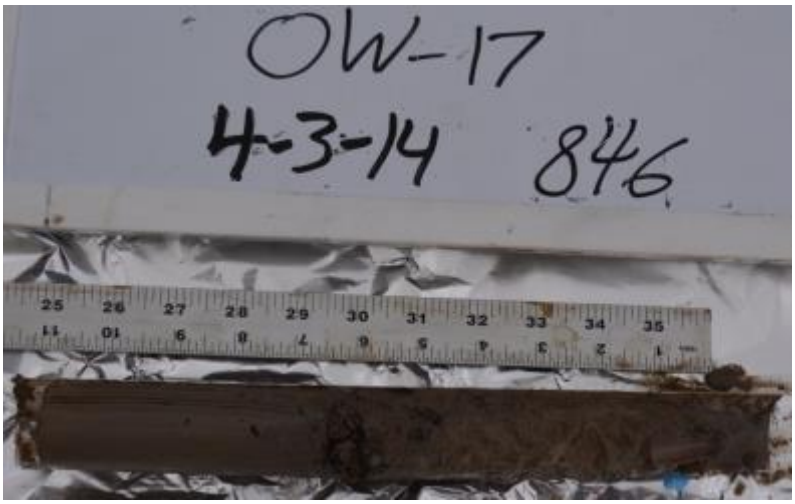
**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-11 inches : Lighter



**Probing Observation:**

6-12 inches : Streamers of non-brittle silver gray sheen




**Core Description:**

0-6 inches : Brown silt, very little sheen at 0-2.4”
0-11 inches : Brown clay, medium stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-17**

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FIGURE
48

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : Heavier |
| 6-12 inches | : Lighter |


**Core Description:**

| | |
|---|---|
| 0-3 inches | : Gray silty clay (CL), soft |
| 3-10 inches | : Gray and reddish brown clayey silt (MH) |
| 10-12 inches | : Gray silty clay (CL) |

**Sheen Stir-Test:**

0-6 inches : Streamer of rainbow sheen (Heavier)

**Sheen Stir-Test:**

6-12 inches : Patch of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-18**

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FIGURE
49

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Medium
6-12 inches : No Sheen


**Core Description:**

0-12 inches : Gray and reddish brown silt with clay (MH), roots and plant material at 0-2”

**Sheen Stir-Test:**

0-6 inches : Patches of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-19**

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FIGURE
50

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

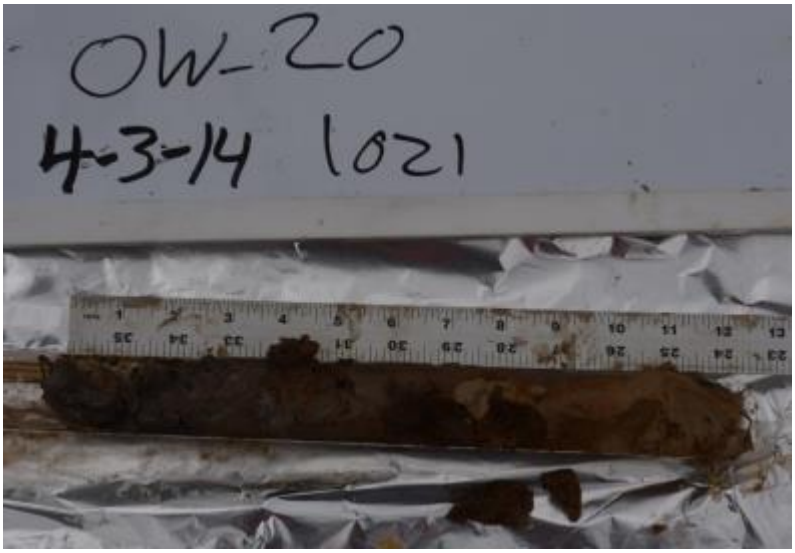
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : Yes
6-11 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-11 inches : No Sheen




**Core Description:**

0-6 inches : Brown silt, soft, light sheen 0-5”
6-11 inches : Reddish brown clay, soft

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-20**

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FIGURE
51

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

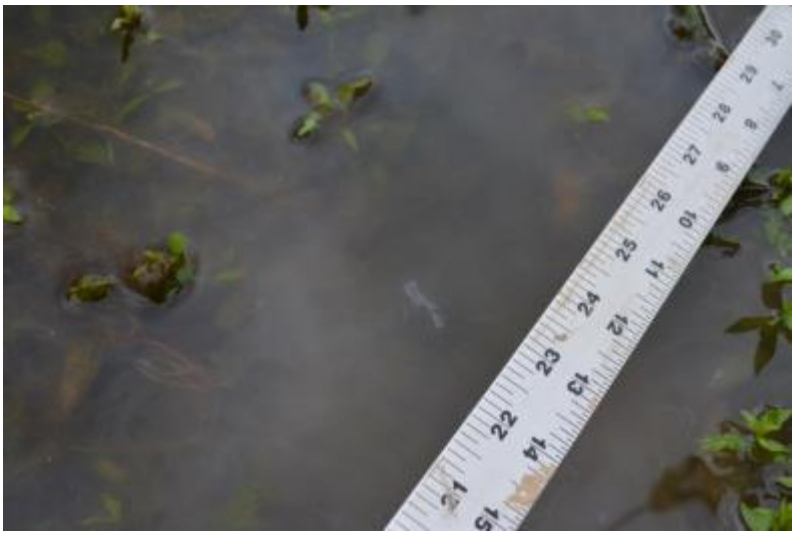
0-6 inches : Medium
6-12 inches : No Sheen

No Photo

**Initial Observation:**
Patches of non-brittle silver gray sheen

**Probing Observation:**

Surface : Streamers of non-brittle silver gray sheen
0-6 inches : Streamers of non-brittle silver gray sheen



**Probing Observation:**

6-12 inches : Patches/streamers of non-brittle silver gray sheen with four oil spots (0.1 to 0.25-inch wide)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-21**

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FIGURE
52

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

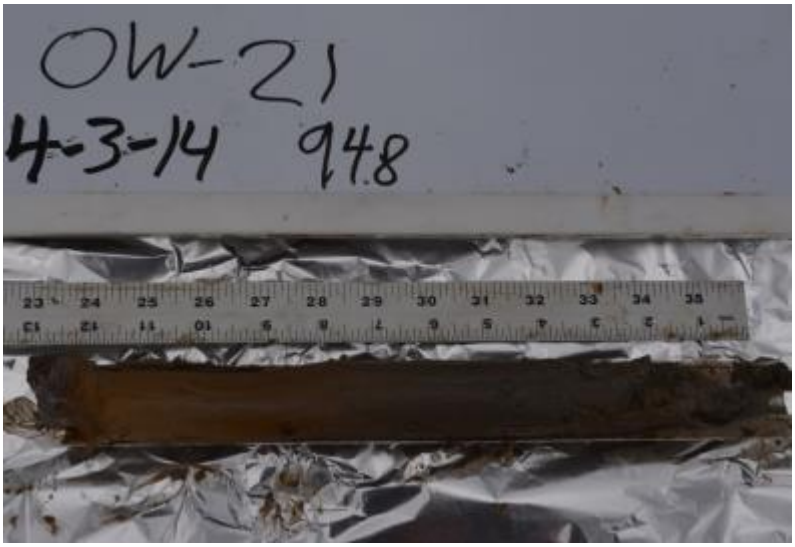
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Medium
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Brown silt, light sheen 0-4”
6-12 inches : Red brown clay, soft

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-21 (continued)**

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FIGURE
53

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

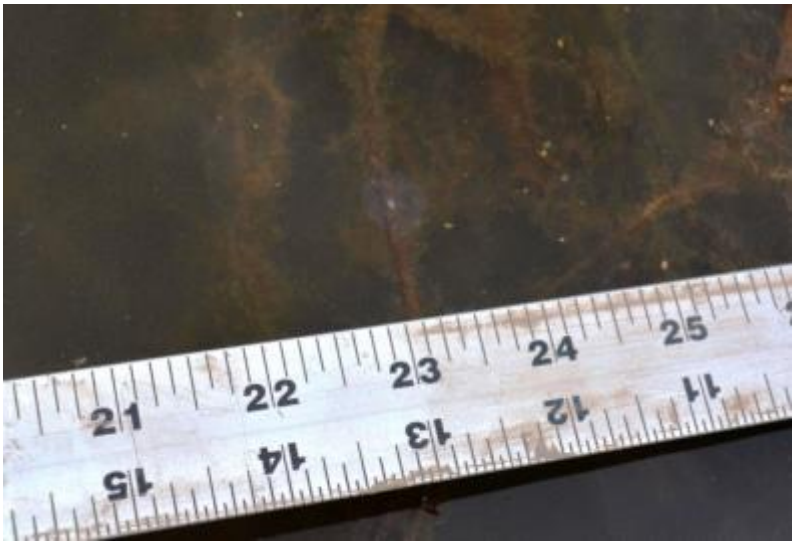
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen



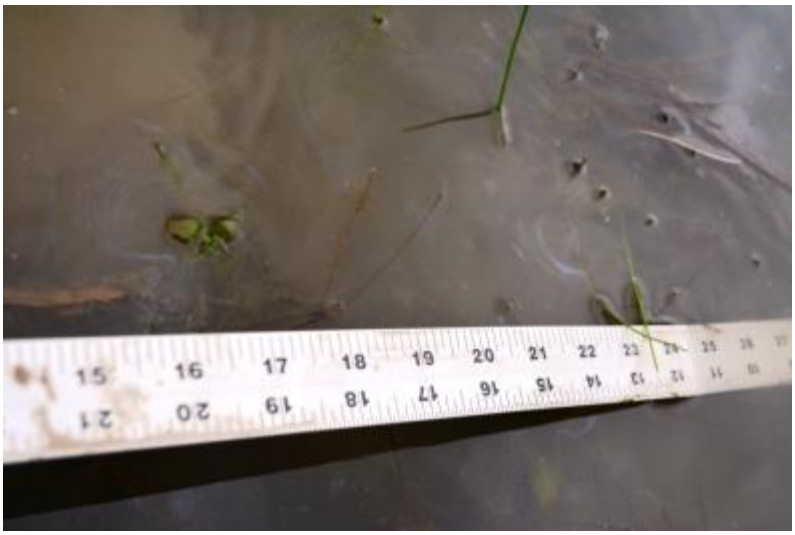
**Initial Observation:**

Patches/streamers of non-brittle silver gray sheen

**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray sheen with three oil spots (0.1-inch wide)

0-6 inches : Patches/streamers of non-brittle silver gray sheen with 0.1-inch wide oil spots



**Probing Observation:**

6-12 inches : Patches/streamers of non-brittle silver gray sheen with 10 oil spots (0.1-inch wide)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-22**

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FIGURE
54

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

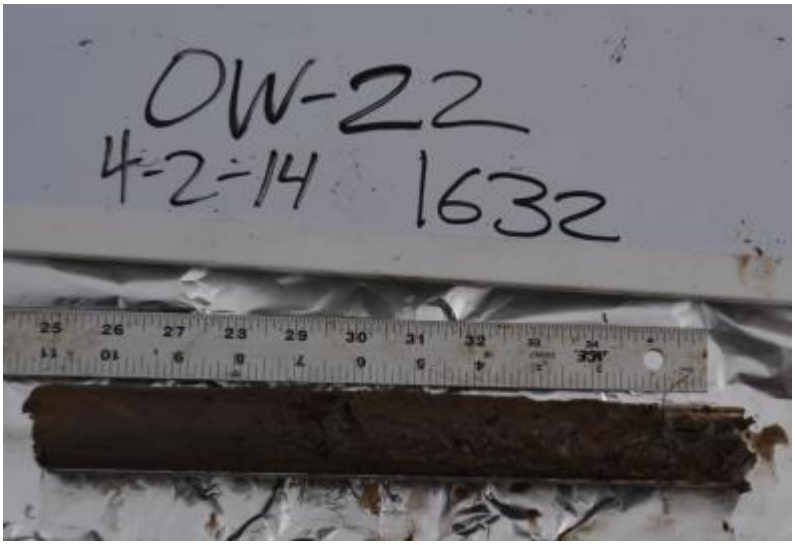
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Brown silt, very light sheen at 0-2.4”
6-12 inches : Brown clay, stiff

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-22 (continued)**

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FIGURE
55

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-12 inches | : No Sheen |

**Initial Observation:**

Streamers of brittle and non-brittle silver gray sheen


**Core Description:**

| | |
|---|---|
| 0-6 inches | : Gray and reddish brown silt with clay (MH) |
| 6-12 inches | : Light brown and reddish brown mottled silt with clay (MH), soft |

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-23**

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FIGURE
56

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : Lighter |
| 6-12 inches | : No Sheen |

No Photo

**Probing Description:**

| | |
|---|---|
| 0-6 inches | : Streamers of non-brittle silver gray sheen with one oil spot (<0.13-inch wide; quickly dissipated before capturing in the photograph) |
| 6-12 inches | : Streamers of non-brittle silver gray sheen with one oil spot (<0.13-inch wide; quickly dissipated before capturing in the photograph) |


**Core Description:**

| | |
|---|---|
| 0-12 inches | : Gray and reddish brown mottled clayey silt (MH) with roots and plan material |

**Sheen Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Streamer of silver gray sheen (Lighter) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-24**

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FIGURE
57

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-12 inches : Gray and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-25**

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FIGURE
58

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

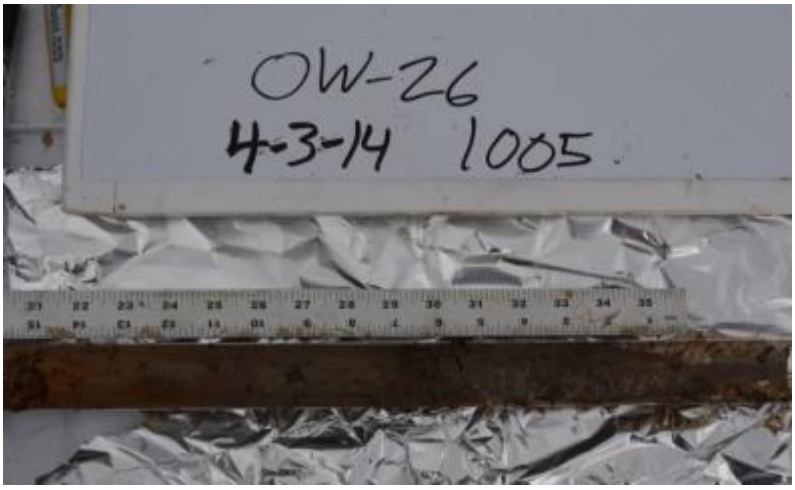
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Brown silt, rootlets
6-12 inches : Red brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-26**

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FIGURE
59

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

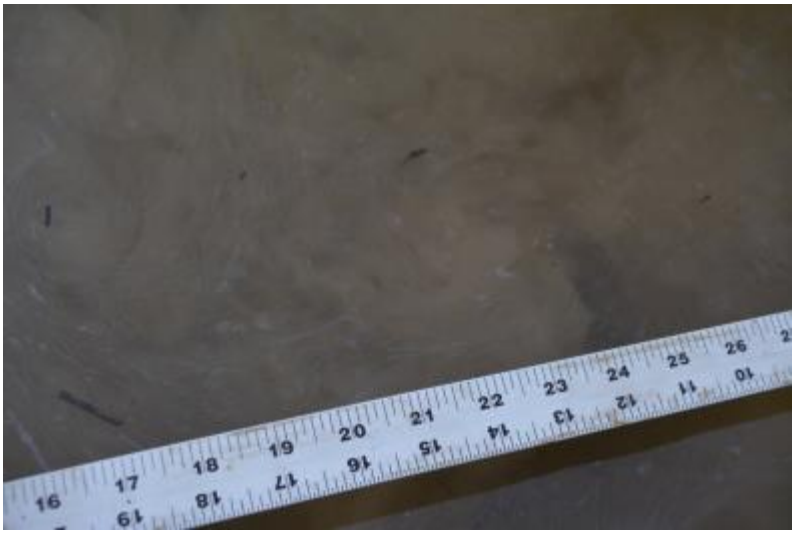
| | |
|---|---|
| Surface | : Yes |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : No |

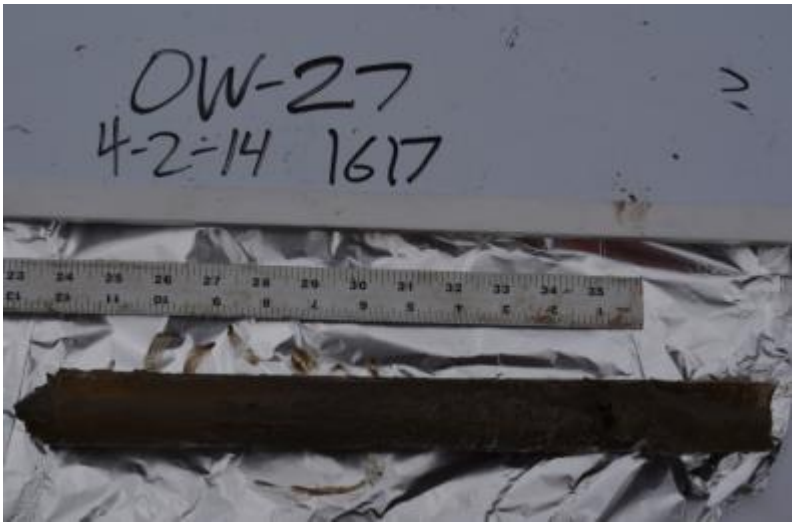
**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : Heavier |
| 6-12 inches | : No Sheen |



