Well Abandonment Completion Report
North Starlite Road, Northwoods Subdivision
Mayflower Pipeline Incident Response, Mayflower, Arkansas
December 29, 2015

This Well Abandonment Completion Report (report) summarizes the groundwater monitoring well abandonment activities completed by ExxonMobil Environmental Services Company (EMES) on behalf of ExxonMobil Pipeline Company (EMPCo), at properties located within the Northwoods Subdivision in Mayflower, Arkansas (Figure 1). Specifically, these properties include 24, 32, 36, 40 and 44 North Starlite Road, including well TW-44-03 located on the east side of 44 North Starlite property (Figure 2). As described in the Well Abandonment Plan (ARCADIS 2015), a total of 14 groundwater monitoring wells were installed in April 2013 as part of the Mayflower Pipeline Incident Response activities. Of these 14 groundwater monitoring wells, a total of 13 wells, installed on properties 24, 32, 36, and 44 North Starlite Road, were abandoned between December 7 and 9, 2015.

Well abandonment activities were completed by a state licensed driller (McCray Drilling, LLC) in accordance with the Arkansas’ Monitoring Well Construction, Geotechnical Boreholes, And Plug & Abandonment Policy (Policy; Arkansas Department of Environmental Quality [ADEQ] 2015). These activities were completed under the oversight of an Arkansas Professional Geologist. Consistent with Section 4 of the Policy, well abandonment activities included manual removal of concrete well pad and pipe, wherever possible, followed by overdrilling. Initial removal of well pipe facilitated the removal of the casing, screen, and subsurface completion materials.

Following removal of well material, a cement-bentonite grout mixture was placed from the bottom to the top by pressure grouting with a positive displacement method (i.e., tremie grout where the grout was pumped from the bottom of the borehole upward). Grout was added until the borehole was filled to an approximately 6 inches below ground surface. Grouting activities at each well were completed on December 9, 2015. All materials generated during well abandonment activities (e.g., concrete, metal entry covers) were properly disposed of in accordance with all Laws and Regulations. Well abandonment logs for these 13 groundwater monitoring wells were provided to the Arkansas Water Well Construction Commission documenting that the wells installed were abandoned (Attachment A). Photographs documenting well abandonment activities are included in Attachment B.

The ground surface disturbed due to well abandonment activities was restored by placing an approximately 6-inch layer of topsoil to fill the remaining portion of the borehole. The area was then seeded by B&A Property Maintenance on December 9, 2015.

A groundwater monitoring well (TW-40-01) located on a private property at 40 North Starlite Road was not abandoned due to ongoing access agreement coordination with the property owner. This groundwater monitoring well will be abandoned by EMES when an access agreement is executed with the property owner. EMES will notify the ADEQ upon completion of the well abandonment activities at this property.
Well Abandonment Completion Report
North Starlite Road, Northwoods Subdivision
Mayflower Pipeline Incident Response, Mayflower, Arkansas
December 29, 2015

References


Figures
1 Site Location Map
2 Monitoring Well Location Map

Attachments
A Well Abandonment Logs
B Photolog
LEGEND

 Existing Groundwater Monitoring Well
 Abandoned Groundwater Monitoring Well
 Pipeline
 Parcel Boundary

 EXXONMOBIL ENVIRONMENTAL SERVICES
 WELL ABANDONMENT COMPLETION REPORT
 N. STARLITE ROAD, MAYFLOWER, ARKANSAS

 MONITORING WELL
 LOCATION MAP

 FIGURE 2
ATTACHMENT A

Well Abandonment Logs
Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   County:
   Township Range Section (if available)
   -----------------  ----------------- -----------------
   ¼ ¼
   Latitude: 34.963388° Longitude: 92.42724°

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EMB-577L
   Houston, TX, 77002

3. Use of Well:

4. Depth of Well: 7’ Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 7’ Diameter: 3/4 inch

6. Sealing Material and Placement:
   Bags
   Neat Sand Other Placement
   Cement Cement From 0 ft; To 7 ft
   (94 lb):
   Gals
   1 6 From ft; To ft
   of Water:
   Yards
   96 6 From ft; To ft
   of Sand:
   Bentonite

7. Explain Method of Emplacement of Material:
   Removed cover, and well material over
   pushed hole & tamp grouted hole with
   neat cement & bentonite grout.

