ARCADIS Design & Consultancy for natural and built assets

Supplemental Organoclay Placement in the Heavily Vegetated Area
Post-Construction Maintenance Work Plan
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Biweekly sheen monitoring was initiated at the Mayflower Pipeline Incident Response Site located in Mayflower, Arkansas (site) on April 1, 2015 in accordance with the Mitigation Action Completion Report (Completion Report; Arcadis 2015a). The sheen monitoring activities include visual observations of the:

- Banks of the Inlet Channel via walking,
- Open Water Area during a walkthrough along the edge of the water, and
- Heavily Vegetated Area via boat.

The ten monthly sheen reports summarizing sheen monitoring observations and the results from sheen samples collected during the observations that have been submitted to the Arkansas Department of Environmental Quality (ADEQ) are included in Attachment A of this work plan. Based on the results of five sheen samples collected from the Heavily Vegetated Area between April and July 2015 (Arcadis 2015b), additional organoclay was placed within a natural channel of the Heavily Vegetated Area in September 2015 (Figure 1 and Attachment A).

Following the September 2015 organoclay placement, the biweekly sheen monitoring continued at the site which identified the presence of non-brittle sheens within the downstream end of the September 2015 organoclay placement area. Review of the results for samples of non-brittle sheen collected from this area between October and December 2015 indicated that these additional samples resemble the crude oil from the Pegasus Pipeline release. The location of these additional samples are shown in Figure 1. No sheen was observed at the site in January 2016.

Figure 1 **Non-brittle sheen locations in Heavily Vegetated Area between October and December 2015**

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Since the October through December 2015 monitoring results appear to identify sheens related to crude oil from the Pegasus Pipeline release, an additional supplemental organoclay placement in the target area is proposed as a post-construction maintenance activity in accordance with the Completion Report (Arcadis 2015a). The supplemental organoclay placement is proposed for an area of approximately 1,700 square feet within the natural channels where the October to December sheens have been observed (Figure 2).

Figure 2 **Proposed Extent for Supplemental Organoclay Placement**

Similar to the 2015 construction activities and September 2015 organoclay placement, PMFI® organoclay material (developed by CETCO™; Attachment B) will be used for this maintenance activity. The organoclay testing results summarized on the material certification provided by the vendor were in accordance with the manufacturer's accepted values (Arcadis 2015a). The organoclay will be placed manually from a boat, directly over the sediment surface at a target of approximately 1 pound per 10 square feet (approximately 170 pounds). The area of organoclay placement and amount (weight and volume) of organoclay placed will be recorded to confirm that the target placement has been met. A biweekly sheen monitoring event will be conducted prior to the organoclay placement and two weeks following the placement.

The schedule for the organoclay placement will be dependent on the water level of the cove and weather conditions. The organoclay placement activities will attempt to be completed when water level of the cove is low, the water surface is ice-free, weather conditions are dry, stream flow is minimal, and the immediate forecast following the application is free of precipitation. ExxonMobil Environmental Services Company (EMES) will attempt to determine the appropriate schedule based on the field conditions noted during the

biweekly sheen monitoring activities immediately following approval of this work plan by the ADEQ. EMES will inform the ADEQ at least 2 weeks prior to the start of organoclay placement activities.

References

ARCADIS. 2015a. Mitigation Action Completion Report. Mayflower Pipeline Incident Response, Mayflower, Arkansas. Revision 1. April.

ARCADIS. 2015b. Completion of Targeted Organoclay Placement in the Heavily Vegetated Area, Post-Construction Maintenance Summary. Mayflower Pipeline Incident Response, Mayflower, Arkansas. October 2.

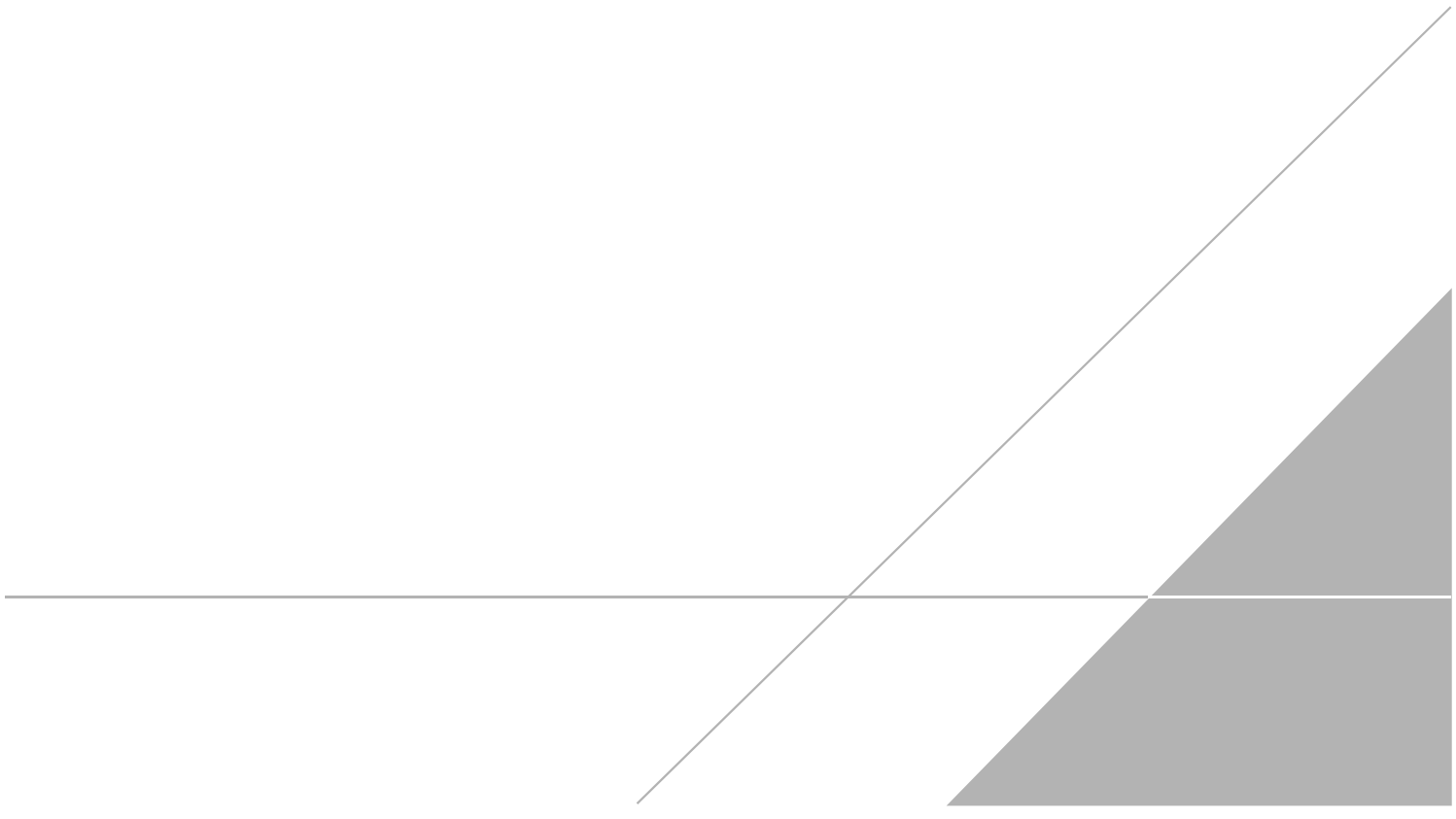
Attachments

A Monthly Sheen Monitoring Reports

B Product Data for PMFI® Organoclay

ATTACHMENT A

Monthly Sheen Monitoring Reports



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Mayflower Pipeline Incident Response

Mayflower, Arkansas

Post-Construction Sheen Monitoring Monthly Report #1: April 2015

Period: 04/06/2015 through 04/30/2015

Monitoring Days: 04/07/2015 and 04/23/2015*

*Biweekly sheen monitoring started on 04/06/2015.