**Probing Description:**

| | |
|---|---|
| Surface | : Patches/streamers of non-brittle silver gray sheen with 10 oil spots (0.1-inch wide) |
| 0-6 inches | : Patches/streamers of non-brittle silver gray sheen |
| 6-12 inches | : Patches/streamers of non-brittle silver gray sheen |




**Core Description:**

| | |
|---|---|
| 0-6 inches | : Brown clayey silt, very light sheen at 0-2.4” |
| 12 inches | : Brown clay, soft |

**Sheen Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Patches/streamers of silver gray sheen with 0.25-inch wide oil spot (Heavier) |

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EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-27**

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FIGURE
60

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

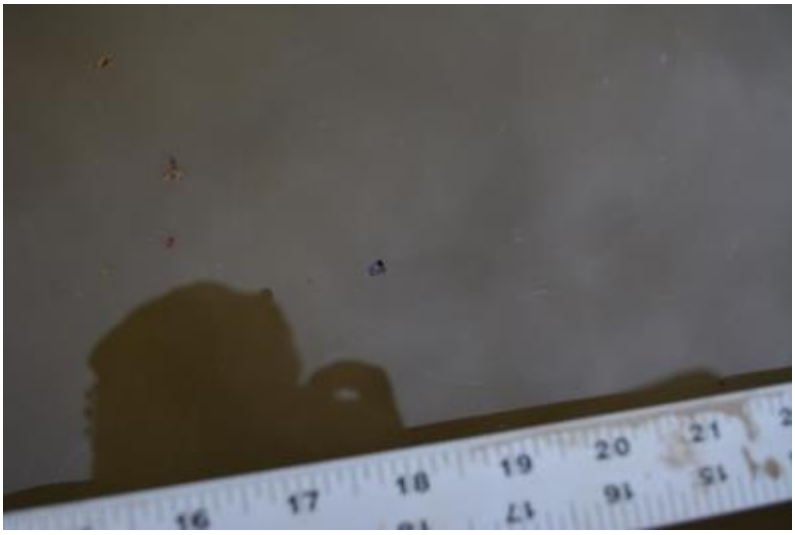
| | |
|---|---|
| Surface | : Yes |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : No |

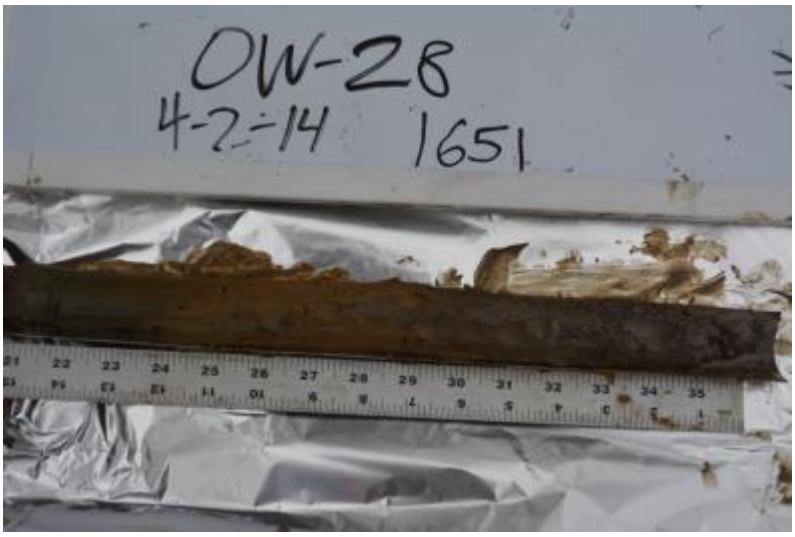
**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : Heavier |
| 6-12 inches | : No Sheen |



**Probing Description:**

| | |
|---|---|
| Surface | : Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot |
| 0-6 inches | : Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot |
| 6-12 inches | : Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot |




**Core Description:**

| | |
|---|---|
| 0-6 inches | : Silty clay, light sheen at 0-2.4” |
| 6-12 inches | : Reddish brown clay, stiff |

**Sheen Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Patches/streamers of silver gray sheen with three oil spots (Heavier) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-28**

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FIGURE
61

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

**Probing Description:**

0-6 inches : Patches of non-brittle silver gray sheen (light sheen; quickly dissipated before capturing in the photograph)

6-12 inches : Patches of non-brittle silver gray sheen (light sheen; quickly dissipated before capturing in the photograph)


**Core Description:**

0-12 inches : Gray and reddish brown silt with clay

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-29**

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FIGURE
62

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

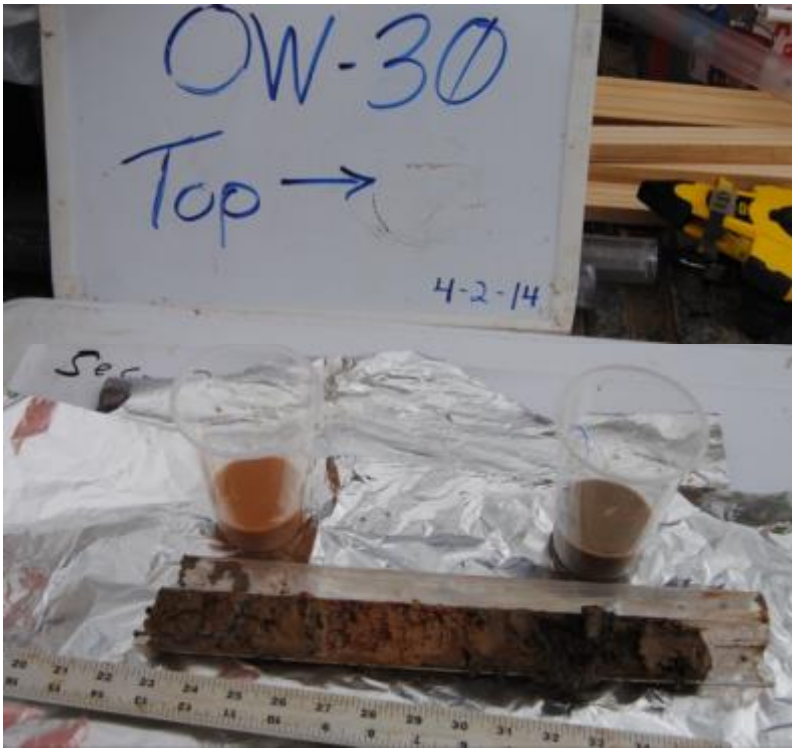
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen




**Core Description:**

0-5 inches : Gray silty clay (CL) with humic material, soft
5-12 inches : Gray and reddish brown mottled silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-30**

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FIGURE
63

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-12 inches : Gray and reddish brown mottled silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-31**

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FIGURE
64

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : Lighter |
| 6-12 inches | : No Sheen |

No Photo

**Probing Description:**

| | |
|---|---|
| 0-6 inches | : Patches of non-brittle silver gray sheen (light sheen; quickly dissipated before capturing in the photograph) |
| 6-12 inches | : Patches of non-brittle silver gray sheen (light sheen; quickly dissipated before capturing in the photograph) |


**Core Description:**

No description

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EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-32**

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FIGURE
65

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : Yes |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

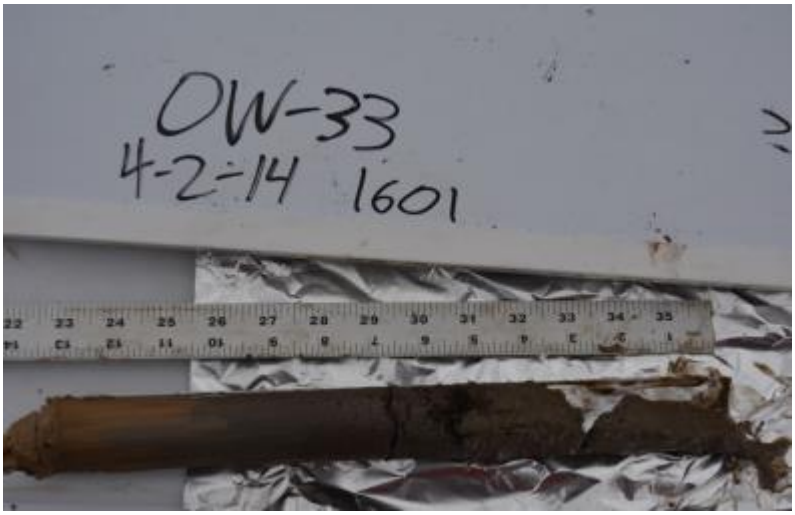
| | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : Medium |
| 6-12 inches | : No Sheen |

**Probing Description:**

| | |
|---|---|
| Surface | : Patches/streamers of silver gray sheen |
| 0-6 inches | : Patches/streamers of silver gray sheen |
| 6-12 inches | : Patches/streamers of silver gray sheen |




**Core Description:**

| | |
|---|---|
| 0-6 inches | : Silty humic material, light sheen |
| 6-12 inches | : Brown silty clay to clay |

**Sheen Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Patches/streamers of silver gray sheen (Medium) |

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-33**

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FIGURE
66

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

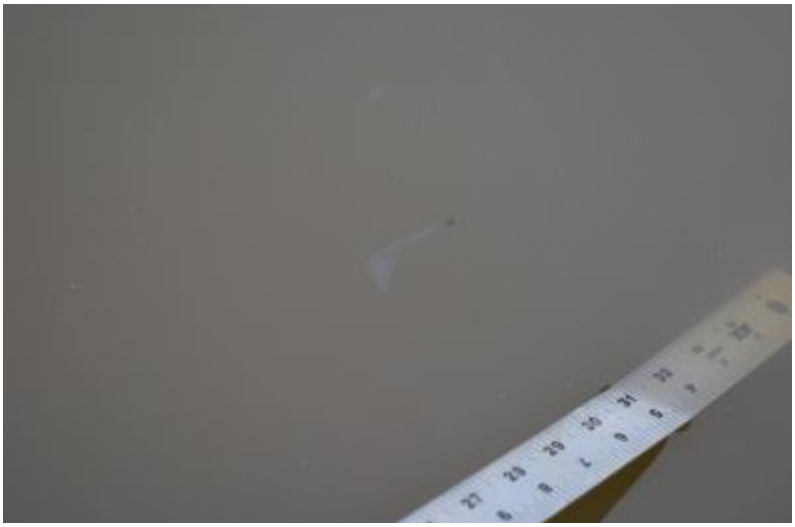
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

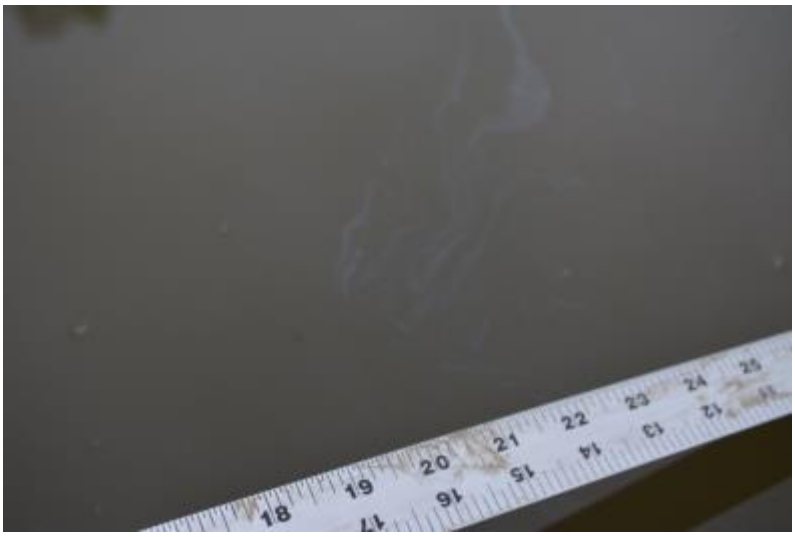
0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Medium



**Initial Observation:**
Patch/streamer of non-brittle silver gray sheen



**Probing Observation:**

Surface : Patch/streamer of non-brittle silver gray sheen
0-6 inches : Patch/streamer of non-brittle silver gray sheen with four oil spots (0.1-inch wide)
6-12 inches : Patch/streamer of non-brittle silver gray sheen

No Photo

**Core Description:**

0-6 inches : Silt with humic material, light sheen at 0-6”
6-12 inches : Clayey silt, light sheen at 6-10”

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-34**

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FIGURE
67

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Medium

No Photo

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

No Photo

**Sheen Stir-Test:**

6-12 inches : Patches/streamers of rainbow sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-34 (continued)**

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FIGURE
68

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

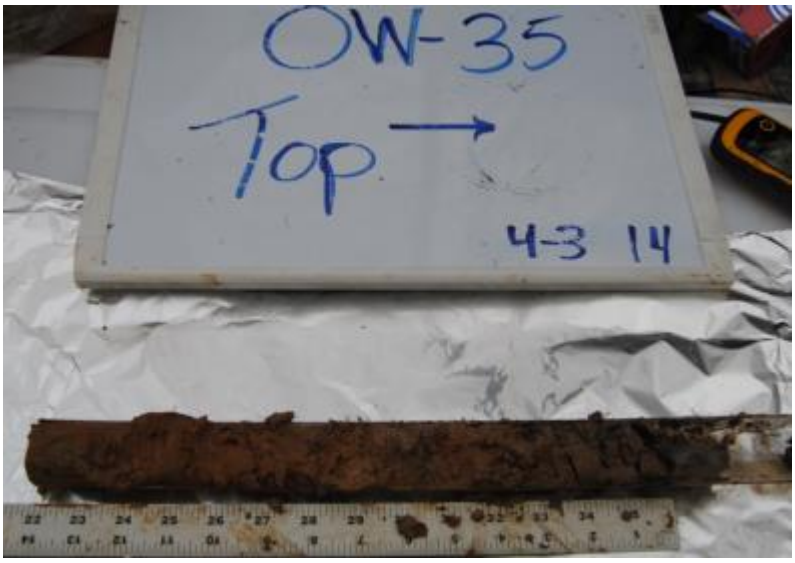
| | |
|---|---|
| 0-6 inches | : No |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-12 inches | : No Sheen |

**Initial Observation:**

Cover/patches of brittle silver gay sheen




**Core Description:**

| | |
|---|---|
| 0-7 inches | : Gray and reddish brown silt with clay (MH) |
| 7-12 inches | : Light brown and reddish brown clayey silt (MH) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-35**

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FIGURE
69

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-4 inches : Gray silty clay (CL) with humic material, soft
4-12 inches : Light brown and reddish brown mottled silty clay (CL)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-36**

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FIGURE
70

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

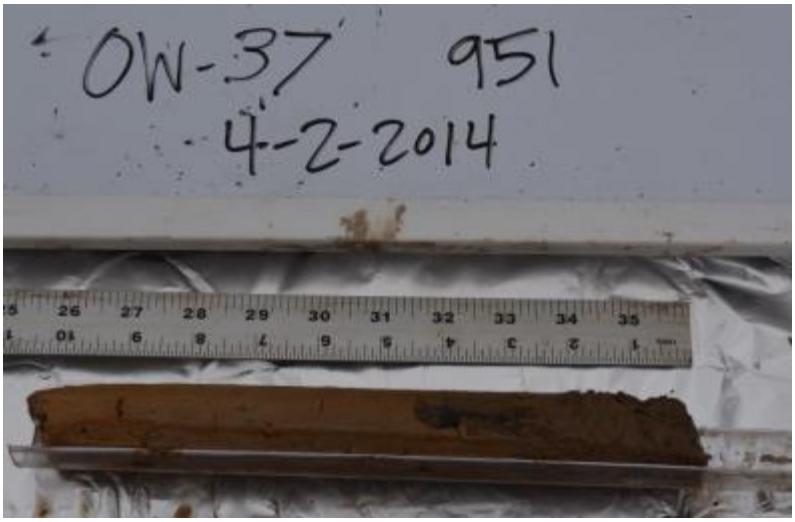
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Reddish brown silty clay
6-12 inches : Red clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-37**

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FIGURE
71

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

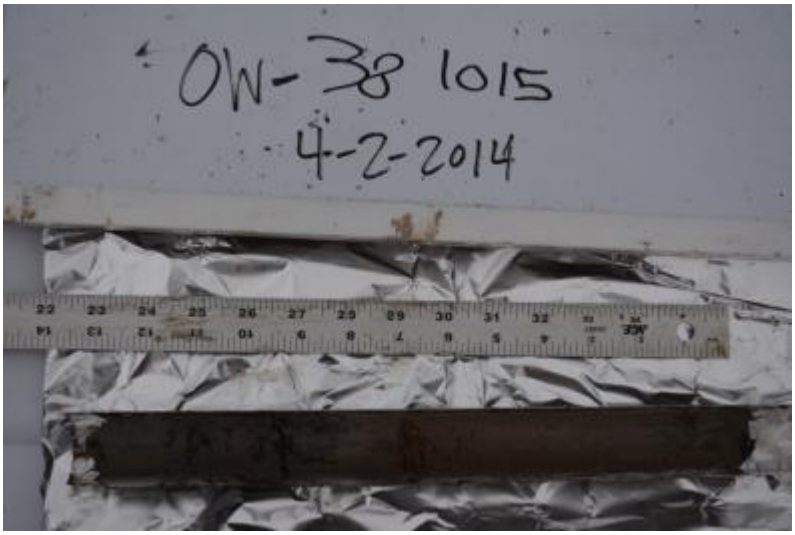
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : Medium