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Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling
David McCray

Registration #: 1193

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   - County: Faulkner
   - Township Range Section (if available): 34 96 35
   - Longitude: 96 42 72 59

2. Owner and Address: Exxon Mobile Pipeline Co.
   - 800 Bell Street, PL-EMB-5771
   - Houston, TX 77002

3. Use of Well: Monitoring

4. Depth of Well: 7' Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 7' Diameter: 3/4 inch

6. Sealing Material and Placement:
   - Bags (94 lb):
   - Gals of Water:
   - Yards of Sand:

7. Explain Method of Emplacement of Material:
   - Removed cover, and fill material over pushed hole, then grouted hole with neat cement and bentonite grout.

* Well & Formation Diagram: Sketch a diagram showing depths of well, formations, casing (if present), grouting materials &
Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling
David McCray
Registration #: 1193

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   Placement, etc.
   County: Faulkner
   Township Range Section (if available)
   ____________________________ 1/4 1/4
   Latitude: 34.963356' Longitude: -92.427485'

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EMB-577L
   Houston, TX. 77002

3. Use of Well: Monitoring

4. Depth of Well: 7 Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 7 Diameter: 3/4 inch
   __________ inch

6. Sealing Material and Placement:

   Bags Neat Cement Sand Cement Other Placement
   (94 lb): ______ _______ 1 ______ From 0 ft; To 7 ft

   Gals of Water: ______ _______ 6 ______ From __________ ft; To __________ ft

   Yards of Sand: ______ _______ 6 ______ From __________ ft; To __________ ft

7. Explain Method of Emplacement of Material:
   Removed cover and well material over pushed hole & trmncd grouted hole with neat cement & bentonite grout.

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Arkansas Water Well Abandonment Form

Contactor/Owner: McCraw Drilling
David McCraw

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   County: Faulkner
   Township Range Section (if available)
   ___________ ___________ ______________ ___________ ___________ ___________ 
   1/4 1/4
   Latitude: 34.923545° Longitude: -92.427404°

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EMB-572L
   Houston, TX 77002

3. Use of Well: Monitoring

4. Depth of Well: 19' Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 19' Diameter: 3/4 inch

6. Sealing Material and Placement:
   Bags Neat Sand Other Placement
   (94 lb): Cement Cement Other From 0 ft; To 19 ft
   Gals of Water: ___________ ___________ 6 From ___ ft; To ___ ft
   Yards of Sand: ___________ ___________ 6 From ___ ft; To ___ ft

7. Explain Method of Emplacement of Material:
   Removed cover, and well material over pushed hole & trmie grouted hole with neat cement & bentonite grout.
Arkansas Water Well Abandonment Form

Contactor/Owner: McCravy Drilling
David McCravy

Registration #: 1193

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   - County: Faulkner
   - Township Range Section (if available)
     - - - ¼ ¼
   - Latitude: 34° 963538' Longitude: -92° 427792'

2. Owner and Address: Exxon Mobile Pipeline Co.
   - 800 Bell Street, PL-EMB-577L
   - Houston, TX 77002

3. Use of Well: Monitoring

4. Depth of Well: 7' Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 7' Diameter: 3/4 inch

6. Sealing Material and Placement:
   - Bags Neat Cement Sand Cement Other Placement
     - (94 lb): - - 1
     - Gals of Water: - - 6 From 0 ft; To 7 ft
     - Yards of Sand: - - 6 From ft; To ft
     - Bentonite

7. Explain Method of Emplacement of Material:
   - Removed cover, and well material over pushed hole & trim; grouted hole with neat cement & Bentonite grout.

* Well & Formation
Diagram: Sketch a diagram showing depths of well, formations, casing (if present), grouting materials &

TW-32-01
MW-9
See Attached MAP

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Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling

Registration #: 1193

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   County: Faulkner
   Township Range Section (if available)
     ____ ____ ____ 1/4 1/4
   Latitude: 34.96334° Longitude: -92.427798°

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EMB-577L
   Houston, TX. 77002

3. Use of Well: Monitoring

4. Depth of Well: 7 Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 7 Diameter: 3/4 inch

6. Sealing Material and Placement:
   Bags Neat Cement Sand Cement Other Placement
   (94 lb): From 0 ft; To 7 ft
   Gals of Water: From ft; To ft
   Yards of Sand: From ft; To ft

7. Explain Method of Emplacement of Material:
   Removed cover, and well material over pushed hole & trmie grouted hole with neat cement + Bentontite grout.