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

Observations in Inlet Channel:

- No sheen observed.

Observations in Cove:

- Two brittle sheens observed, one silver gray and one rainbow/silver gray, in Open Water Area.
- No sheen observed in Heavily Vegetated Area.
- No sheen observed downstream of Heavily Vegetated Area.

Mitigation: None needed

Path Forward for May 2015: Continue biweekly sheen monitoring in cove.

Cove (Summary of Observations from April 2015)

Rainbow/Silver Gray Sheen Observation on 04/23/2015

Silver Gray Sheen Observation on 04/07/2015

Notes:

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

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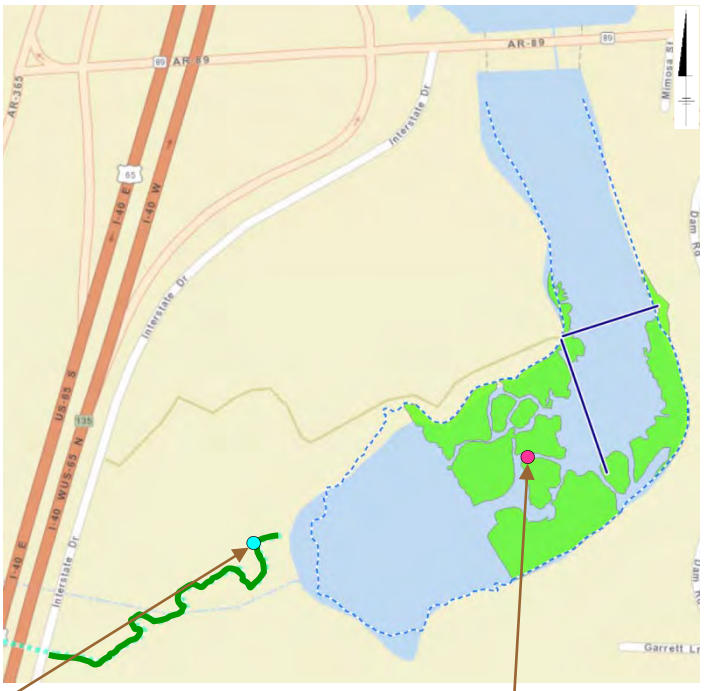
Mayflower, Arkansas

Post-Construction Sheen Monitoring Monthly Report #2: May 2015

Period: 05/01/2015 through 05/31/2015
Monitoring Days: 05/05/2015 and 05/19/2015

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



Cove (Summary of Observations from May 2015)

Observations in Cove Inlet Channel:

- One brittle silver gray sheen observed.

Observations in Cove:

- No sheen observed in Open Water Area.
- One patch/streamer of silver gray sheen observed in Heavily Vegetated Area. Sheen did not break when disturbed ("non-brittle")[2].
- No sheen observed downstream of Heavily Vegetated Area.

Mitigation: Non-brittle sheen was removed.

Path Forward for June 2015: Continue biweekly sheen monitoring in cove.

Silver Gray Sheen Cover Observation on 05/05/2015

Silver Gray Sheen Patch/Streamer Observation on 05/19/2015

Notes:

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

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Mayflower, Arkansas

Post-Construction Sheen Monitoring Monthly Report #3: June 2015

Period: 06/01/2015 through 06/30/2015
Monitoring Days: 06/05/2015, 06/12/2015, and 06/23/2015

Observations in Inlet Channel:

- No sheen observed in the Inlet Channel.

Observations in Cove:

- No sheen observed in Open Water Area.
- June 12, 2015: One patch/streamer of silver gray sheen observed in Heavily Vegetated Area. Sheen did not break when disturbed ("non-brittle")[1]. A sheen sample was collected for laboratory analysis.
- June 12, 2015: One cover (no particular structure) of silver gray sheen observed downstream of Heavily Vegetated Area. Sheen broke apart when disturbed ("brittle")[2].
- June 23, 2015: One patch/streamer of non-brittle[1] silver gray sheen observed in Heavily Vegetated Area. A sheen sample was collected for laboratory analysis.

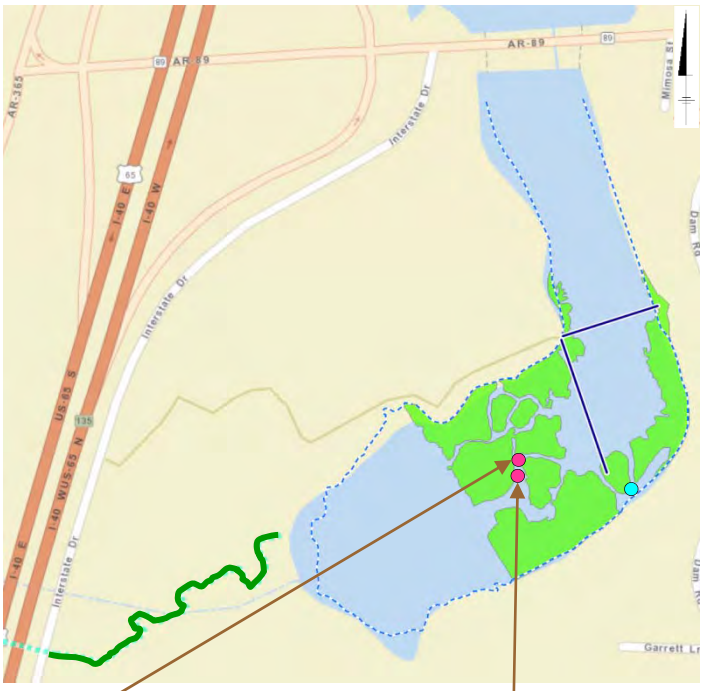
Mitigation: Sheens were removed.

Sheen Sampling Results[3]:

- The laboratory analysis of sheen net samples collected from Heavily Vegetated Area on May 19, June 12, and June 23, 2015 indicated that sheens resemble to crude oil from the Pegasus Pipeline.

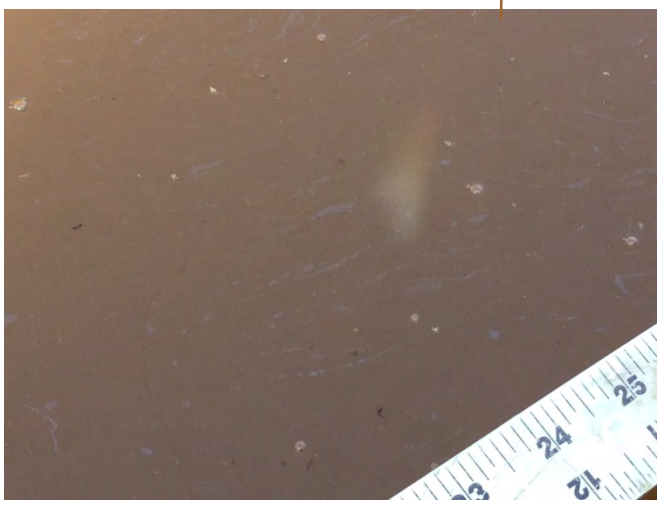
Path Forward for July 2015: Continue biweekly sheen monitoring in cove.

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



Cove (Summary of Observations from June 2015)

Silver Gray Sheen Cover Observation on 06/12/2015



Silver Gray Sheen Patch/Streamer Observation on 06/23/2015

Notes:

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

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Mayflower, Arkansas

Post-Construction Sheen Monitoring Monthly Report #4: July 2015

Period: 07/01/2015 through 07/31/2015

Monitoring Days: 07/02/2015, 07/16/2015, and 07/30/2015

Observations in Inlet Channel:

- No sheen observed in the Inlet Channel.