**Core Description:**

0-6 inches : Brown clay
6-12 inches : Brown silty clay

**Sheen Stir-Test:**

6-12 inches : Patches/streamers of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-38**

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FIGURE
72

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

**Probing Description:**

Surface : Patches/streamers of non-brittle silver gray
0-6 inches : Patches/streamers of non-brittle silver gray


**Core Description:**

0-6 inches : Brown silty clay, algae 0-2.4”
6-12 inches : Reddish brown clay, soft

**Sheen Stir-Test:**

0-6 inches : Streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-39**

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FIGURE
73

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

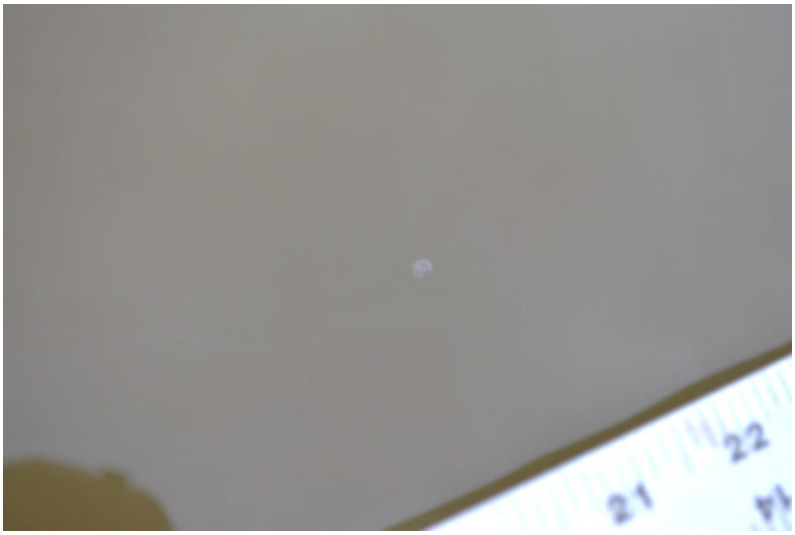
Surface : No
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Medium



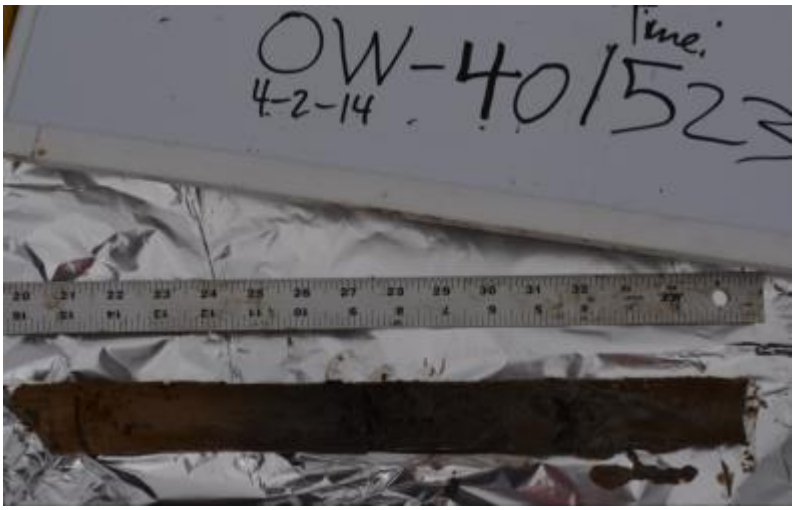
**Probing Description:**

0-6 inches : Patches/streamers of silver gray sheen with one oil spot (0.25-inch wide)

No Photo

**Probing Description:**

6-12 inches : Streamers of silver gray sheen




**Core Description:**

0-6 inches : Silty clay, some roots at 5-6", very light sheen at 0-2.4"
6-12 inches : Red brown clay, medium stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-40**

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FIGURE
74

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Medium

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen with 20 oil spots (Heavier)

**Sheen Stir-Test:**

6-12 inches : Streamers of silver gray sheen with oil spot (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-40 (continued)**

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FIGURE
75

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : No Sheen

No Photo

**Initial Observation:**

Streamers of non-brittle silver gray sheen (very light sheen to capture in the photograph)

No Photo

**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray sheen (very light sheen to capture in the photograph)
0-6 inches : Patches/streamers of non-brittle silver gray sheen (very light sheen to capture in the photograph)
6-12 inches : Patches/streamers of non-brittle silver gray sheen (very light sheen to capture in the photograph)


**Core Description:**

0-6 inches : Brown silt, very light sheen at 0-2.4”
6-12 inches : Reddish brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-41**

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FIGURE
76

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : No Sheen

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-41 (continued)**

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FIGURE
77

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

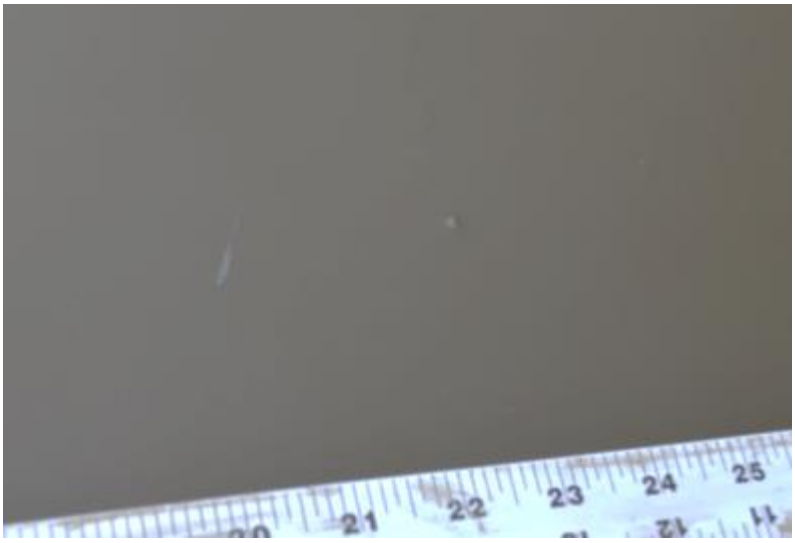
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

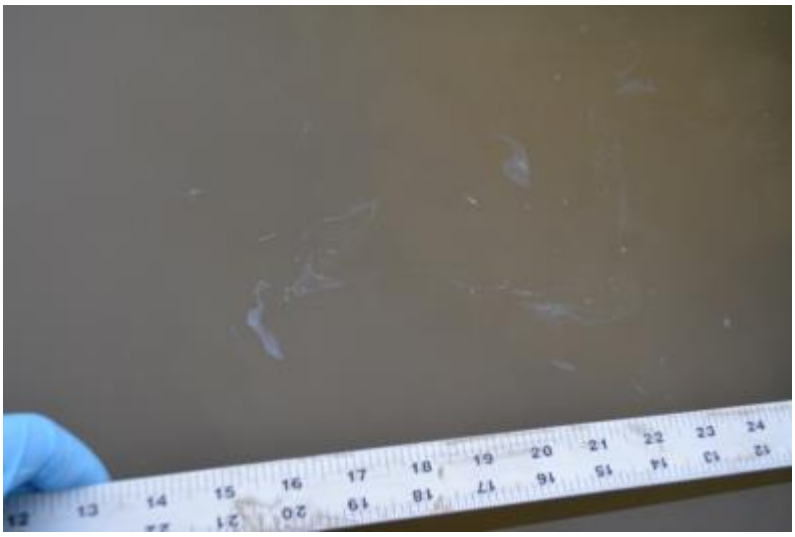
0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : No Sheen



**Initial Observation:**
Patches of non-brittle silver gray sheen



**Probing Observation:**

Surface : Patch/streamer of non-brittle silver gray sheen
0-6 inches : Patch/streamer of non-brittle silver gray sheen
6-12 inches : Patch/streamer of non-brittle silver gray sheen


**Core Description:**

0-6 inches : Brown silt, humic material at 3", light sheen at 0-6"
6-12 inches : Brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-42**

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FIGURE
78

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : No Sheen

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-42 (continued)**

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FIGURE
79

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

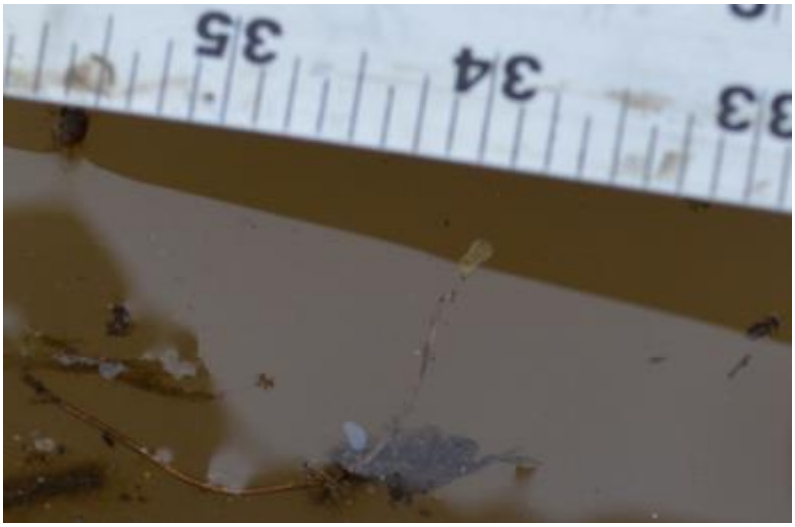
Surface : No
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen




**Probing Description:**

0-6 inches : Patch of silver gray sheen
6-12 inches : Patch of silver gray sheen


**Core Description:**

0-6 inches : Gray brown clayey silt with rootlets
6-12 inches : Dark brown clayey silt with rootlets

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-43**

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FIGURE
80

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

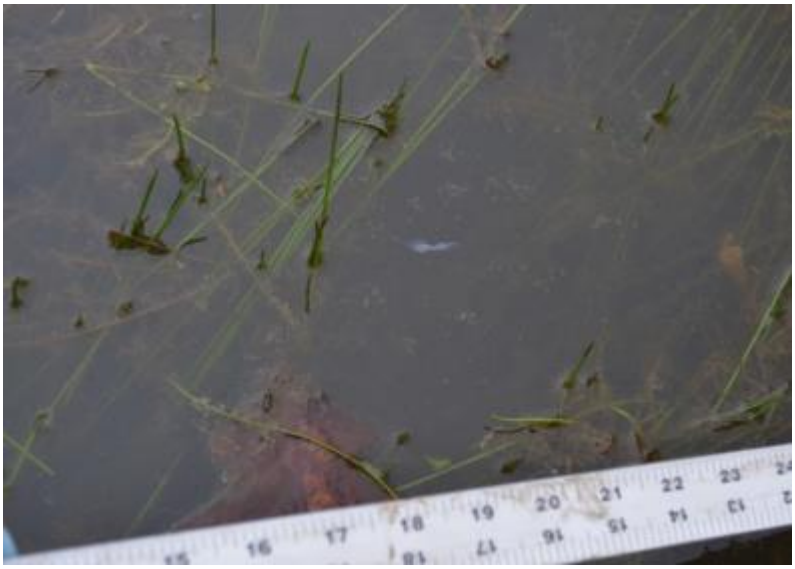
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-11 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-11 inches : No Sheen



**Initial Observation:**

Streamers of non-brittle silver gray sheen


**Core Description:**

0-6 inches : Brown clay
6-11 inches : Red brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-44**

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FIGURE
81

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

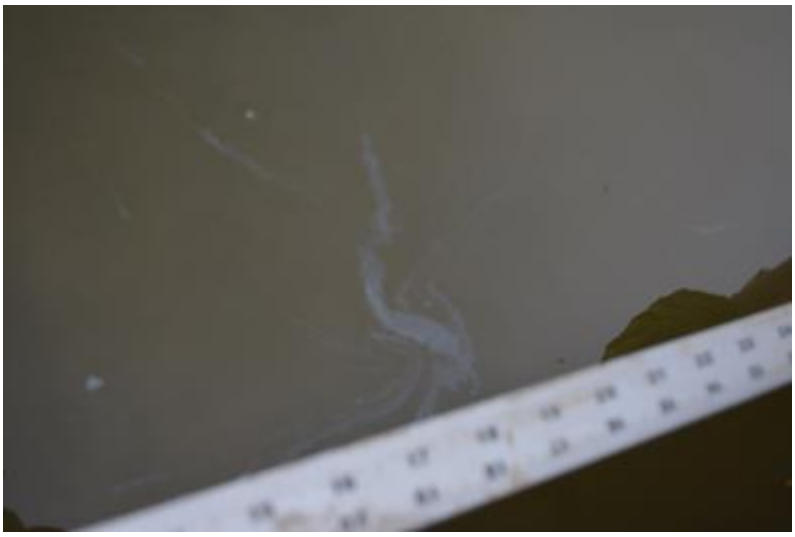
0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : No Sheen

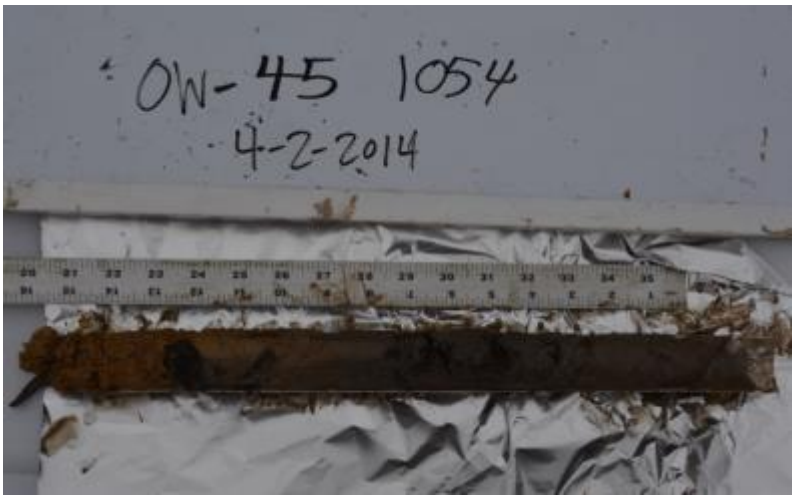
**Initial Observation:**

Patches/streamers of non-brittle silver gray sheen



**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray sheen
0-6 inches : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle rainbow sheen (heavy sheen)




**Core Description:**

0-6 inches : Brown silt with rootlets, medium sheen at 0-4”
6-12 inches : Red silty clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-45**

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FIGURE
82

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : No Sheen

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-45 (continued)**

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FIGURE
83

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

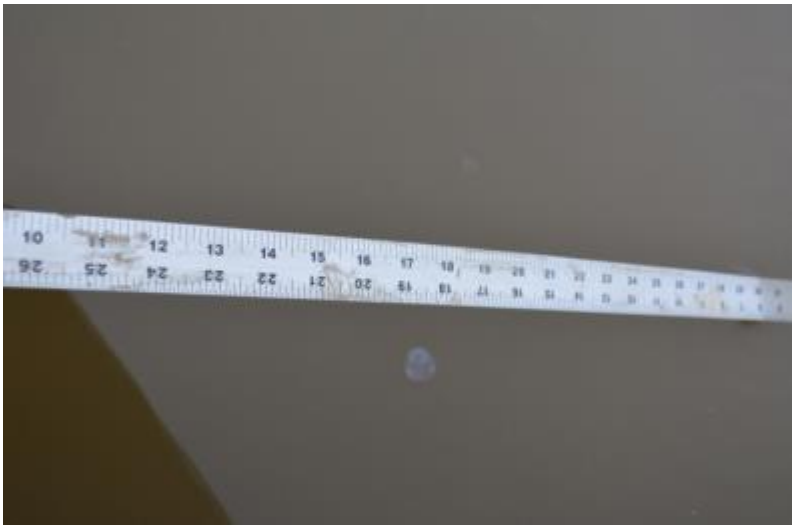
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

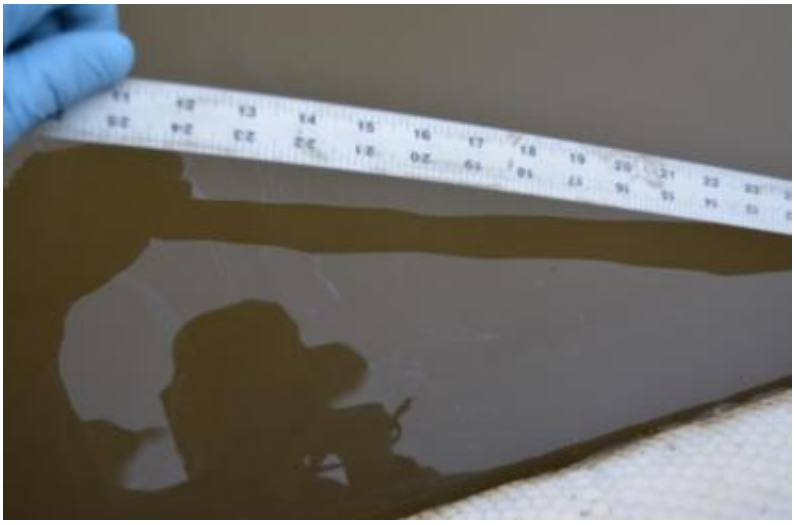
**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Heavier



**Initial Observation:**

Patches (four to five) of non-brittle silver gray sheen



**Probing Observation:**

Surface : Streamers of non-brittle silver gray sheen
0-6 inches : Streamers of non-brittle silver gray sheen
6-12 inches : Streamers of non-brittle silver gray sheen


**Core Description:**

0-6 inches : Brown silt, medium sheen at 0-5”
6-12 inches : Brown silty clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-46**

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FIGURE
84

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Heavier

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

**Sheen Stir-Test:**

6-12 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-46 (continued)**

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FIGURE
85

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : Yes |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : Medium |
| 6-12 inches | : Lighter |

**Initial Observation:**
Streamers of non-brittle rainbow sheen

No Photo

**Probing Observation:**

| | |
|---|---|
| Surface | : Patches of non-brittle silver gray sheen |
| 0-6 inches | : Patches of non-brittle silver gray sheen |
| 6-12 inches | : Patches of non-brittle silver gray sheen |


**Core Description:**
No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-47**

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FIGURE
86

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Medium
6-12 inches : Lighter

**Sheen Stir-Test:**

0-6 inches : Streamers of silver gray sheen (Medium)

**Sheen Stir-Test:**

6-12 inches : Streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-47 (continued)**

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FIGURE
87

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

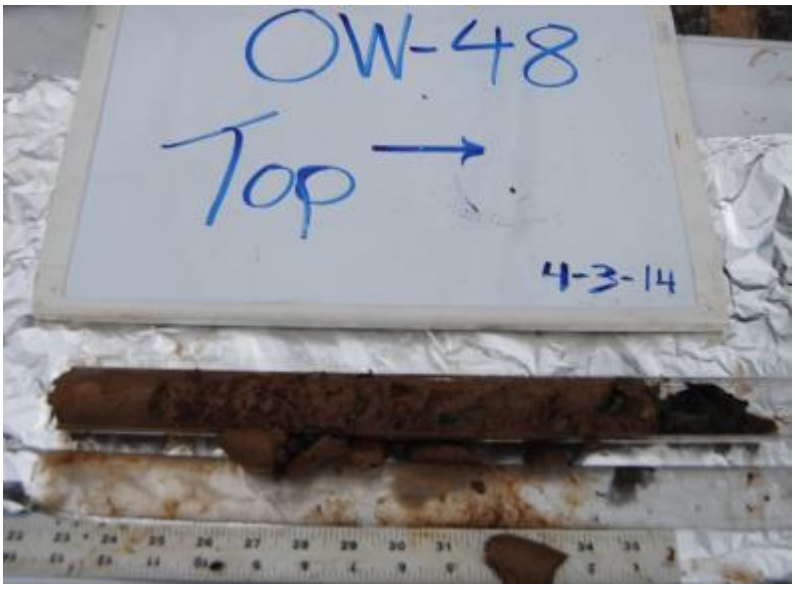
0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen

**Initial Observation:**

Patches/streamers of non-brittle silver gray sheen with oil spot (<0.25-inch wide)




**Core Description:**

0-12 inches : Gray and reddish brown mottled silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-48**

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FIGURE
88

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

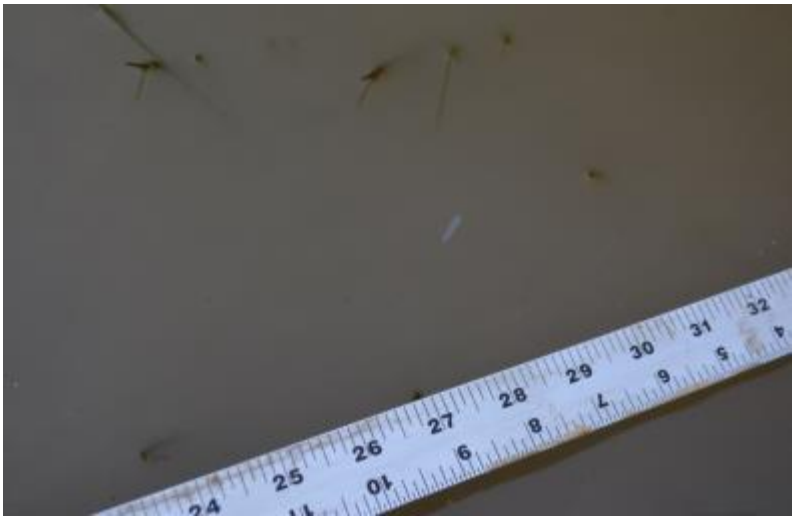
0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : No Sheen

**Initial Observation:**

Streamers of non-brittle rainbow sheen with eight oil spots (<0.25-inch wide)



**Probing Observation:**

Surface : Patches of non-brittle silver gray sheen
0-6 inches : Patches of non-brittle silver gray sheen

**Probing Observation:**

6-12 inches : Streamers of non-brittle silver gray sheen

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-49**

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FIGURE
89

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

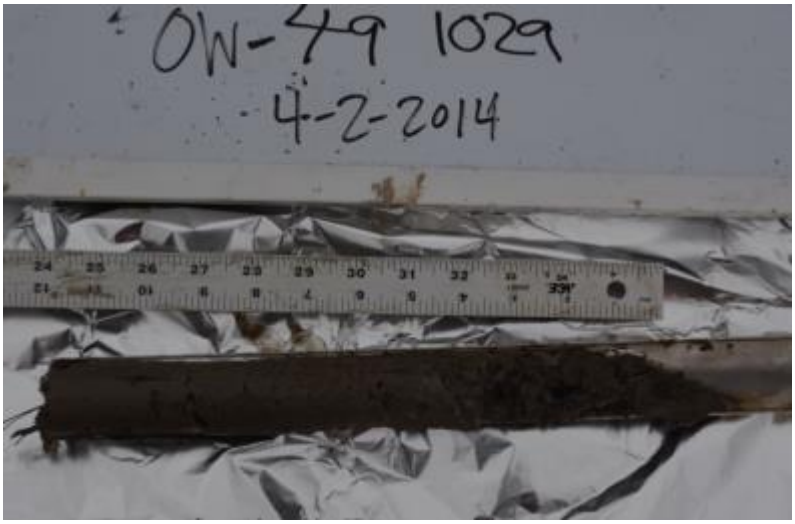
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Humic material, visible sheen at 0-5”
6-12 inches : Brown silty clay, roots

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen with five oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-49 (continued)**

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FIGURE
90

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-10 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-10 inches : No Sheen

No Photo

**Initial Observation:**

Streamers of non-brittle rainbow sheen with about 100 oil spots (0.25 to 0.5-inch wide)

No Photo

**Probing Observation:**

Surface : Streamers of non-brittle silver gray sheen with five oil spots (0.25-inch wide; sheen from other areas moved in quickly before taking a photograph)

0-6 inches : Streamers of non-brittle silver gray sheen with oil spots (0.25-inch wide; sheen from other areas moved in quickly before taking a photograph)

6-12 inches : Streamers of non-brittle silver gray sheen with oil spots (0.25-inch wide; sheen from other areas moved in quickly before taking a photograph)


**Core Description:**

0-6 inches : Humic material, light sheen at 0-4”

6-10 inches : Brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-50**

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FIGURE
91

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-10 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-10 inches : No Sheen

No Photo

**Sheen Stir-Test:**

0-6 inches : Patches of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-50 (continued)**

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FIGURE
92

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

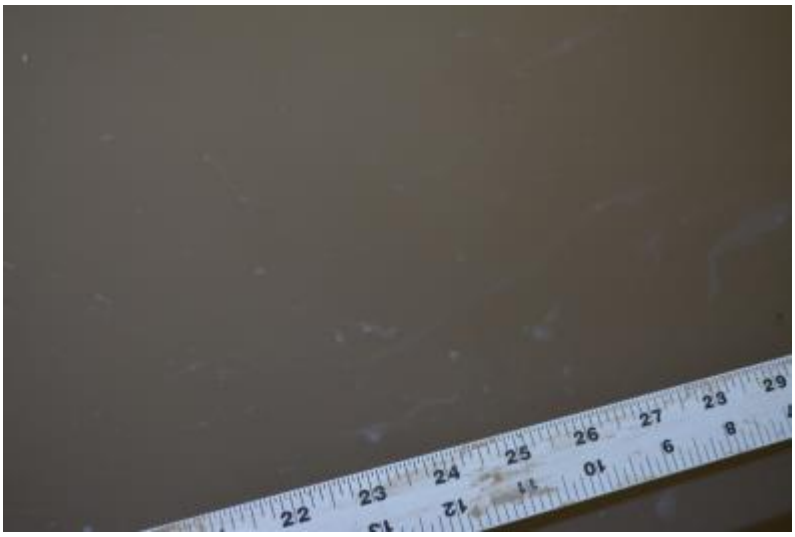
0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Lighter

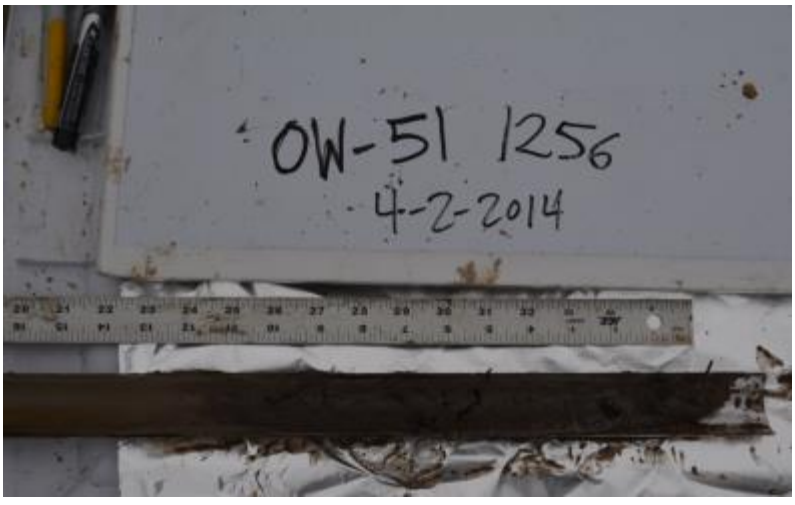
**Initial Observation:**

Patch/streamer of non-brittle rainbow sheen with about 100 oil spots



**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray sheen with two oil spots (<0.25-inch wide)
0-6 inches : Patches/streamers of non-brittle silver gray sheen with four oil spots (<0.25-inch wide)
6-12 inches : Patches/streamers of non-brittle silver gray sheen with five oil spots (0.1-inch wide)




**Core Description:**

0-6 inches : Brown silt, twigs, odor of benzene, medium sheen at 0-4”
6-12 inches : Brown clayey silt

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-51**

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FIGURE
93

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Lighter

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

**Sheen Stir-Test:**

6-12 inches : Streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-51 (continued)**

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FIGURE
94

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

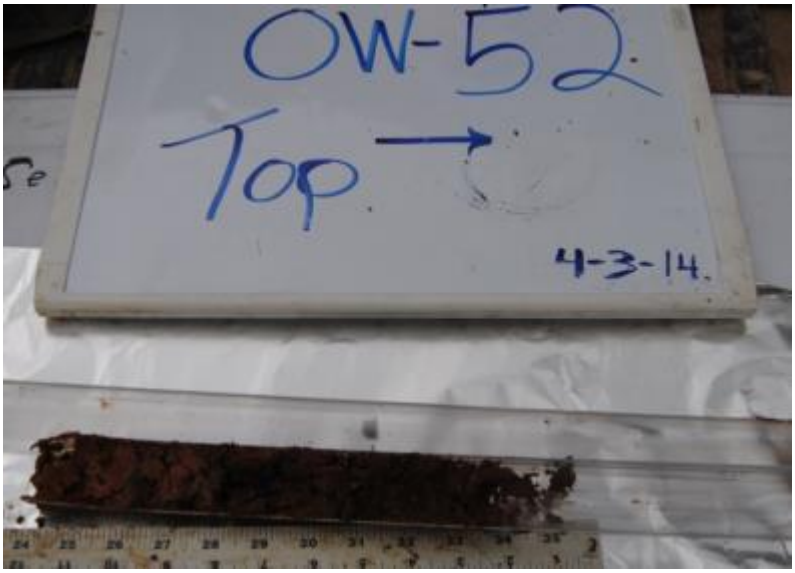
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-11 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-11 inches : No Sheen




**Core Description:**

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-52**

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FIGURE
95

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-10 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-10 inches | : No Sheen |


**Core Description:**

| | |
|---|---|
| 0-10 inches | : Gray and reddish brown mottled clayey silt (MH) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-53**

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FIGURE
96

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen

**Initial Observation:**
Cover of brittle rainbow sheen


**Core Description:**
No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-54**

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FIGURE
97

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

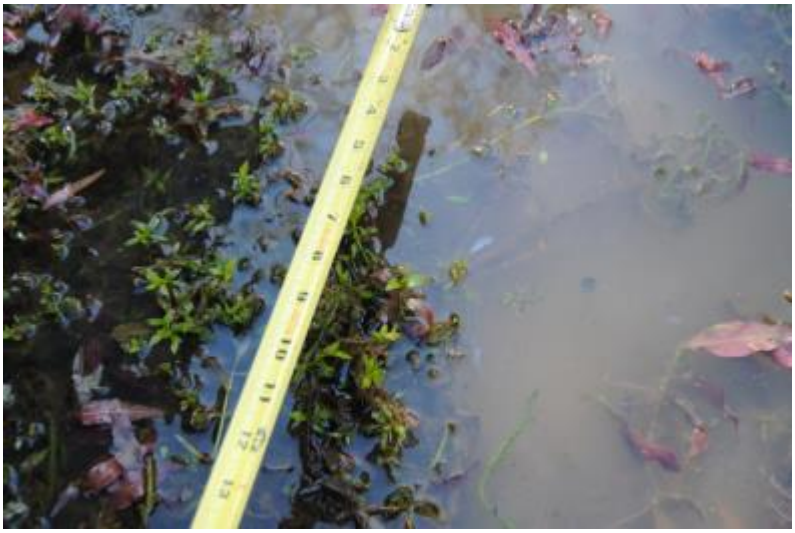
Surface : No
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen



**Probing Description:**

0-6 inches : Streamers of non-brittle silver gray sheen
6-12 inches : Streamers of non-brittle silver gray sheen


**Core Description:**

0-6 inches : Gray clayey silt with organic material
6-12 inches : Gray and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-55**

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FIGURE
98

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

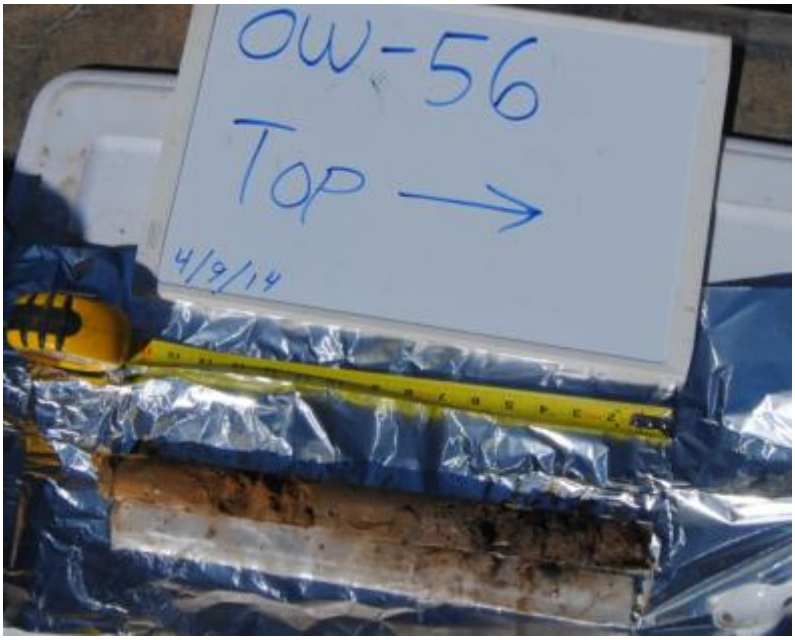
| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-12 inches | : No Sheen |




**Core Description:**

| | |
|---|---|
| 0-5 inches | : Gray silty clay with organic material |
| 5-12 inches | : Gray and reddish brown mottled clayey silt (MH) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-56**