Observations in Cove:

- No sheen observed in Open Water Area.
- July 2, 2015: One streamer of silver gray sheen observed in Heavily Vegetated Area. Sheen did not break when disturbed ("non-brittle")[1]. A sheen sample was collected for laboratory analysis.
- July 16, 2015: One patch/streamer of non-brittle[1] silver gray sheen with an oil spot (0.125-inch wide) observed in Heavily Vegetated Area. A sheen sample was collected for laboratory analysis.
- July 16, 2015: One cover (no particular structure) of silver gray sheen observed in Heavily Vegetated Area. Sheen broke apart when disturbed ("brittle")[2].
- July 30, 2015: One patch of brittle[2] silver gray sheen observed in Heavily Vegetated Area.

Mitigation: Non-brittle sheens were removed by sampling.

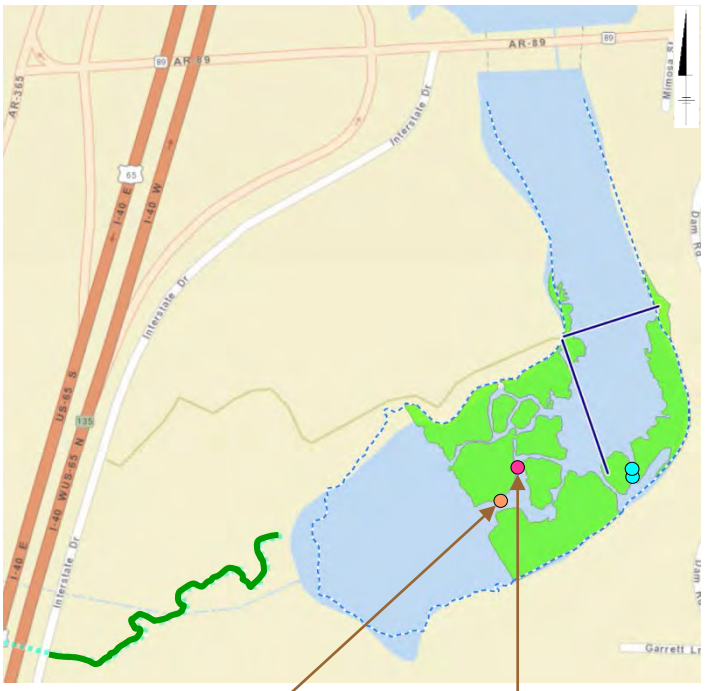
Sheen Sampling Results[3]:

- The laboratory analysis of sheen net samples collected from Heavily Vegetated Area on July 2 and 16, 2015 indicated that sheens resemble crude oil from the Pegasus Pipeline.

Path Forward for August 2015:

- Continue biweekly sheen monitoring in Cove.

Legend:
Green Line – No Sheen
Aqua Circle – Brittle Sheen Location
Pink Circle – Non-Brittle Sheen Location
Orange Circle – Non-Brittle Sheen with Oil Spot Location



Cove (Summary of Observations from July 2015)

Silver Gray Sheen Patch/Streamer Observation with an Oil Spot (0.125-inch Wide) on 07/16/2015

Silver Gray Sheen Streamer Observation on 07/02/2015

Notes:

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

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Post-Construction Sheen Monitoring Monthly Report #5: August 2015

Period: 08/01/2015 through 08/31/2015
Monitoring Days: 08/06/2015 and 08/20/2015

Observations in Inlet Channel:

- No sheen observed in the Inlet Channel.

Observations in Cove:

- No sheen observed in Open Water Area and downstream of Heavily Vegetated Area.
- August 6, 2015: One patch/streamer of silver gray sheen observed in Heavily Vegetated Area. Sheen did not break when disturbed ("non-brittle")[1]. A sheen sample was collected for laboratory analysis.
- August 6, 2015: One patch of silver gray sheen observed in Heavily Vegetated Area. Sheen broke apart when disturbed ("brittle")[2].
- August 20, 2015: One cover (no particular structure) of brittle[2] silver gray sheen observed in Heavily Vegetated Area.

Mitigation: Non-brittle sheens were removed by sampling.

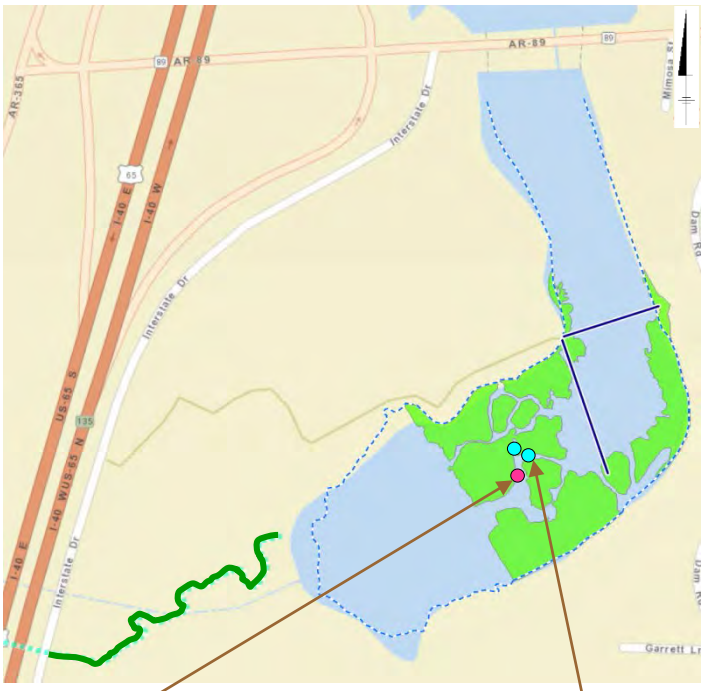
Sheen Sampling Results[3]:

- The laboratory analysis of sheen net sample collected from Heavily Vegetated Area on August 6, 2015 indicated that sheen resemble crude oil from the Pegasus Pipeline.

Path Forward for September 2015:

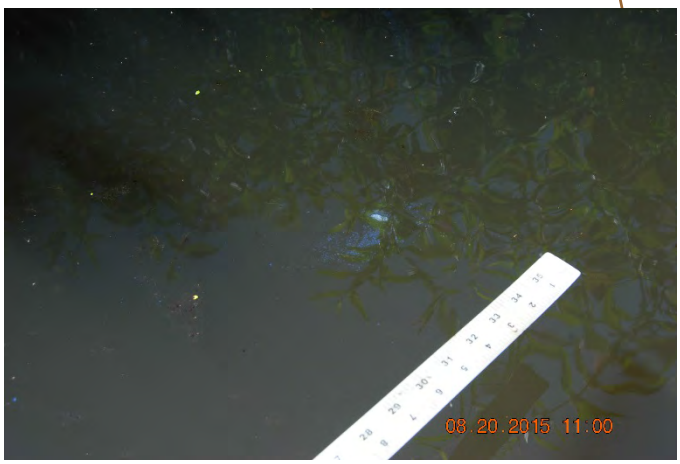
- Continue biweekly sheen monitoring in Cove.
- Complete organoclay placement in Heavily Vegetated Area.

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



Cove (Summary of Observations from August 2015)

Silver Gray Sheen Patch/Streamer Observation on 08/06/2015



Silver Gray Sheen Cover Observation on 08/20/2015

Notes:

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

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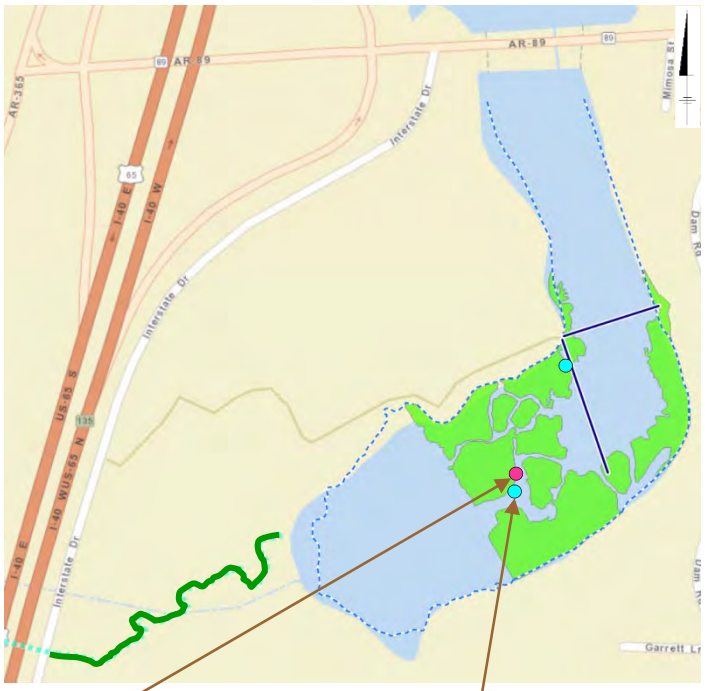
Post-Construction Sheen Monitoring Monthly Report #6: September 2015

Period: 09/01/2015 through 09/30/2015

Monitoring Days: 09/01/2015, 09/15/2015, and 09/28/2015

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



Cove (Summary of Observations from September 2015)

Observations in Inlet Channel:

- No sheen observed in the Inlet Channel.

Observations in Cove:

- No sheen observed in Open Water Area and downstream of Heavily Vegetated Area.
- September 1, 2015: One patch of silver gray sheen observed in Heavily Vegetated Area. Sheen did not break when disturbed ("non-brittle")[1]. A sheen sample was collected for laboratory analysis.
- September 1, 2015: One patch of silver gray sheen observed in Heavily Vegetated Area. Sheen broke apart when disturbed ("brittle")[2].
- September 15, 2015: One cover (no particular structure) of brittle[2] silver gray sheen observed in Heavily Vegetated Area.

Mitigation:

- Non-brittle sheens were removed by sampling.
- Additional organoclay placement was completed within a small portion of Heavily Vegetated Area on September 15 and 16, 2015.

Sheen Sampling Results[3]:

- The laboratory analysis of sheen net sample collected from Heavily Vegetated Area on September 1, 2015 indicated that the sheen resembles crude oil from the Pegasus Pipeline.

Path Forward for October 2015:

- Continue biweekly sheen monitoring in Cove.

Silver Gray Sheen Patch Observation on 09/01/2015

Silver Gray Sheen Cover Observation on 09/15/2015

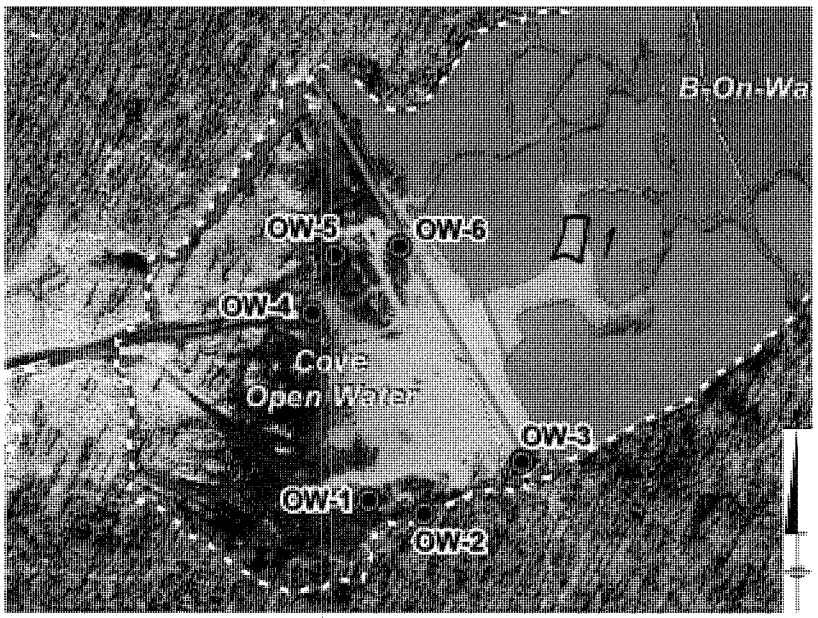
Notes:

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

Sheen Observation Form

Personnel: ZAP JRC Date: 9/1/2015

Wind Conditions: Windy/Light Breeze/Calm Temperature: 90°F Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION: 1	TIME: 1120
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions) 30' X 50'	
Over what percentage of surface? Trace <1% [X] 1-10% [ ] 11-30% [ ] 31-50% [ ] 50-70% [ ] >70% [ ]	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle [ ] Does not Break/Non-Brittle [X]	
If streamers are present, what is their orientation? NA	
Is sheen blossoming? Yes [ ] No [X]	
If yes, what is the frequency (per 15 minutes)? NA	
Sheen origination (if noticable)? NA	
Picture taken 4, 5 Yes [X] No [ ]	
Flow Condition: none	
Action taken: sampled	
Notes N 34°57'58.82" W -92° 24' 54.39"	

LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface? Trace <1% [ ] 1-10% [ ] 11-30% [ ] 31-50% [ ] 50-70% [ ] >70% [ ]	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle [ ] Does not Break/Non-Brittle [ ]	
If streamers are present, what is their orientation?	
Is sheen blossoming? Yes [ ] No [ ]	
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Flow Condition:	
Picture taken Yes [ ] No [ ]	
Action taken:	
Notes	

LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface? Trace <1% [ ] 1-10% [ ] 11-30% [ ] 31-50% [ ] 50-70% [ ] >70% [ ]	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle [ ] Does not Break/Non-Brittle [ ]	
If streamers are present, what is their orientation?	
Is sheen blossoming? Yes [ ] No [ ]	
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken Yes [ ] No [ ]	
Flow Condition:	
Action taken:	
Notes	

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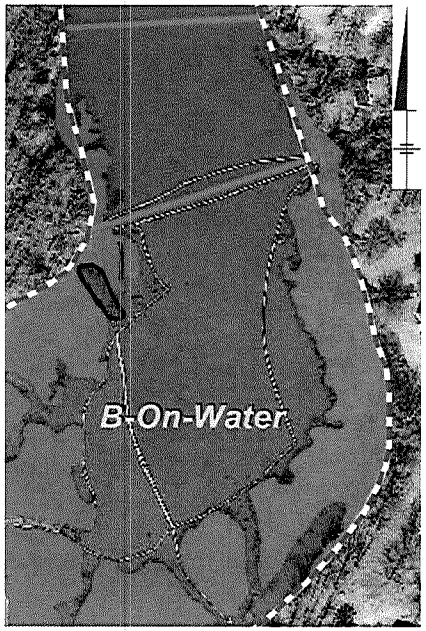
Sheen Observation Form

Personnel: ZAP JRC Date: 9/1/2015

Wind Conditions: Windy/Light Breeze/Calm Temperature: 90°F Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION: TIME:

If yes, sketch on Figure 1 to show approximate location
Approximate size (dimensions)
Over what percentage of surface? Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows
Observations when sheen is disturbed: Breaks Apart/Brittle ☐ Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?
Is sheen blossoming? Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?
Sheen origination (if noticable)?
Flow Condition:
Picture taken Yes ☐ No ☐
Action taken:
Notes

LOCATION: 1 TIME: 1100

Sketch on Figure 1 to show approximate location
Approximate size (dimensions) 20'x 100'
Over what percentage of surface? Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☒ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows
Observations when sheen is disturbed: Breaks Apart/Brittle ☒ Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation? NA
Is sheen blossoming? Yes ☐ No ☒
If yes, what is the frequency (per 15 minutes)? NA
Sheen origination (if noticable)? NA
Picture taken 1, 2, 3 Yes ☒ No ☐
Flow Condition: open water
Action taken: none
Notes

LOCATION: TIME:

If yes, sketch on Figure 1 to show approximate location
Approximate size (dimensions)
Over what percentage of surface? Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows
Observations when sheen is disturbed: Breaks Apart/Brittle ☐ Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?
Is sheen blossoming? Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?
Sheen origination (if noticable)?
Picture taken Yes ☐ No ☐
Flow Condition:
Action taken:
Notes