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FIGURE
99

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

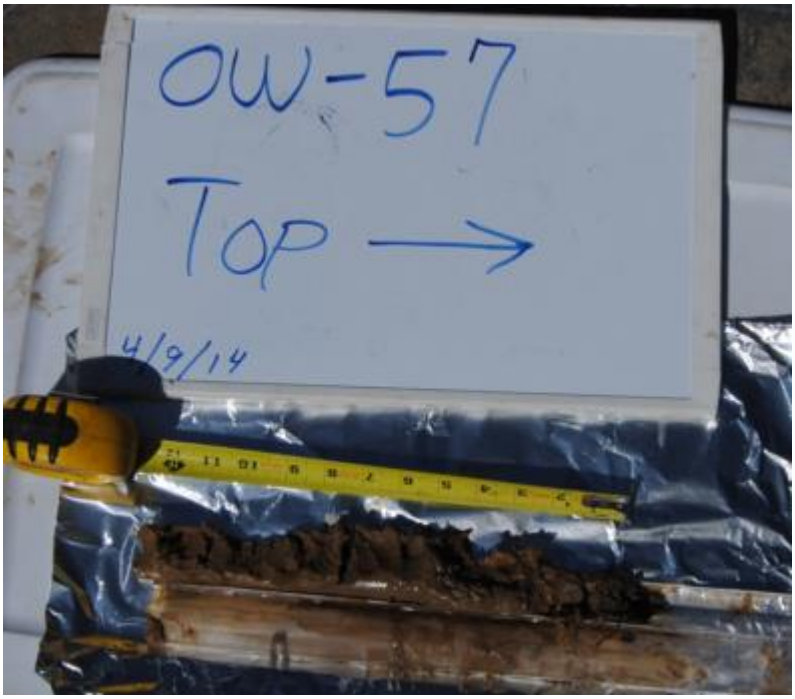
| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-12 inches | : No Sheen |




**Core Description:**

| | |
|---|---|
| 0-4 inches | : Gray silty clay with organic material |
| 4-12 inches | : Gray and reddish brown clayey silt (MH) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-57**

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FIGURE
100

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

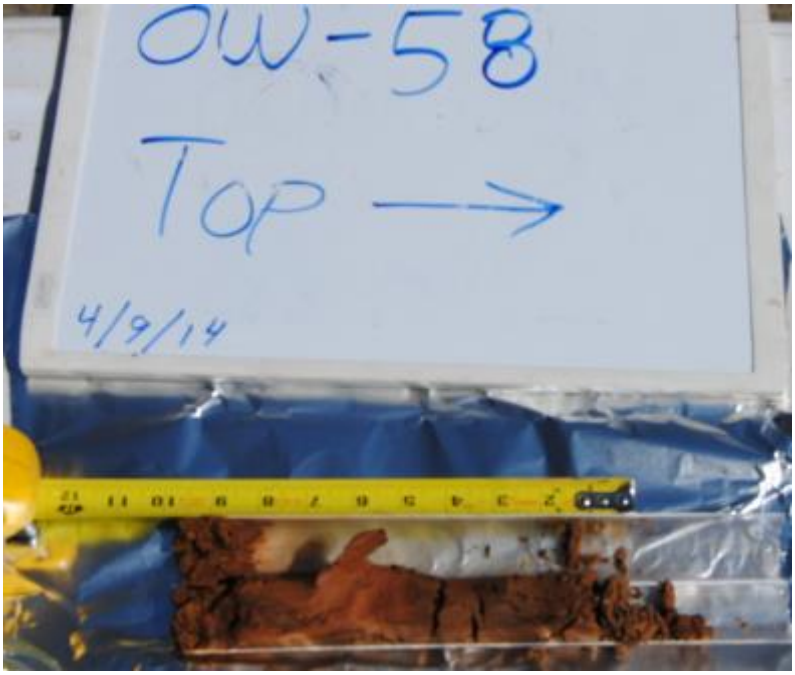
| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-9 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-9 inches | : No Sheen |




**Core Description:**

| | |
|---|---|
| 0-4 inches | : Reddish brown clayey silt (MH) |
| 4-9 inches | : Reddish brown silty clay (CL) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-58**

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FIGURE
101

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

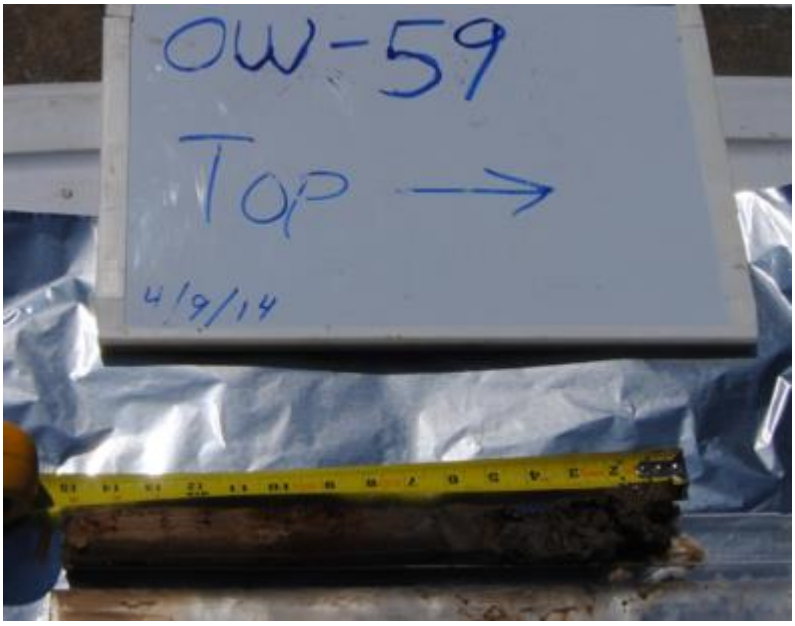
| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : No |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-12 inches | : No |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-12 inches | : No Sheen |




**Core Description:**

| | |
|---|---|
| 0-4 inches | : Gray silty clay (CL) with organic material, soft |
| 4-12 inches | : Gray and reddish brown clayey silt (MH) |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-59**

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FIGURE
102

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-10.5 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-10.5 inches : No Sheen


**Core Description:**

0-2 inches : Gray silty clay (CL) with organic material
2-10.5 inches : Gray and reddish brown clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-60**

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FIGURE
103

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

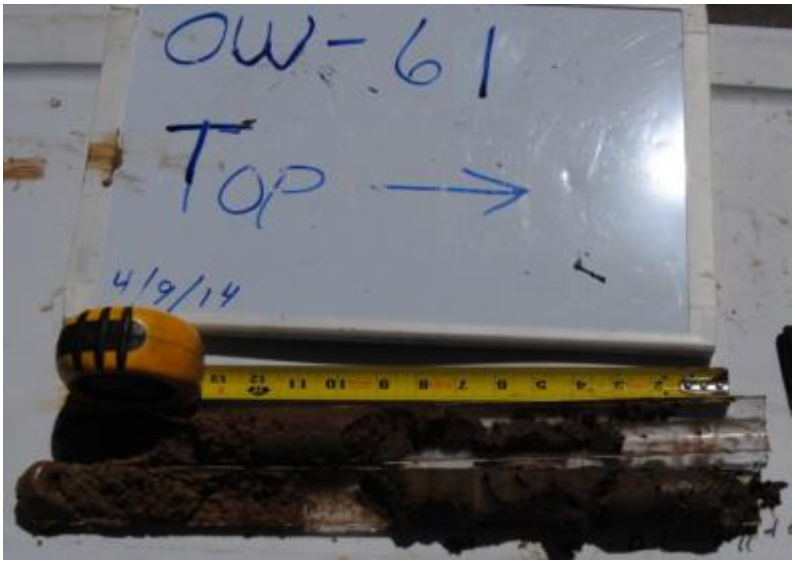
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen




**Core Description:**

0-12 inches : Gray and reddish brown mottled silt with clay

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-61**

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FIGURE
104

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

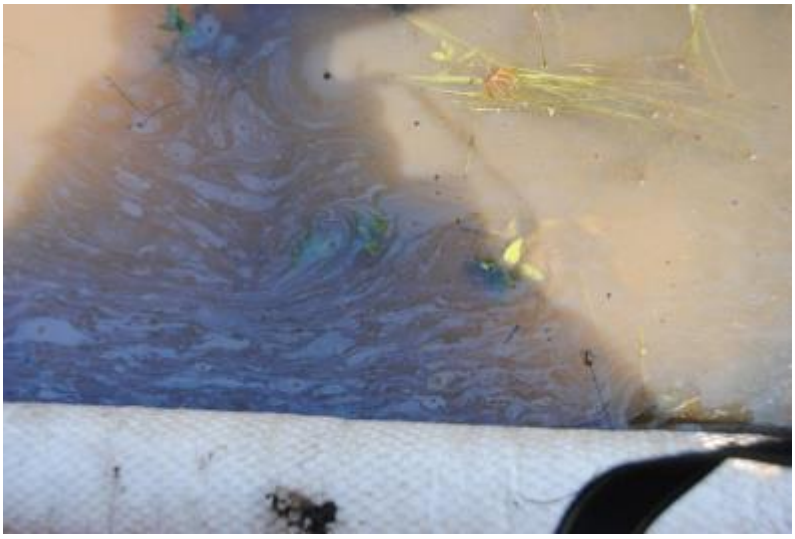
| | |
|---|---|
| Surface | : Yes |
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Yes |
| 6-12 inches | : Yes |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : Heavier |
| 6-12 inches | : Lighter |

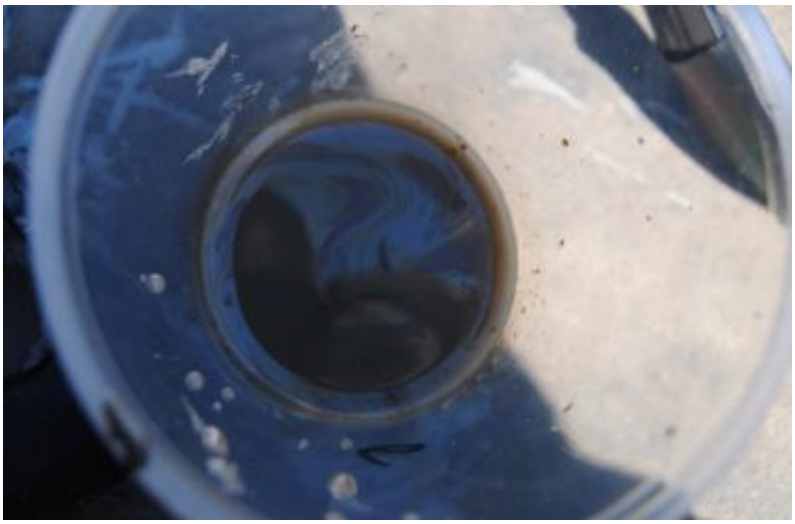


**Probing Description:**

| | |
|---|---|
| Surface | : Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide) |
| 0-6 inches | : Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide) |
| 6-12 inches | : Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide) |


**Core Description:**

| | |
|---|---|
| 0-12 inches | : Gray silty clay (CL), soft |



**Sheen Stir-Test:**

| | |
|---|---|
| 0-6 inches | : Streamers of rainbow sheen (Heavier) |

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-62**

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FIGURE
105

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

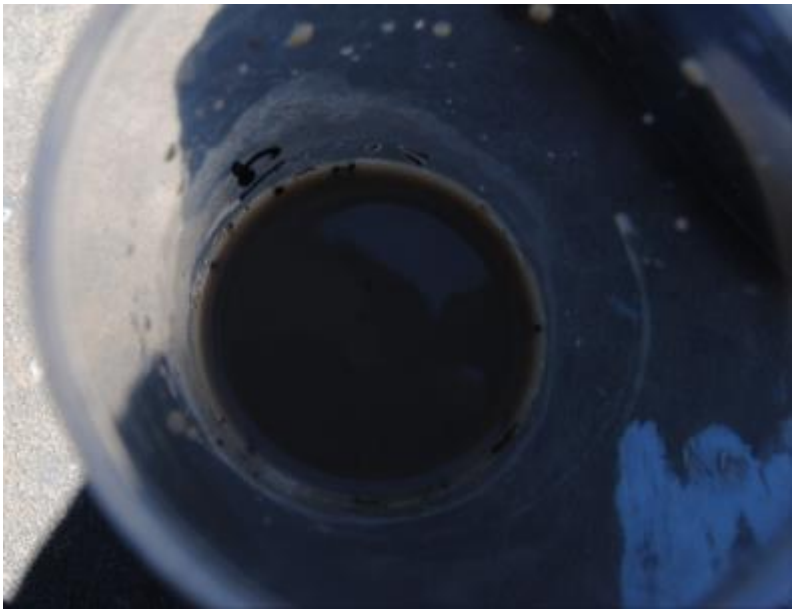
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Heavier
6-12 inches : Lighter



**Sheen Stir-Test:**

6-12 inches : Patch of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-62 (continued)**

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FIGURE
106

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

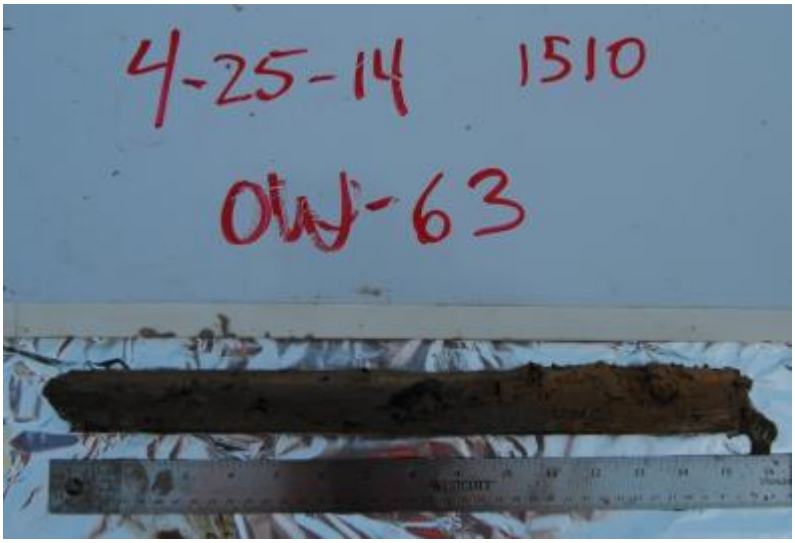
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : Lighter




**Core Description:**

0-6 inches : Brownish gray sandy silt loam with organic material and roots
6-12 inches : Grayish brown clay loam

No Photo

**Sheen Stir-Test:**

0-6 inches : Streamers of silver gray sheen (Lighter; quickly dissipated before capturing in the photograph)

No Photo

**Sheen Stir-Test:**

6-12 inches : Patches/streamers of silver gray sheen (Lighter; quickly dissipated before capturing in the photograph)

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**Cove Open Water**
**Area Location – OW-63**

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FIGURE
107

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : Lighter


**Core Description:**

0-6 inches : Brown silt loam with organic material
6-12 inches : Grayish brown clay sand loam

No Photo

**Sheen Stir-Test:**

6-12 inches : Streamers of silver gray sheen (Lighter; very light to be able to capture in the photograph)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-64**

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FIGURE
108

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

| | |
|---|---|
| Surface | : No |
| 0-6 inches | : No |
| 6-12 inches | : Yes |

**Sheen During Stir-Test:**

| | |
|---|---|
| 0-6 inches | : No |
| 6-12 inches | : Yes |

**Overall Qualitative Sheening Amount:**

| | |
|---|---|
| 0-6 inches | : No Sheen |
| 6-12 inches | : Lighter |

**Probing Description:**

6-12 inches : Streamers of non-brittle silver gray sheen


**Core Description:**

| | |
|---|---|
| 0-6 inches | : Grayish brown silt loam |
| 6-12 inches | : Brownish gray clay loam with redox |

**Sheen Stir-Test:**

6-12 inches : Streamers of silver gray sheen (Lighter)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-65**

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FIGURE
109

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

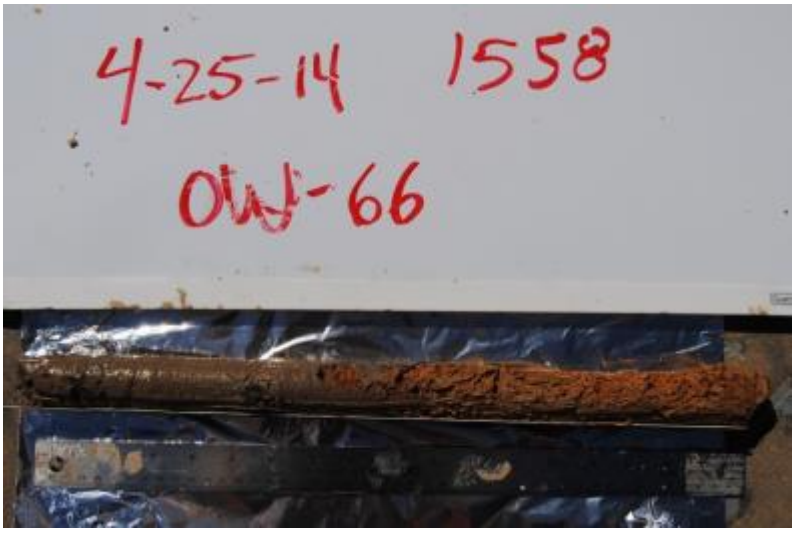
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Gray clay loam with redox
6-12 inches : Light brown silt loam, friable