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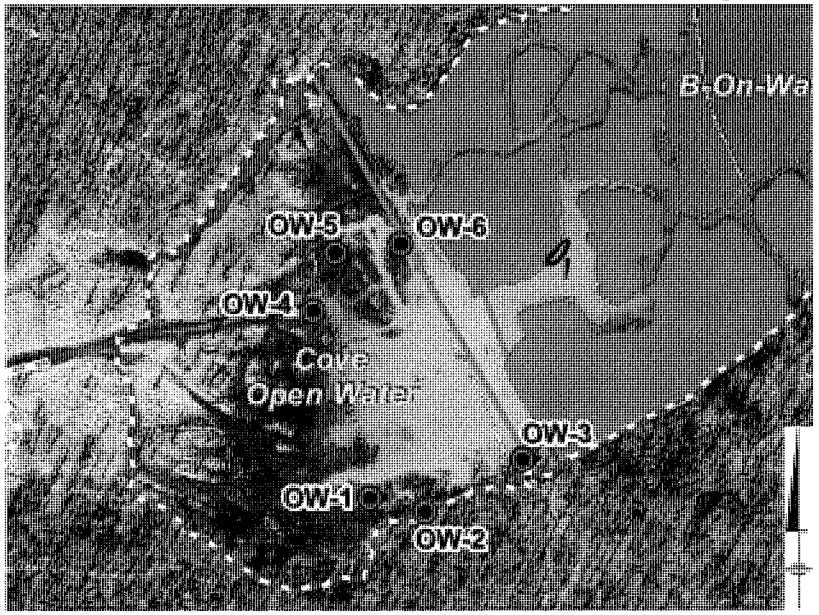
Sheen Observation Form

Personnel: E. Powers L. Paredes Date: 9/15/15

Wind Conditions: Windy/Light Breeze/Calm Temperature: 70-80° Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Flow Condition:	
Picture taken	Yes ☐ No ☐
Action taken:	
Notes	

LOCATION: 1	TIME: 1027
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions) 4'x6'	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☒ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☒	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation? N/A	
Is sheen blossoming?	Yes ☐ No ☒
If yes, what is the frequency (per 15 minutes)? N/A	
Sheen origination (if noticable)? N/A	
Picture taken 1, 2, 3	Yes ☒ No ☐
Flow Condition: no flow/low flow	
Action taken: none	
Notes	

LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

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Mayflower, Arkansas

Post-Construction Sheen Monitoring Monthly Report #7: October 2015

Period: 10/01/2015 through 10/31/2015

Monitoring Days: 10/07/2015, 10/14/2015, and 10/28/2015

Observations in Inlet Channel:

- October 7, 2015: One cover (no particular structure) of silver gray sheen observed in Inlet Channel. Sheen did not break when disturbed ("non-brittle")[1]. A sheen net sample was collected and the laboratory analysis of the sample indicated a resemblance to background anthropogenic sources; the sample did not resemble the crude oil from the Pegasus Pipeline.
- October 14, 2015: One patch of silver gray sheen observed in Inlet Channel. Sheen broke apart when disturbed ("brittle")[2].

Observations in Cove:

- October 14, 2015: One patch/streamer of non-brittle[1] silver gray sheen observed in Heavily Vegetated Area. A sheen net sample was collected and the laboratory analysis of the sample collected indicated a combination of degraded crude oil from the Pegasus Pipeline and background anthropogenic sources.
- October 28, 2015: One patch of non-brittle[1] silver gray sheen observed in Heavily Vegetated Area. A sheen net sample was collected for laboratory analysis. Laboratory results will be reported in the next monthly report.
- October 28, 2015: One patch of non-brittle[1] silver gray sheen observed downstream of Heavily Vegetated Area. A sheen sample was collected for laboratory net analysis. Laboratory results will be reported in the next monthly report.

Path Forward for November 2015:

- Continue biweekly sheen monitoring in Cove.

Legend:
Green Line – No Sheen
Aqua Circle – Brittle Sheen Location
Pink Circle – Non-Brittle Sheen Location
– September 2015 Additional Organoclay Placement

Cove (Summary of Observations from October 2015)

Silver Gray Sheen Cover Observation on 10/07/2015

Silver Gray Sheen Patch/Streamer Observation on 10/14/2015

Silver Gray Sheen Patch Observation on 10/28/2015

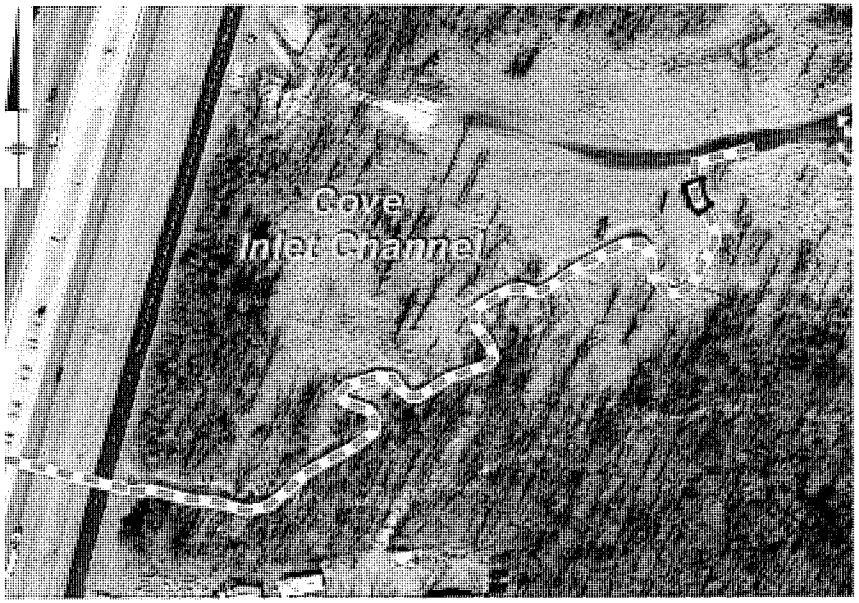
Notes:

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

Sheen Observation Form

Personnel: ZAP Date: 10/7/15

Wind Conditions: Windy/Light Breeze/Calm Temperature: 20's Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐
11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Flow Condition:	
Picture taken	Yes ☐ No ☐
Action taken:	
Notes	

LOCATION: 1	TIME: 0845
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions) 10'x 25'	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐
11-30% ☐ 31-50% ☒ 50-70% ☐ >70% ☐	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☒
If streamers are present, what is their orientation? NA	
Is sheen blossoming?	Yes ☐ No ☒
If yes, what is the frequency (per 15 minutes)? NA	
Sheen origination (if noticable)? NA	
Picture taken 5, 6, 7	Yes ☒ No ☐
Flow Condition: low flow	
Action taken: sampled sheen	
Notes	

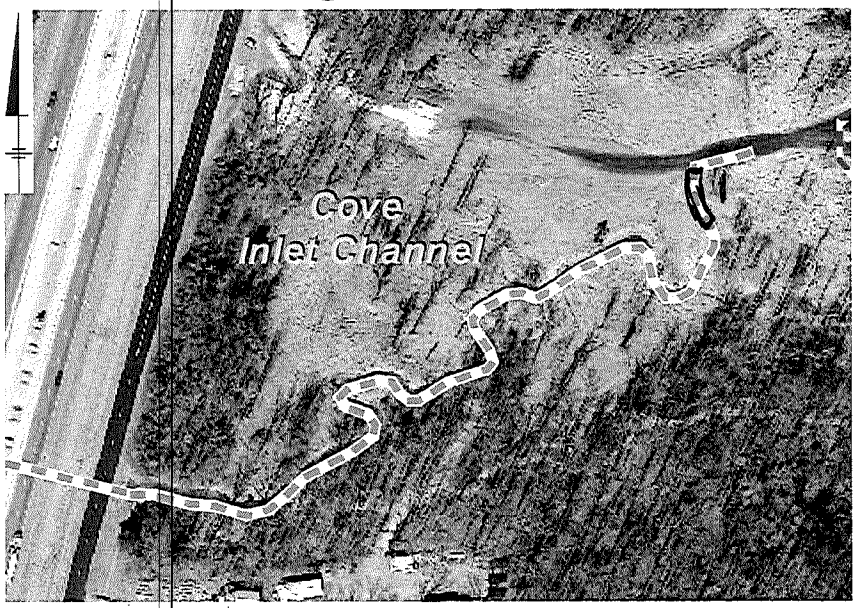
LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐
11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

ARCADIS

Sheen Observation Form

Personnel: Michael Hiers Date: 10-14-15

Wind Conditions: Windy/Light Breeze/Calm Temperature: 90°F Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Flow Condition:	
Picture taken	Yes ☐ No ☐
Action taken:	
Notes	

LOCATION: 1	TIME: 12:23 PM
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions) 10 x 30'	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☑ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☑	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation? N/A	
Is sheen blossoming?	Yes ☐ No ☑
If yes, what is the frequency (per 15 minutes)? N/A	
Sheen origination (if noticable)? N/A	
Picture taken 14, 15, 16	Yes ☑ No ☐
Flow Condition: Low	
Action taken: None	
Notes	

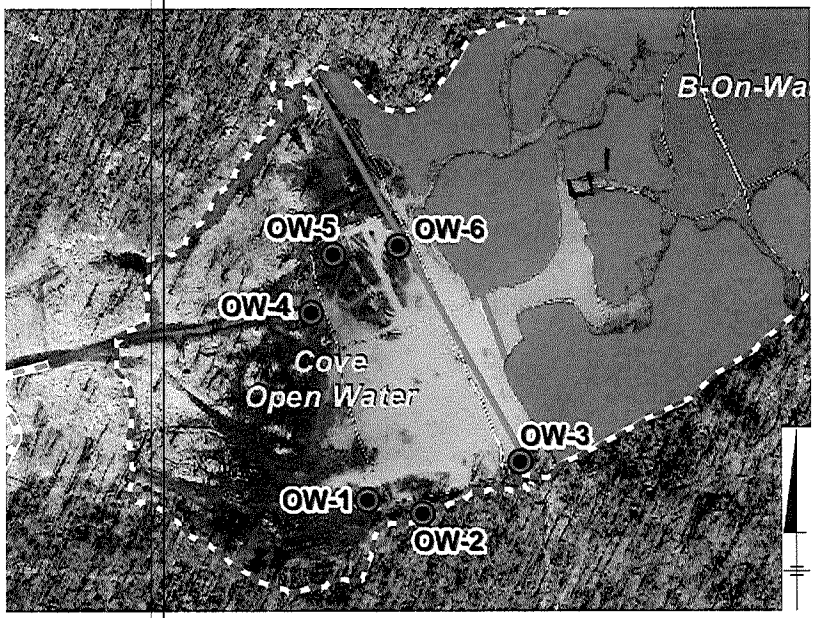
LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

ARCADIS

Sheen Observation Form

Personnel: Michael Hiers Date: 10-14-15

Wind Conditions: Windy/Light Breeze/Calm Temperature: 90°F Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Flow Condition:	
Picture taken	Yes ☐ No ☐
Action taken:	
Notes	

LOCATION: 1	TIME: 10:59AM
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions) 15'x15'	
Over what percentage of surface?	Trace <1% ☑ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☑
If streamers are present, what is their orientation? N/A	
Is sheen blossoming?	Yes ☐ No ☑
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)? N/A	
Picture taken 8, 12	Yes ☑ No ☐
Flow Condition: Low	
Action taken: Sampled	
Notes	

LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

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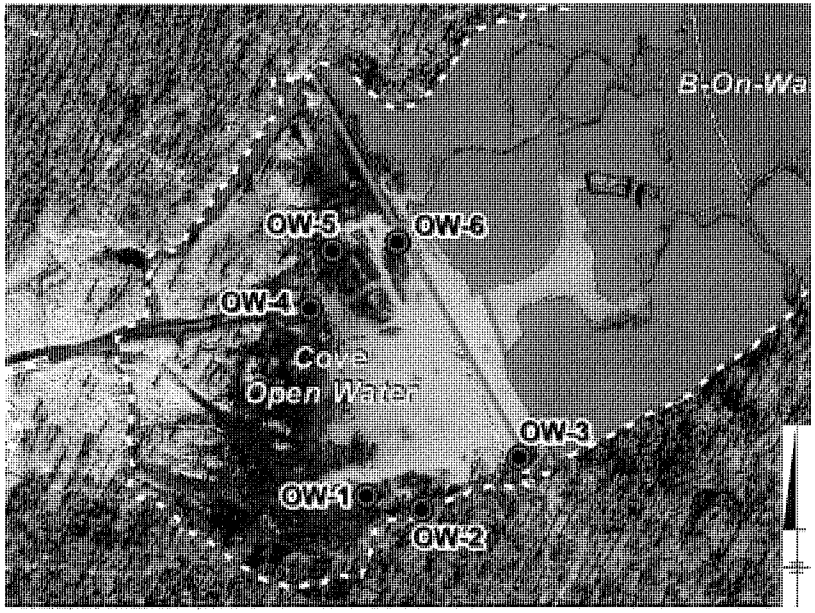
Sheen Observation Form

Personnel: M. Hicks Date: 10-28-2015

Wind Conditions: Windy/Light Breeze/Calm Temperature: 68°F Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐
11-30% ☐	31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Flow Condition:	
Picture taken	Yes ☐ No ☐
Action taken:	
Notes	

LOCATION:	TIME: 11:25AM
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	10'x 30'
Over what percentage of surface?	Trace <1% ☑ 1-10% ☐
11-30% ☐	31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☑
If streamers are present, what is their orientation?	N/A
Is sheen blossoming?	Yes ☐ No ☑
If yes, what is the frequency (per 15 minutes)?	N/A
Sheen origination (if noticable)?	N/A
Picture taken DSC 22, 23	Yes ☑ No ☐
Flow Condition:	Calm
Action taken:	Sampled
Notes	

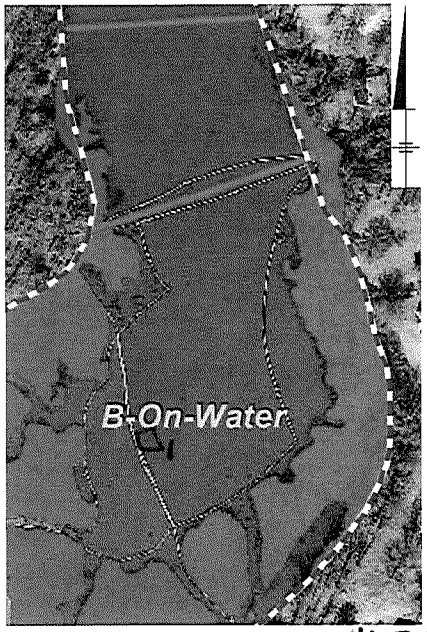
LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐
11-30% ☐	31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

ARCADIS

Sheen Observation Form

Personnel: M. Hiers Date: 10-28-2015

Wind Conditions: Windy/Light Breeze/Calm Temperature: 68°F Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION: 1	TIME: 11:07 AM
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions) 10'x15'	
Over what percentage of surface?	Trace <1% ☑ 1-10% ☐
11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☑
If streamers are present, what is their orientation? N/A	
Is sheen blossoming?	Yes ☐ No ☑
If yes, what is the frequency (per 15 minutes)? N/A	
Sheen origination (if noticable)? MH	
Picture taken DSC 18, 19, 20, 21	Yes ☑ No ☐
Flow Condition: Calm	
Action taken: Sampled	
Notes	

LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐
11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐
11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐	
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

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ARCADIS
Infrastructure, environment, facilities

Mayflower Pipeline Incident Response

Mayflower, Arkansas

Post-Construction Sheen Monitoring Monthly Report #8: November 2015

Period: 11/01/2015 through 11/30/2015

Monitoring Days: 11/09/2015 and 11/23/2015

Observations in Inlet Channel:

- No sheen observed in the Inlet Channel.