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-66**

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FIGURE
110

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

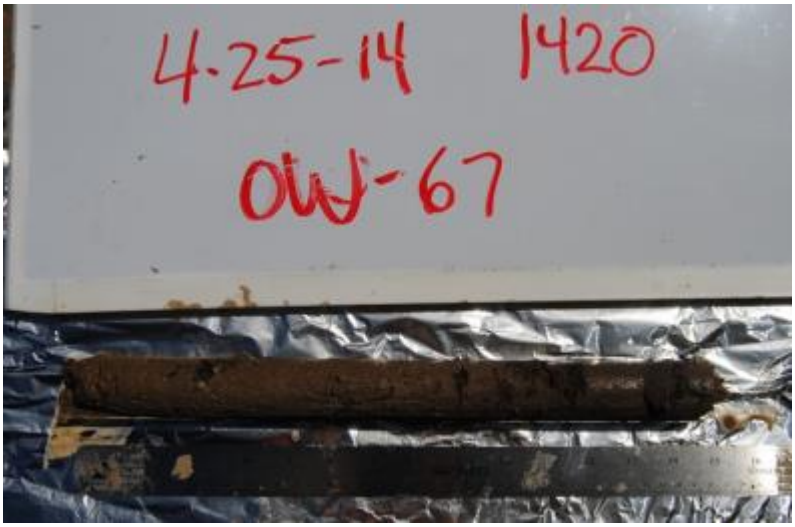
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Brownish gray silt loam with organic material
6-12 inches : Brownish gray sand loam

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-67**

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FIGURE
111

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

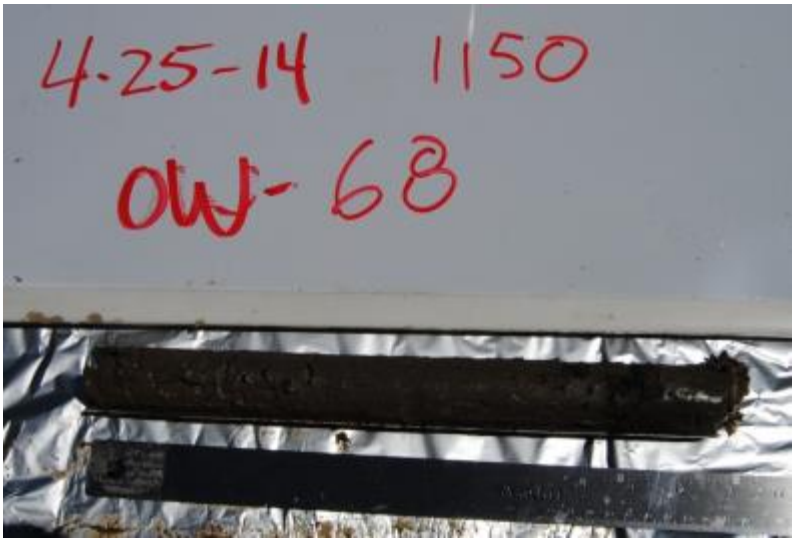
**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : Heavier

No Photo

**Probing Description:**

6-12 inches : Streamers of non-brittle silver gray sheen (very light sheen to be able to capture in the photograph)




**Core Description:**

0-6 inches : Brownish gray silt loam with organic material
6-12 inches : Brownish gray silty clay loam

**Sheen Stir-Test:**

0-6 inches : Streamers of silver gray sheen (Lighter)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-68**

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FIGURE
112

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : Yes

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : Yes

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : Heavier

**Sheen Stir-Test:**

6-12 inches : Patches/streamers of rainbow sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water Area**
**Location – OW-68 (continued)**

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FIGURE
113

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

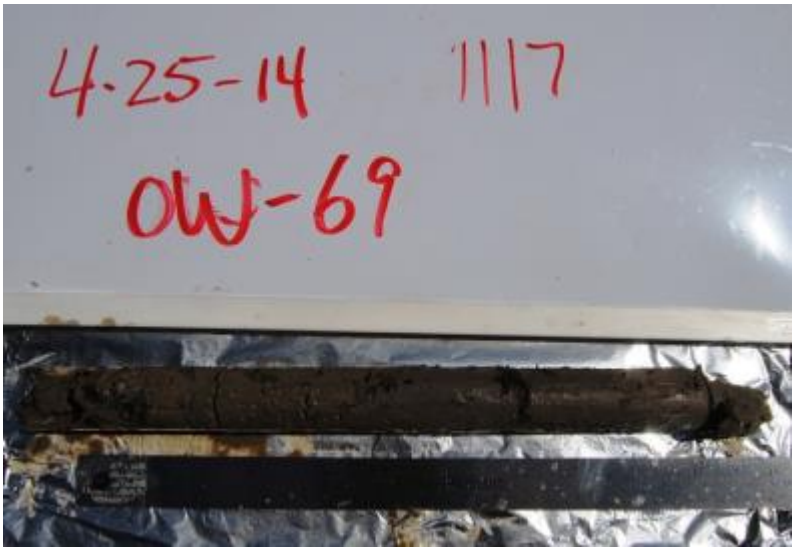
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Medium
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Gray silty clay loam with roots and organic material
6-12 inches : Gray clay loam with rootlets

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of silver gray sheen (Medium)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-69**

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FIGURE
114

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : No
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : No Sheen
6-12 inches : No Sheen


**Core Description:**

0-6 inches : Gray clay loam with rootlets
6-12 inches : Gray clay loam

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-70**

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FIGURE
115

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

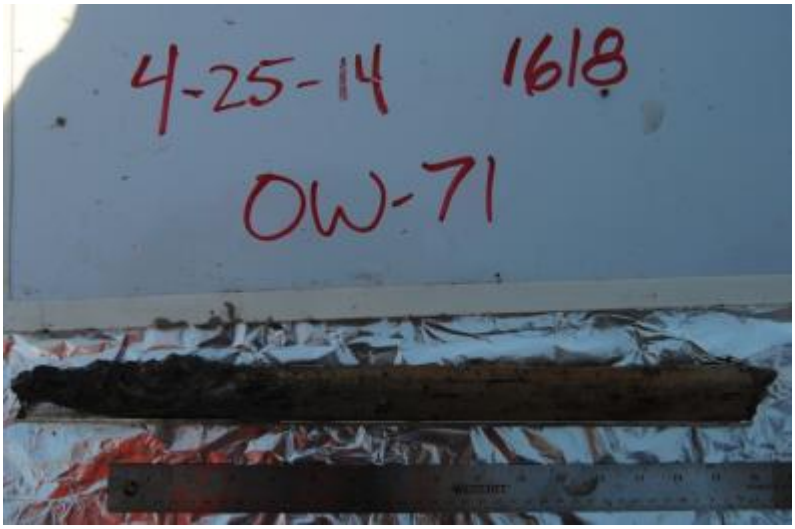
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-6 inches : Yes
6-12 inches : No

**Overall Qualitative Sheening Amount:**

0-6 inches : Lighter
6-12 inches : No Sheen




**Core Description:**

0-6 inches : Brownish gray silt loam, some sheen at 0-4“
6-12 inches : Brown silt-clay loam, friable

**Sheen Stir-Test:**

0-6 inches : Patches/streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Open Water**
**Area Location – OW-71**

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FIGURE
116

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Humic material with organics
0.1-6 inches : Reddish brown clay, no plasticity

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-1**

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FIGURE
117

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : No | 0-0.1 inches | : No | No Sheen |
| 0-6 inches | : No | 0.1-3 inches | : No | |
| 6-12 inches | : No | | | |

**Initial Observation:**
Patches of brittle silver gray sheen


**Core Description:**
No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-2**

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FIGURE
118

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : Yes | 0-0.1 inches | : No | Lighter |
| 0-6 inches | : Yes | 0.1-6 inches | : No | |
| 6-12 inches | : No | | | |

**Probing Description:**

| | |
|---|---|
| Surface | : Patches/streamers of non-brittle silver gray sheen (light sheen) |
| 0-6 inches | : Patches/streamers of non-brittle silver gray sheen (light sheen) |


**Core Description:**

| | |
|---|---|
| 0-0.1 inches | : Humic material with organics |
| 0.1-6 inches | : Brown silty clay with rootlets |

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-3**

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FIGURE
119

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter

**Initial Observation:**

Patches of non-brittle silver gray sheen

**Probing Observation:**

0-6 inches : Streamer (< 6") of non-brittle silver gray sheen
6-12 inches : Streamer (< 6") of non-brittle silver gray sheen (light sheen)


**Core Description:**

0-0.1 inches : Humic material with organics
0.1-6 inches : Humic material, some clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-4**

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FIGURE
120

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter

**Sheen Stir-Test:**

0-0.1 inches : Patches of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-4 (continued)**

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FIGURE
121

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

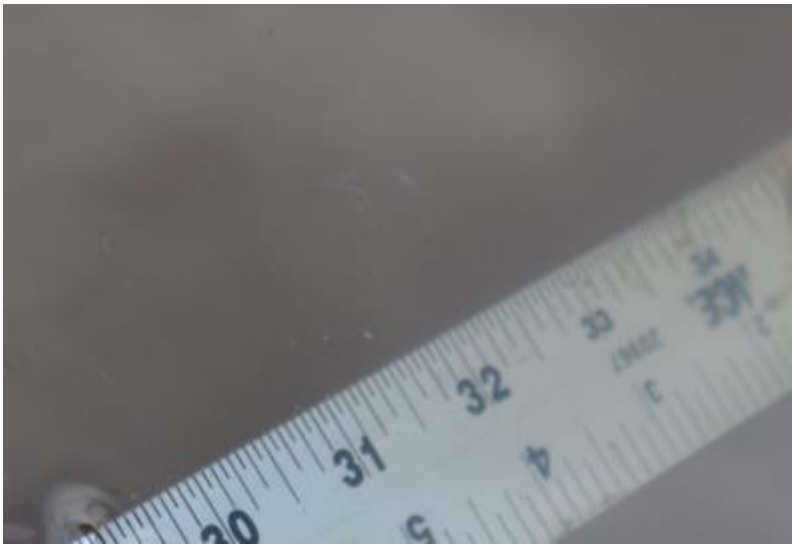
Surface : No
0-6 inches : No
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter



**Probing Description:**

6-12 inches : Patch (< 1") of non-brittle silver gray sheen


**Core Description:**

0-0.1 inches : Humic material with twigs
0.1-6 inches : Reddish brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-5**

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FIGURE
122

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-5 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Humic material with twigs
0.1-5 inches : Humic material with twigs and roots, some clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-6**

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FIGURE
123

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Humic material
0.1-6 inches : Gray clayey silt

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-7**

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FIGURE
124

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : Yes

**Overall Qualitative Sheening Amount:**

Lighter


**Core Description:**

0-0.1 inches : Brown silt
0.1-6 inches : Silt with humic material, some clay

No Photo

**Sheen Stir-Test:**

0.1-6 inches : Streamers of silver gray sheen (Lighter; sheen was not able to capture in the photograph due to light)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-8**

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FIGURE
125

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Silt, organic matter (light sheen observed)
0.1-6 inches : Silty clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-9**

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FIGURE
126

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Heavier

**Initial Observation:**

Streamer of non-brittle silver gray sheen with four oil spots (<0.1-inch)

**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray sheen
0-6 inches : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen


**Core Description:**

0-0.1 inches : Brown silt
0.1-6 inches : Humic material with rootlets

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-10**

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FIGURE
127

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Heavier

**Sheen Stir-Test:**

0-0.1 inches : Streamers of rainbow/silver gray sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-10 (continued)**

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FIGURE
128

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : Yes | 0-0.1 inches | : No | Medium |
| 0-6 inches | : Yes | 0.1-6 inches | : Yes | |
| 6-12 inches | : Yes | | | |

**Initial Observation:**

Patches/streamers of non-brittle silver gray sheen

**Probing Observation:**

| | | |
|---|---|---|
| Surface | : | Patches/streamers of non-brittle silver gray sheen |
| 0-6 inches | : | Patches/streamers of non-brittle silver gray sheen (light sheen) |
| 6-12 inches | : | Patches/streamers of non-brittle silver gray sheen |


**Core Description:**

| | | |
|---|---|---|
| 0-0.1 inches | : | Brown silt, very little visible sheen |
| 0.1-6 inches | : | Silt, humic material, roots, very little sheen in 0.1-4” |

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-11**

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FIGURE
129

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : Yes

**Overall Qualitative Sheening Amount:**

Medium

**Sheen Stir-Test:**

0.1-6 inches : Streamers of silver gray sheen (Medium)

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EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-11 (continued)**

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FIGURE
130

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

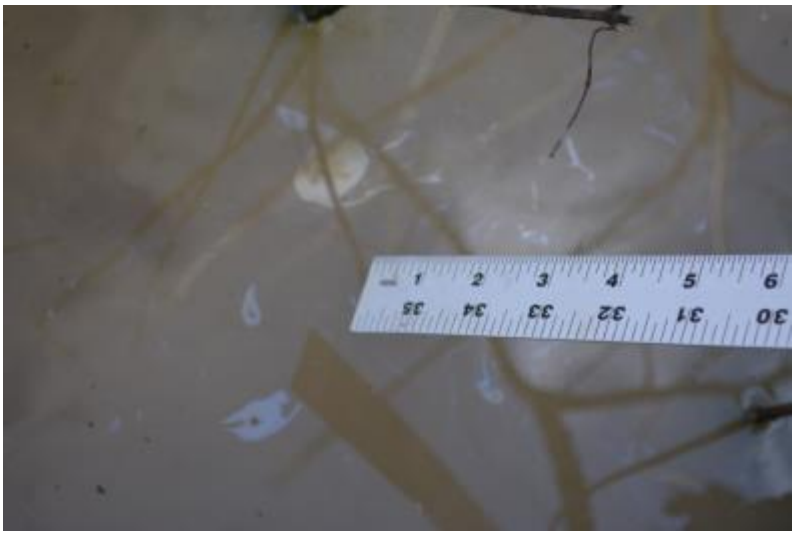
Lighter

**Initial Observation:**

Patches/streamers of non-brittle silver gray sheen

**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray sheen



**Probing Observation:**

0-6 inches : Streamer of non-brittle rainbow sheen with three oil spots (<0.25-inch wide)

6-12 inches : Streamer of non-brittle silver gray sheen

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-12**

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FIGURE
131

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter


**Core Description:**

0-0.1 inches : Dark brown silt, very little sheen
0.1-6 inches : Brown silty clay

**Sheen Stir-Test:**

0-0.1 inches : Patches of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-12 (continued)**

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FIGURE
132

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Heavier

**Initial Observation:**

Patches of non-brittle silver gray sheen

**Probing Observation:**

Surface : Patches of non-brittle silver gray sheen
0-6 inches : Patches of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen


**Core Description:**

0-0.1 inches : Humic material with organics
0.1-6 inches : Clayey silt with roots

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-13**

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FIGURE
133

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Heavier

**Sheen Stir-Test:**

0-0.1 inches : Streamers of silver gray sheen with occasional oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-13 (continued)**

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FIGURE
134

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

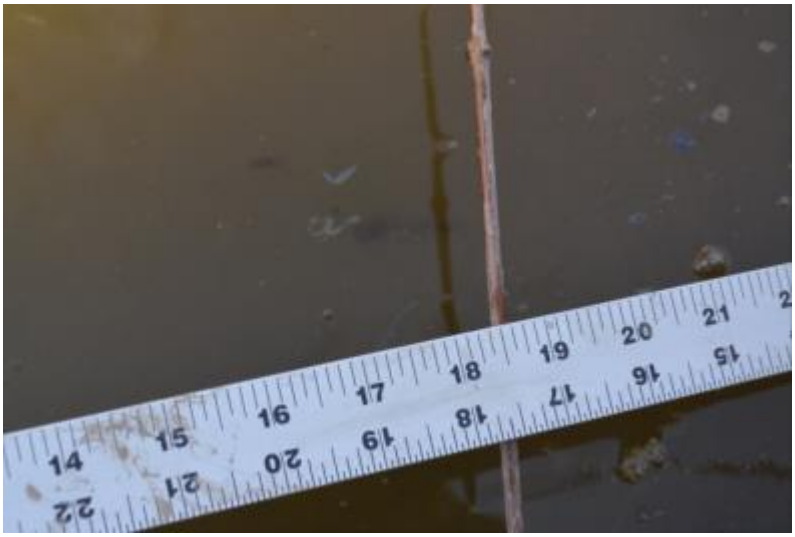
0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter

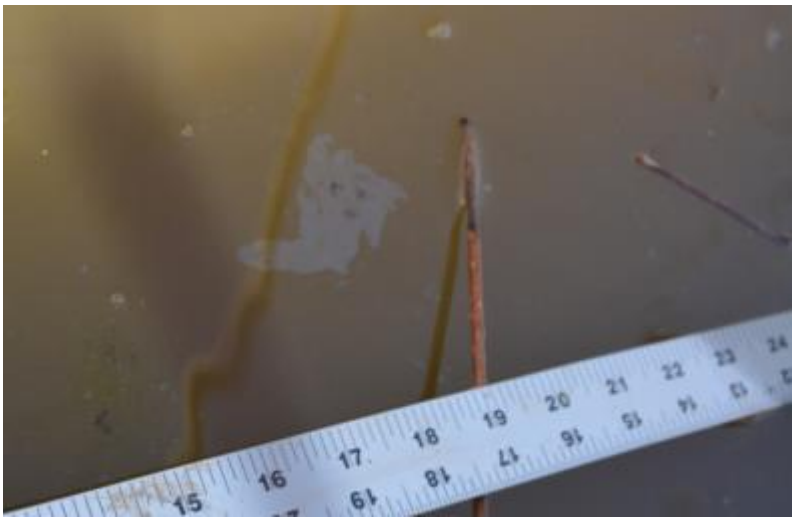
**Initial Observation:**

Patches/streamers of non-brittle silver gray sheen (three to four patches, one streamer)