Observations in Cove:

- No sheen observed in Open Water Area and downstream of Heavily Vegetated Area.
- November 23, 2015: Streamers of silver gray sheen observed in Heavily Vegetated Area, within the additional organoclay placement area (covering less than 1% of a 20' x 30' at the downstream end). Sheen did not break when disturbed ("non-brittle")[1]. A sheen net sample was collected for laboratory analysis. Laboratory results will be reported in the next monthly report.

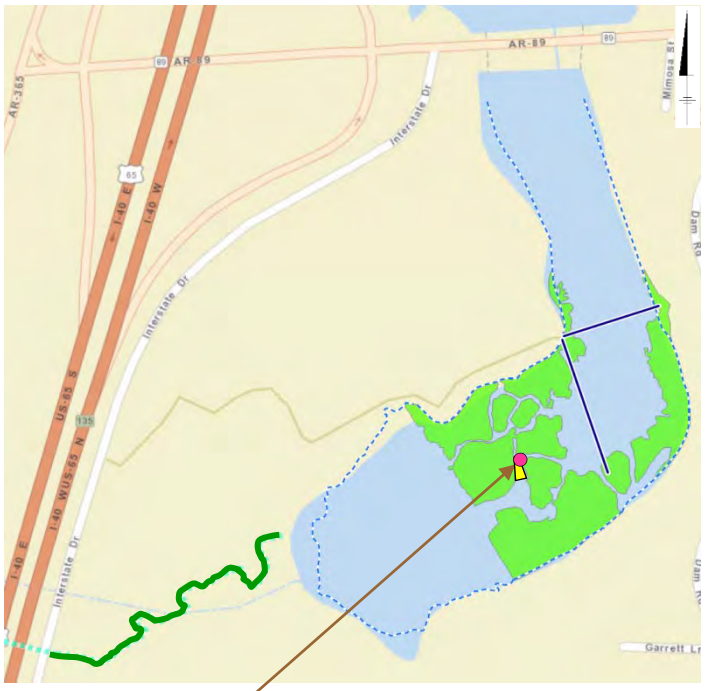
Sheen Sampling Results from Previous Monthly Report[3]:

- The laboratory analysis of sheen net samples collected from Heavily Vegetated Area and downstream of Heavily Vegetated Area on October 28, 2015 indicated a combination of very degraded crude oil from the Pegasus Pipeline and potential background anthropogenic sources along with the potential contributions from the sheen nets.

Path Forward for December 2015:

- Continue biweekly sheen monitoring in Cove.

Legend:
Green Line – No Sheen
Pink Circle – Non-Brittle Sheen Location
– September 2015 Additional Organoclay Placement



Cove (Summary of Observations from November 2015)

Silver Gray Sheen Patch/Streamer Observation on 11/23/2015

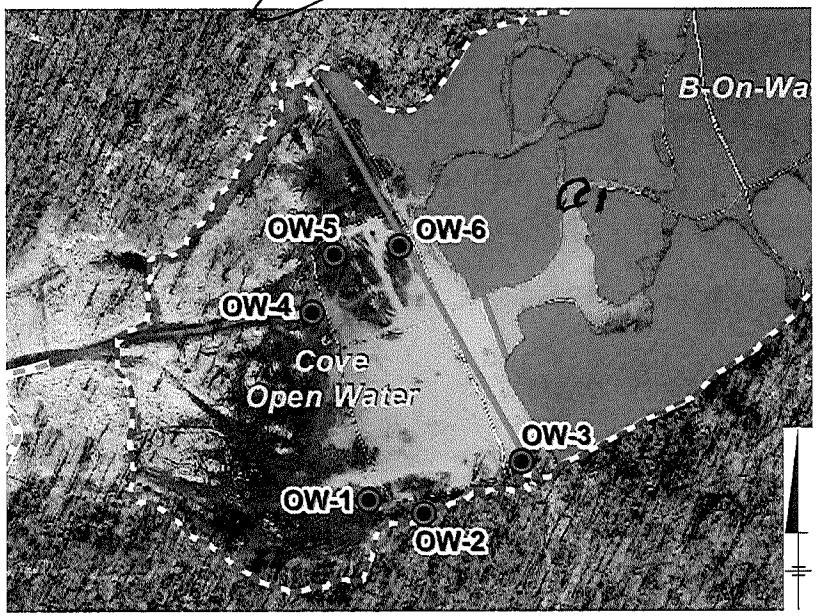
Notes:

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

Sheen Observation Form

Personnel: Z. Powers J. Claassen Date: 11/23/15

Wind Conditions: Windy/Light Breeze/Calm Temperature: 35°F Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Flow Condition:	
Picture taken	Yes ☐ No ☐
Action taken:	
Notes	

LOCATION: 1	TIME: 0908
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions) 20'x30'	
Over what percentage of surface?	Trace <1% ☒ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☒
If streamers are present, what is their orientation? NA	
Is sheen blossoming?	Yes ☐ No ☒
If yes, what is the frequency (per 15 minutes)? NA	
Sheen origination (if noticable)? NA	
Picture taken 24, 25, 26	Yes ☒ No ☐
Flow Condition: open water	
Action taken: Sample	
Notes Sample ID: SHN-COVE-022(NB)112315	

LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

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ARCADIS Design & Consultancy for natural and built assets

Mayflower Pipeline Incident Response

Mayflower, Arkansas

Post-Construction Sheen Monitoring Monthly Report #9: December 2015

Period: 12/01/2015 through 12/31/2015

Monitoring Days: 12/12/2015 and 12/22/2015

Observations in Inlet Channel:

- No sheen observed in the Inlet Channel.

Observations in Cove:

- No sheen observed in Open Water Area and downstream of Heavily Vegetated Area.
- December 22, 2015: Patches/streamers of silver gray sheen observed in Heavily Vegetated Area, within the additional organoclay placement area (covering approximately 31-50% of a 2' x 1' area towards the downstream end). Sheen did not break when disturbed ("non-brittle")[1]. A sheen net sample was collected for laboratory analysis. Laboratory results will be reported in the next monthly report.

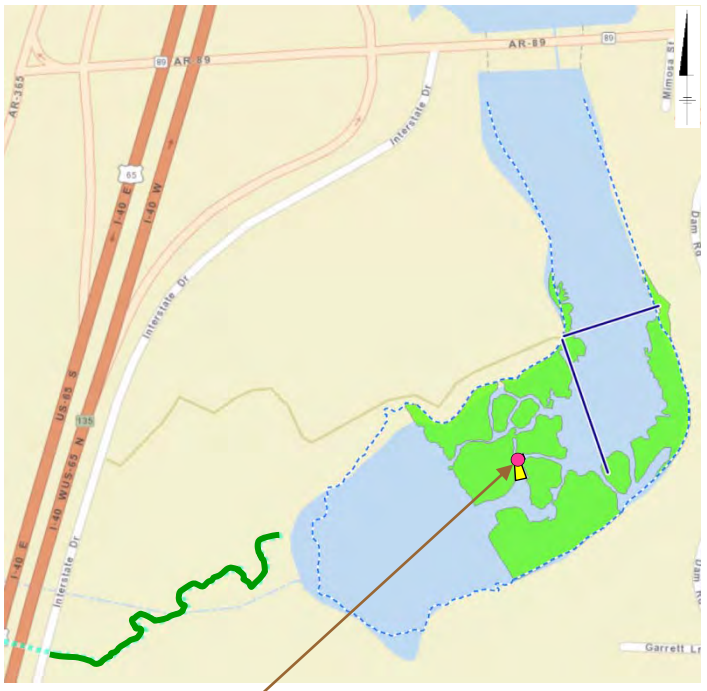
Sheen Sampling Results from Previous Monthly Report[3]:

- The laboratory analysis of a sheen net sample collected from Heavily Vegetated Area on November 23, 2015 indicated a combination of degraded crude oil from the Pegasus Pipeline and potential background anthropogenic sources.

Path Forward for January 2016:

- Continue biweekly sheen monitoring in Cove.

Legend:
Green Line – No Sheen
Pink Circle – Non-Brittle Sheen Location
– September 2015 Additional Organoclay Placement



Cove (Summary of Observations from December 2015)

Silver Gray Sheen Patches/Streamers Observation on 12/22/2015

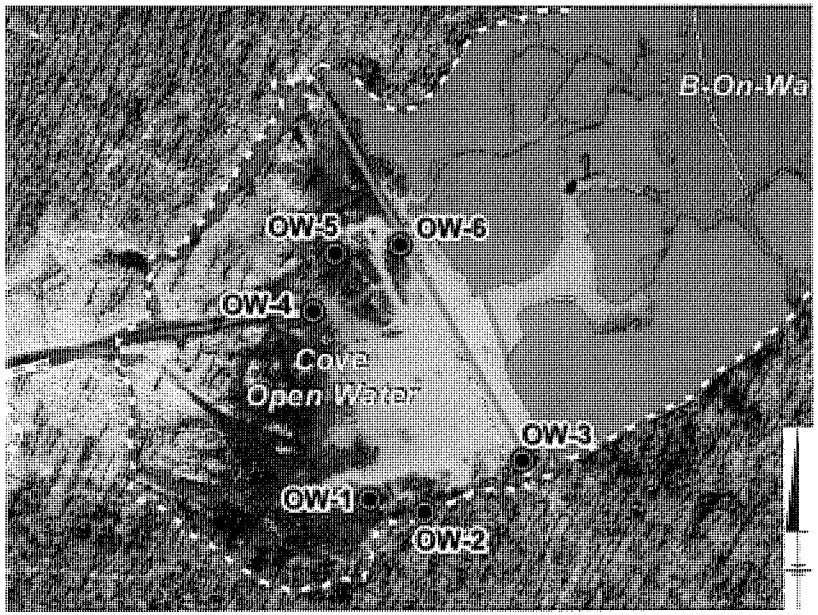
Notes:

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

Sheen Observation Form

Personnel: J. Powers J. Chiasson Date: 12/22/15

Wind Conditions: Windy/Light Breeze/Calm Temperature: 30°F Sky Conditions: Sun/Clouds/Part Sun/Part Clouds



LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Flow Condition:	
Picture taken	Yes ☐ No ☐
Action taken:	
Notes	

LOCATION: 1	TIME: 0955
Sketch on Figure 1 to show approximate location	
Approximate size (dimensions) 2' x 1'	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☒ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☒
If streamers are present, what is their orientation? NA	
Is sheen blossoming?	Yes ☐ No ☒
If yes, what is the frequency (per 15 minutes)? NA	
Sheen origination (if noticable)? NA	
Picture taken 27, 28, 29	Yes ☒ No ☐
Flow Condition: open water	
Action taken: sampled	
Notes SHN-COVE-0123(NB) 122215	

LOCATION:	TIME:
If yes, sketch on Figure 1 to show approximate location	
Approximate size (dimensions)	
Over what percentage of surface?	Trace <1% ☐ 1-10% ☐ 11-30% ☐ 31-50% ☐ 50-70% ☐ >70% ☐
Color of sheen: Dark / Metallic / Rainbow / Silver Gray	
Sheen structure: No structure / Patches / Streamers / Tar Balls / Windrows	
Observations when sheen is disturbed: Breaks Apart/Brittle ☐	Does not Break/Non-Brittle ☐
If streamers are present, what is their orientation?	
Is sheen blossoming?	Yes ☐ No ☐
If yes, what is the frequency (per 15 minutes)?	
Sheen origination (if noticable)?	
Picture taken	Yes ☐ No ☐
Flow Condition:	
Action taken:	
Notes	

ARCADIS

ARCADIS Design & Consultancy for natural and built assets

Mayflower Pipeline Incident Response

Mayflower, Arkansas

Post-Construction Sheen Monitoring Monthly Report #10: January 2016

Period: 01/01/2016 through 01/31/2016
Monitoring Days: 01/04/2016 and 01/19/2016

Observations in Inlet Channel:

- No sheen observed in the Inlet Channel.

Observations in Cove:

- No sheen observed in Open Water Area, Heavily Vegetated Area, and downstream of Heavily Vegetated Area.

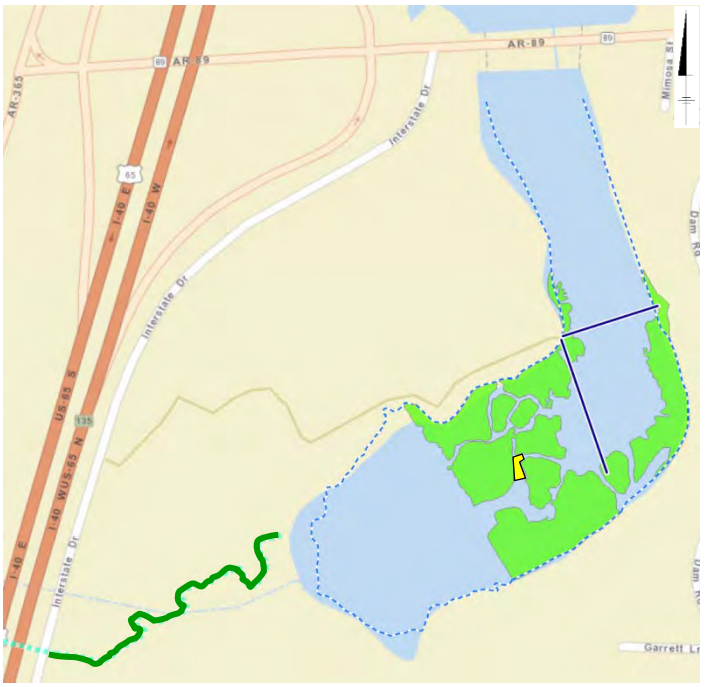
Sheen Sampling Results from Previous Monthly Report[3]:

- The laboratory analysis of a sheen net sample collected from Heavily Vegetated Area on December 22, 2015 indicated a combination of degraded crude oil from the Pegasus Pipeline and background anthropogenic sources.

Path Forward for February 2016:

- Continue biweekly sheen monitoring in Cove.
- Prepare a work plan for additional organoclay placement in Heavily Vegetated Area.

Legend:
Green Line – No Sheen
– September 2015 Additional Organoclay Placement



Cove (Summary of Observations from January 2016)

Notes:

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

ATTACHMENT B

Product Data for PMFI® Organoclay

ORGANOCLAY® PMFI

ORGANIC ADSORPTION MEDIA

PRODUCT DESCRIPTION

Organoclay® PMFI is specially formulated for use in the following applications:

- Bulk Capping: provides subaqueous chemical isolation of contaminated sediment NAPL seeps in waterways. When used for in-situ capping, bulk organoclay should be first screened with a No. 50 screen and then pre-wetted.
- Permeable Reactive Barrier walls for removal of NAPL and dissolved low solubility organic compounds.

Organoclay® PMFI is a proprietary granular adsorption media effective in removing oils, greases other non-aqueous phase liquids (NAPL) and other dissolved high molecular weight/low solubility organics.

BENEFITS

- Adsorbs dissolved low solubility organic compounds.
- High adsorption capacity of oils, greases and other NAPL.

PHYSICAL PROPERTIES

PROPERTIES	TEST METHOD	VALUE
Bulk Density	ASTM D7481	40-55 lbs./cu.ft.
Oil Adsorption Capacity	CETCO Test Method	0.5 lb/lb Minimum
Hydraulic Conductivity	mod ASTM D 2434	$1x10^{-3}$ cm/sec Minimum
Quaternary Amine Content	ASTM D7626	25-33% min. Quaternary Amine Loading

PACKAGING

- 50 lb bag
- 1500 lb super sack

AVAILABILITY

Contact your local technical sales manager at:
714-384-0111 or 800-527-9948