**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen



**Probing Observation:**

0-6 inches : Streamers of non-brittle rainbow sheen with two oil spots (<0.5-inch wide)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-14**

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FIGURE
135

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

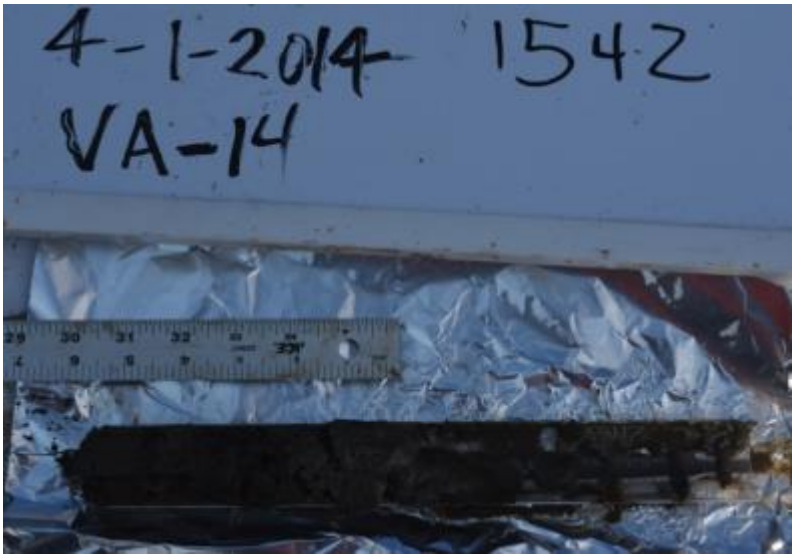
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter




No Photo

**Core Description:**

0-0.1 inches : Gray silt with rootlets
0.1-6 inches : Gray clayey silt with rootlets

**Sheen Stir-Test:**

0-0.1 inches : Patch of silver gray sheen (Lighter; sheen was not able to capture in the photograph due to light)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-14 (continued)**

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FIGURE
136

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Silt with humic material
0.1-6 inches : Brown silt with some clay and rootlets

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-15**

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FIGURE
137

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : No | 0-0.1 inches | : No | No Sheen |
| 0-6 inches | : No | 0.1-4 inches | : No | |
| 6-12 inches | : No | | | |

**Initial Observation:**

Patch of non-brittle rainbow sheen with one oil spot (0.25-inch wide)


**Core Description:**

| | | |
|---|---|---|
| 0-0.1 inches | : | Brown humic material with roots |
| 0.1-4 inches | : | Clayey silt with roots |

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**Cove Heavily Vegetated Area Location – VA-16**

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FIGURE
138

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Brown silt with roots
0.1-6 inches : Brown silty clay

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EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-17**

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FIGURE
139

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

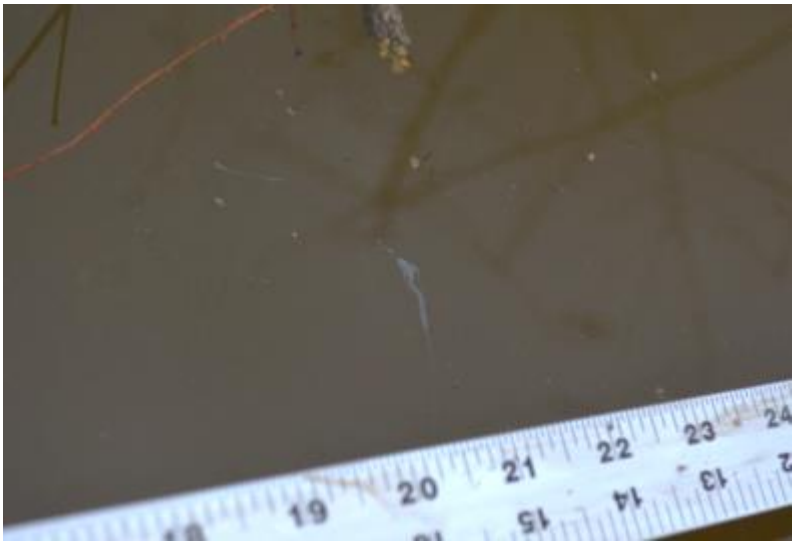
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Medium

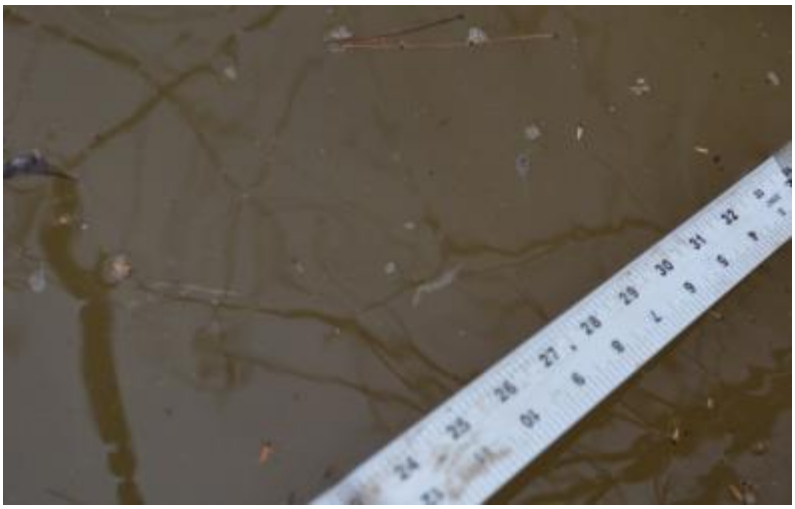


**Initial Observation:**

Streamers of non-brittle silver gray sheen

**Probing Observation:**

Surface : Patches of non-brittle silver gray sheen



**Probing Observation:**

0-6 inches : Streamers of non-brittle silver gray sheen with one oil spot (<0.25-inch wide)

6-12 inches : Streamers of non-brittle silver gray sheen with one oil spot (<0.25-inch wide)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-18**

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FIGURE
140

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

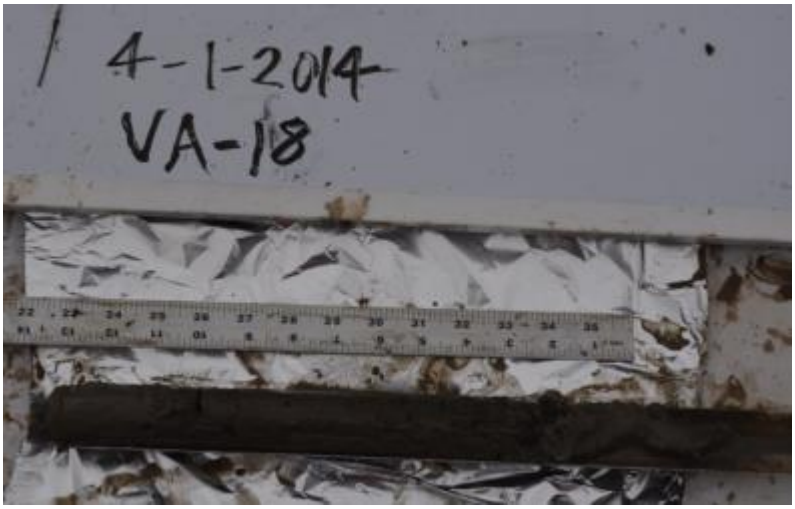
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Medium




**Core Description:**

0-0.1 inches : Brown silt with humic material
0.1-6 inches : Brown silt with some clay

**Sheen Stir-Test:**

0-0.1 inches : Streamers of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-18 (continued)**

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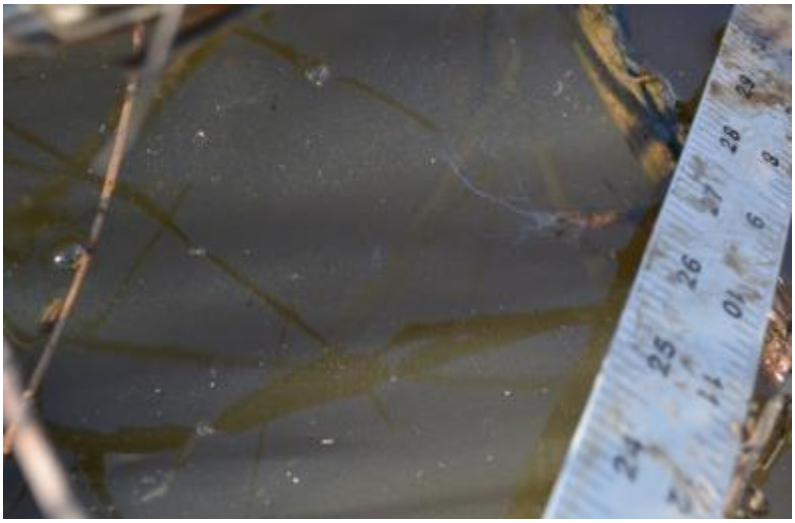
FIGURE
141

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : No | 0-0.1 inches | : No | No Sheen |
| 0-6 inches | : No | 0.1-6 inches | : No | |
| 6-12 inches | : No | | | |



**Initial Observation:**
Streamers of non-brittle silver gray sheen


**Core Description:**

| | | |
|---|---|---|
| 0-0.1 inches | : | Brown humic material |
| 0.1-6 inches | : | Brown clay, soft |

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-19**

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FIGURE
142

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : No | 0-0.1 inches | : No | No Sheen |
| 0-6 inches | : No | 0.1-6 inches | : No | |
| 6-12 inches | : No | | | |

No Photo

**Initial Observation:**
Streamers of silver gray sheen


**Core Description:**

| | | |
|---|---|---|
| 0-0.1 inches | : | Silt, some clay, roots |
| 0.1-6 inches | : | Brown clay, soft |

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-20**

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FIGURE
143

**Sheen Present During Initial Observation:** No

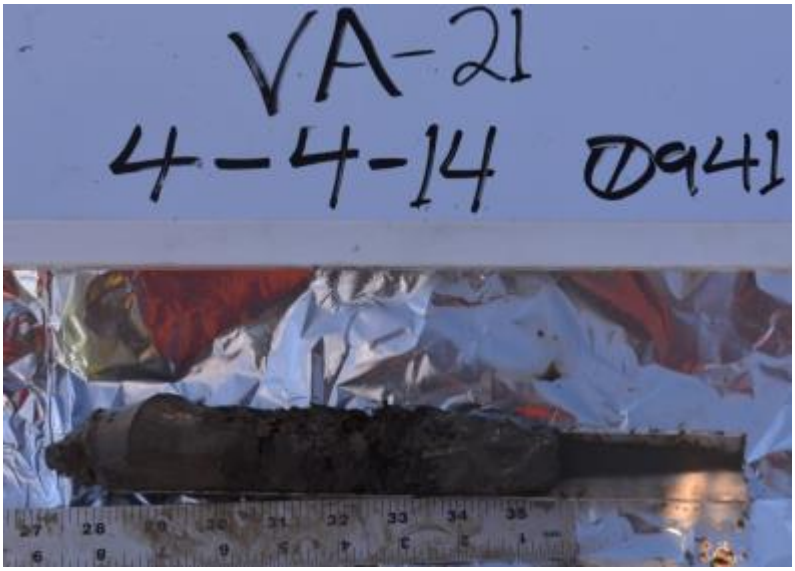
*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : No | 0-0.1 inches | : No | Lighter |
| 0-6 inches | : Yes | 0.1-6 inches | : No | |
| 6-12 inches | : No | | | |

No Photo

**Probing Description:**

0-6 inches : Streamers of non-brittle silver gray sheen with one oil spot (0.1-inch wide, very light sheen to capture in the photograph)




**Core Description:**

0-0.1 inches : Brown silt, roots at 2.4”

0.1-6 inches : Brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-21**

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FIGURE
144

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Brown silt
0.1-6 inches : Brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-22**

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FIGURE
145

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Humic material, roots
0.1-6 inches : Brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-23**

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FIGURE
146

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Heavier

No Photo

**Probing Description:**

6-12 inches : Patches of non-brittle silver gray sheen with one oil spot (0.1-inch wide)


**Core Description:**

0-6 inches : Brown silt, saturated

**Sheen Stir-Test:**

0-0.1 inches : Patches of rainbow sheen with one oil spot (0.25-inch wide; Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-24**

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FIGURE
147

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Brown clayey humic material
0.1-6 inches : Gray clayey silt, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-25**

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FIGURE
148

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen


**Core Description:**

0-0.1 inches : Humic material with roots
0.1-6 inches : Brown clayey silt, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-26**

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FIGURE
149

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

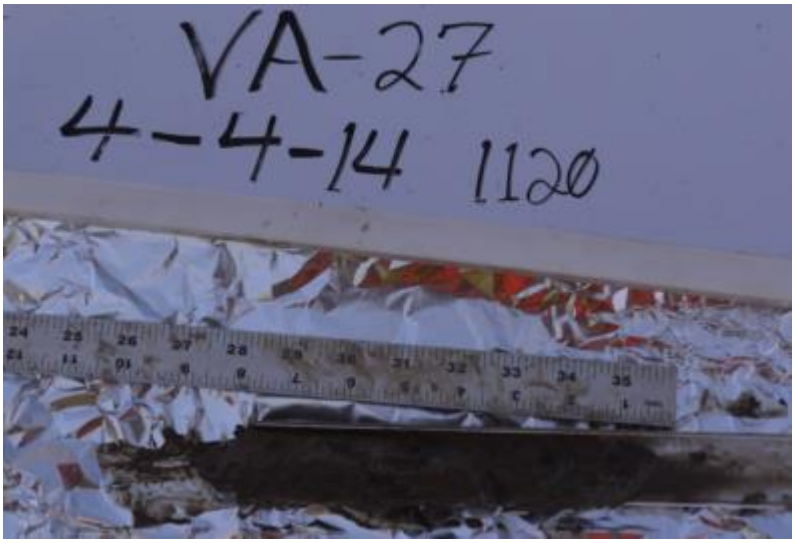
Surface : No
0-6 inches : No
6-12 inches : No

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

No Sheen




**Core Description:**

0-6 inches : Brown silt with roots

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-27**

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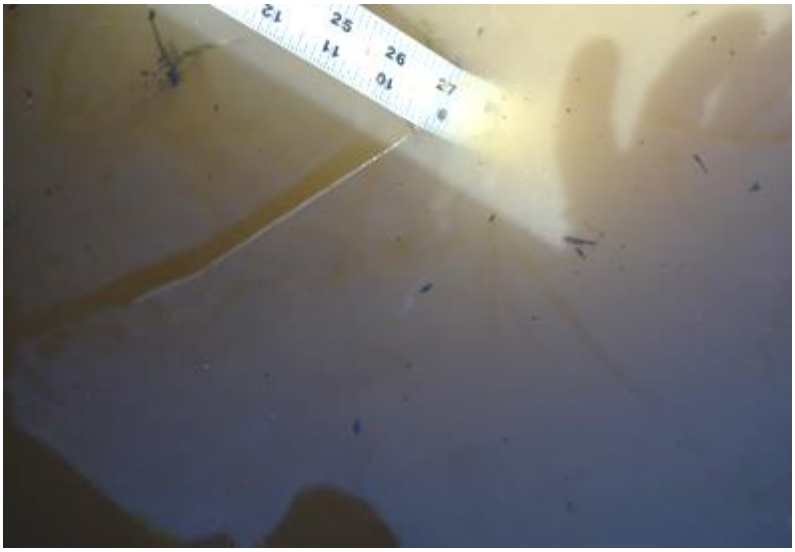
FIGURE
150

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

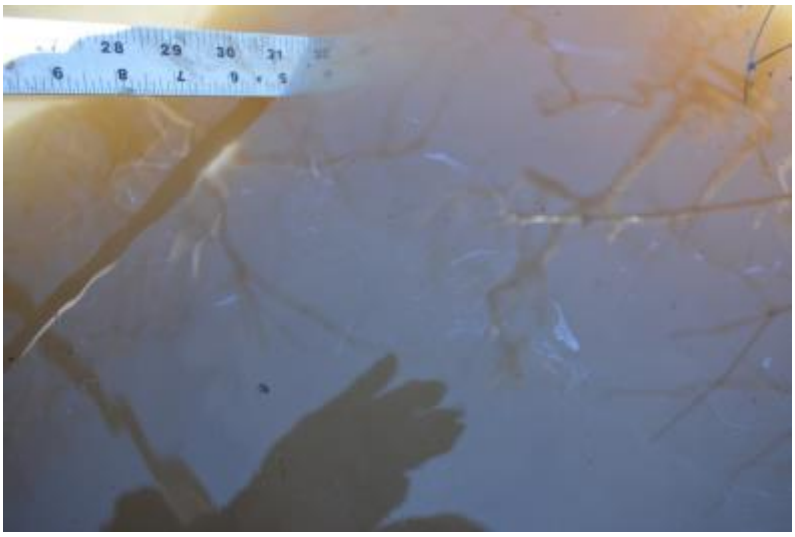
| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : Yes | 0-0.1 inches | : Yes | Lighter |
| 0-6 inches | : Yes | 0.1-6 inches | : No | |
| 6-12 inches | : Yes | | | |



**Probing Observation:**

Surface : Patches/streamers of non-brittle silver gray sheen with one oil spot (0.25-inch wide)

6-12 inches : Patches/streamers of non-brittle silver gray sheen with four oil spots (0.1-inch wide)



**Probing Observation:**

0-6 inches : Patches/streamers of non-brittle rainbow sheen with three oil spots


**Core Description:**

0-0.1 inches : Brown clayey silt, rootlets

0.1-6 inches : Brown clayey silt, soft

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-28**

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FIGURE
151

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter

No Photo

**Sheen Stir-Test:**

0-0.1 inches : Streamers of silver gray sheen (Lighter; very light sheen to capture in the photograph)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-28 (continued)**

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FIGURE
152

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Medium

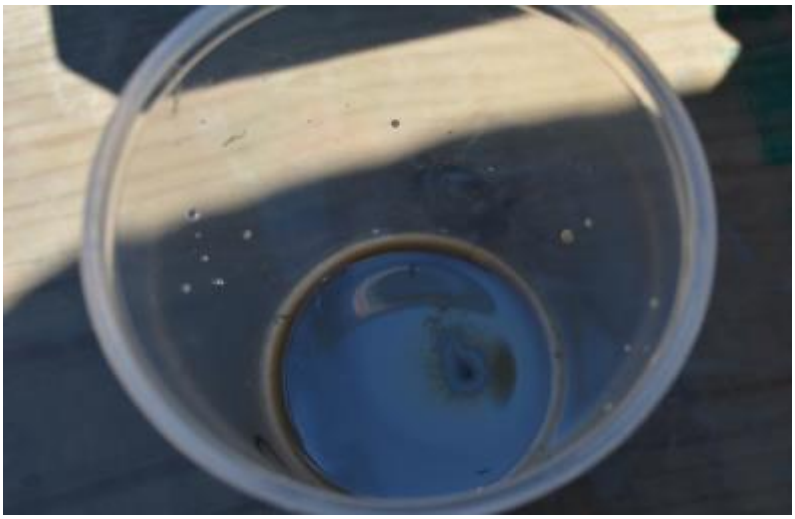
No Photo

**Probing Description:**

Surface : Patches/streamers of non-brittle silver gray sheen with two oil spots (0.1-inch wide)
0-6 inches : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen


**Core Description:**

0-6 inches : Humic material with silt



**Sheen Stir-Test:**

0-0.1 inches : Patches/streamers of silver gray sheen with oil spots (0.25-inch wide; Medium)

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**Cove Heavily Vegetated Area Location – VA-29**

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FIGURE
153

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : Yes

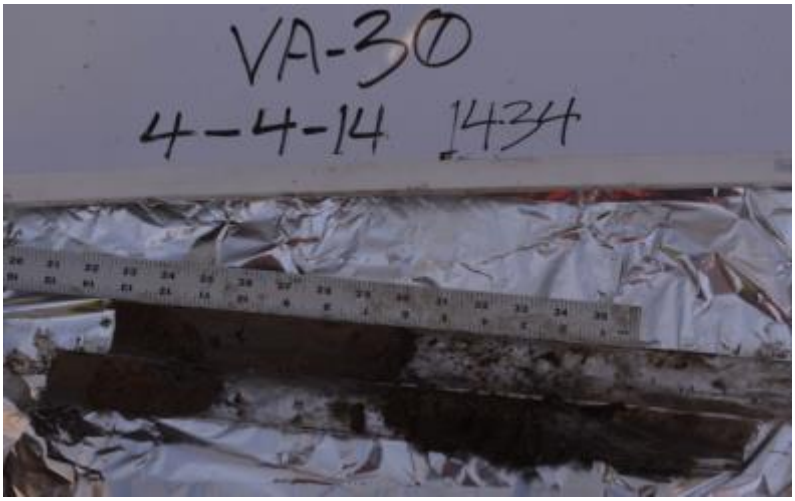
**Overall Qualitative Sheening Amount:**

Heavier

No Photo

**Probing Description:**

6-12 inches : Streamers of non-brittle silver gray sheen




**Core Description:**

0-0.1 inches : Brown silt, soft, light sheen at 0-0.1”
0.1-6 inches : Brown silt, roots, light sheen at 0.1-3”

**Sheen Stir-Test:**

0-0.1 inches : Patches/Streamers of rainbow sheen with 10 oil spots (Heavier)

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**Cove Heavily Vegetated Area Location – VA-30**

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FIGURE
154

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

Surface : No
0-6 inches : No
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : Yes

**Overall Qualitative Sheening Amount:**

Heavier

**Sheen Stir-Test:**

0.1-6 inches : Patches/Streamers of rainbow sheen with five oil spots (Medium)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-30 (continued)**

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FIGURE
155

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

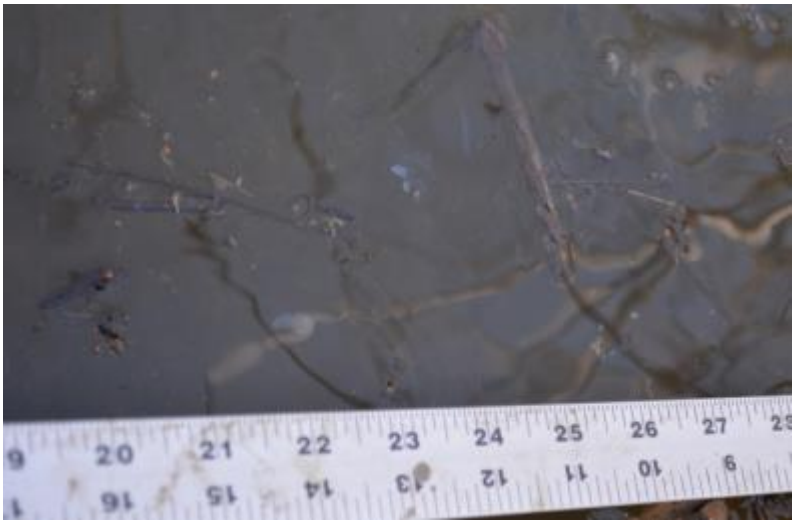
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

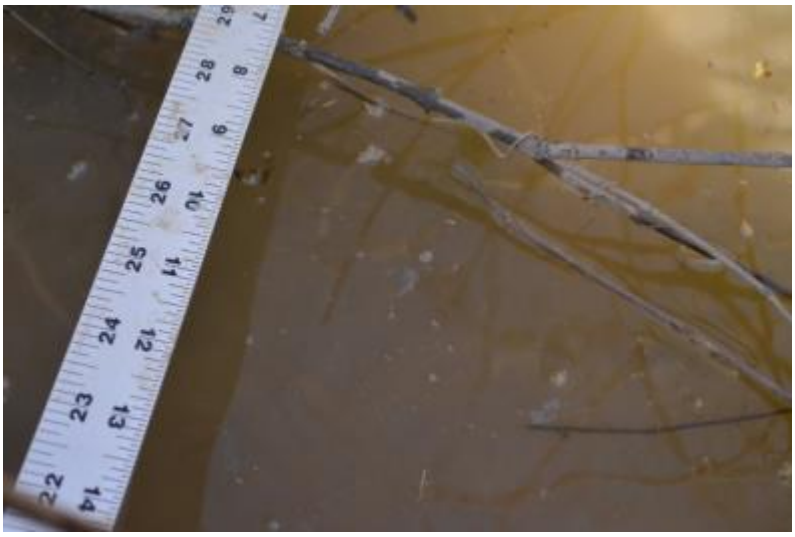
**Overall Qualitative Sheening Amount:**

Lighter



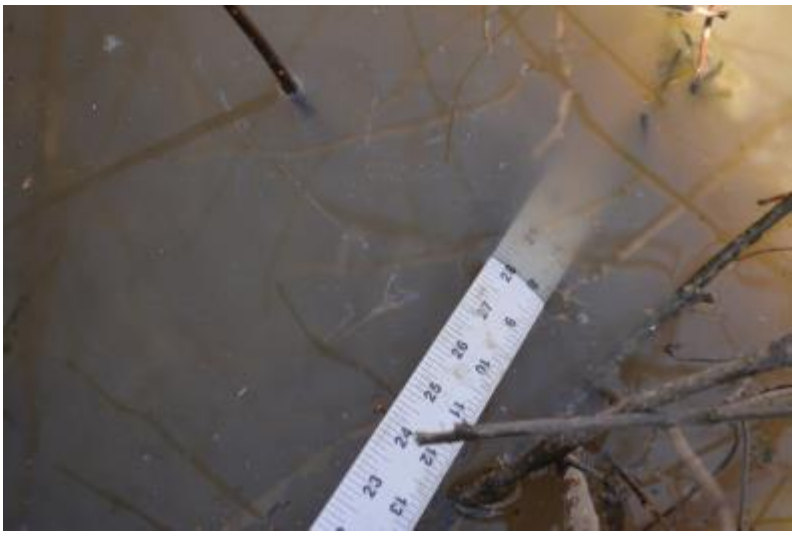
**Initial Observation:**

Patches/streamers of non-brittle silver gray sheen



**Probing Observation:**

Surface : Patches of non-brittle silver gray sheen



**Probing Observation:**

0-6 inches : Patches/streamers of non-brittle rainbow sheen
6-12 inches : Patches/streamers of non-brittle rainbow sheen

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-31**

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FIGURE
156

**Sheen Present During Initial Observation:** Yes

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

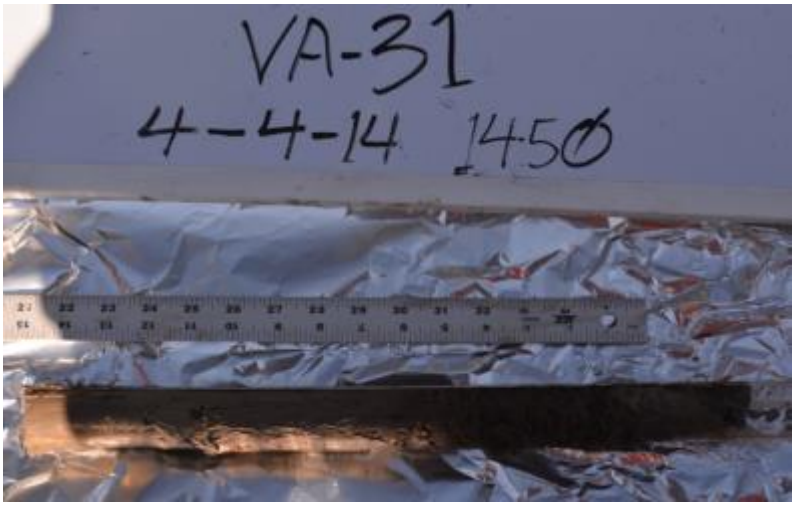
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : Yes
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter




**Core Description:**

0-0.1 inches : Brown silt, very light sheen
0.1-6 inches : Humic material, rootlets

No Photo

**Sheen Stir-Test:**

0-0.1 inches : Streamers of silver gray sheen with one oil spot (Lighter)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-31 (continued)**

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FIGURE
157

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

**Sheen During Probing:**

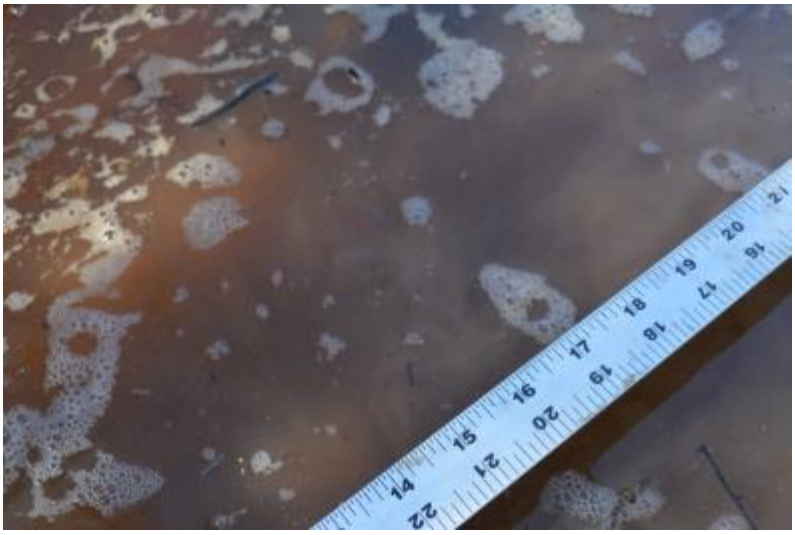
Surface : No
0-6 inches : No
6-12 inches : Yes

**Sheen During Stir-Test:**

0-0.1 inches : No
0.1-6 inches : No

**Overall Qualitative Sheening Amount:**

Lighter



**Probing Description:**

6-12 inches : Streamers of non-brittle silver gray sheen


**Core Description:**

0-0.1 inches : Humic material, rootlets
0.1-6 inches : Brown silt, minor sheet spot at 5”

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Heavily Vegetated Area Location – VA-32**

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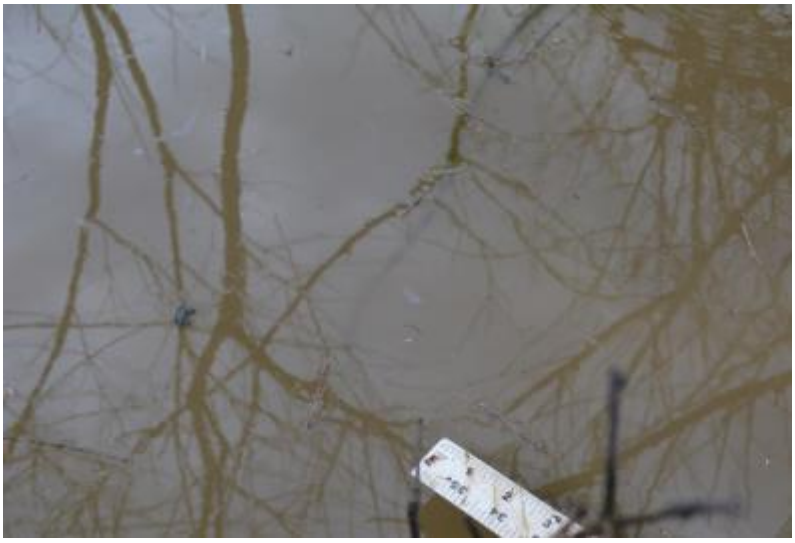
FIGURE
158

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| Sheen During Probing: | Sheen During Stir-Test: | Overall Qualitative Sheening Amount: |
|---|---|---|
| 0-1 inches : Yes | Not conducted | Lighter |



**Probing Description:**

0-1 inches : No description

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Probing**
**Area Location – PA-2**

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FIGURE
159

**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| Sheen During Probing: | Sheen During Stir-Test: | Overall Qualitative Sheening Amount: |
|---|---|---|
| 0-1 inches : Yes | Not conducted | Lighter |

**Probing Description:**

0-1 inches : No description

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Probing**
**Area Location – PA-3**

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FIGURE
160

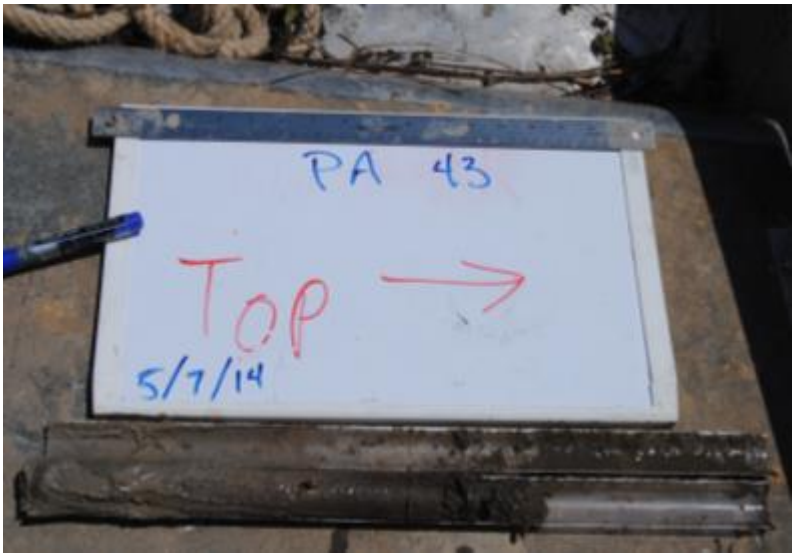
**Sheen Present During Initial Observation:** No

*Photographs shown for core and sheen, in present*

| **Sheen During Probing:** | | **Sheen During Stir-Test:** | | **Overall Qualitative Sheening Amount:** |
|---|---|---|---|---|
| Surface | : No | 0-6 inches | : No | Lighter |
| 0-6 inches | : Yes | 6-12 inches | : No | |

**Probing Description:**

0-6 inches : Patches/streamers of brittle and non-brittle silver gray sheen




**Core Description:**

0-6 inches : Gray organic material with clay

6-12 inches : Gray clayey silt (ML)

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**DOWNSTREAM AREAS PRE-DESIGN STUDY**

**Cove Probing**
**Area Location – PA-43**

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FIGURE
161