* Well & Formation Diagram: Sketch a diagram showing depths of well, formations, casing (if present), grouting materials & map
Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling

David McCray

Registration #: 1193

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   County: Faulkner

   Township  Range  Section (if available)
   _______  _______  _______  1/4  1/4

   Latitude: 34° 96'34.15"  Longitude: -92° 42'19.98"

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EMB-577L
   Houston, TX 77002

3. Use of Well: Monitoring

4. Depth of Well: 18  Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 18  Diameter: 3/4 inch

6. Sealing Material and Placement:
   Bags (94 lb):
   Neat Cement  Sand Cement  Other
   _______  _______  1
   From 0 ft; To 18 ft

   Gals of Water:
   _______  _______  6
   From____ ft; To____ ft

   Yards of Sand:
   _______  _______  6
   From____ ft; To____ ft

7. Explain Method of Emplacement of Material:
   Remove cover, and well material over pushed hole; then grout hole with neat cement & Bentonite grout.

* Well & Formation Diagram: Sketch a diagram showing depths of well, formations, casing (if present), grouting materials &

Tw-36-01
Mw-5
See Attached MAP
Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling
David McCray

Registration #: 1193

Date: 12/09/2015

1. Well Location: (Show sketch of location on back of this form)
   County: Faulkner
   Township  Range  Section (if available)
   ______  ______  ______  1/4  1/4
   Latitude: 34° 9633.8'  Longitude: -92° 4282.8'

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EMB-5771
   Houston, TX, 77002

3. Use of Well: Monitoring

4. Depth of Well: 7'  Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 7'  Diameter: 3/4 inch

6. Sealing Material and Placement:
   Bags (94 lb):
   Neat Cement: ______  Sand Cement: ______  Other: 1
   Gals of Water:
   Yards of Sand:
   % Bentonite:
   Placement From 0 ft; To 7 ft
   From____ ft; To____ ft

7. Explain Method of Emplacement of Material:
   Removed cover, and well material over pushed hole & trimie grouted hole with neat cement & bentonite grout.

See Attached Map

TW-36-02
Mw-6

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Arkansas Water Well Construction Commission

J. Randy Young, PE
Executive Secretary
101 East Capitol, Suite 350
Little Rock, Arkansas 72201
www.arkansas.gov/awwcc

Phone: (501) 682-3900
Fax: (501) 682-3991
perry.dotson@arkansas.gov

Mike Beebe
Governor
Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling
David McCray
Registration #: 1193

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   Placement, etc.
   County: Faulkner
   Township Range Section (if available)
   _______ _______ _______ ¼ 1/4 ¼
   Latitude: 34.963544 Longitude: 92.427995

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EM8-577L
   Houston, TX. 77002

3. Use of Well: Monitoring

4. Depth of Well: 22' Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 22' Diameter: 3/4 inch

6. Sealing Material and Placement:

   Bags Neat Sand Other Placement
   (94 lb): Cement Cement Other From 0 ft; To 22 ft
   Gals of Water: ______ ______ 6 From _____ ft; To _____ ft
   Yards of Sand: ______ ______ 6 From _____ ft; To _____ ft

7. Explain Method of Emplacement of Material:
   removed cover, and well material over pushed hole + trimmed grouted hole with neat cement + bentonite grout.

* Well & Formation Diagram: Sketch a diagram showing depths of well, formations, casing (if present), grouting materials &

See Attached Map
Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling

Date: 12/09/2015

Registration #: 1193

1. Well Location: (Show sketch of location on back of this form)

   County: Faulkner

   Township Range Section (if available)

   ______ _______ ¼ ¼

   Latitude: 34.963415° Longitude: 92.427998

2. Owner and Address: Exxon Mobile Pipeline Co.

   800 Bell Street, PL-EMB-577L

   Houston, TX 77002

3. Use of Well: Monitoring

4. Depth of Well: 22' Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 22' Diameter: 3/4 inch

6. Sealing Material and Placement:

   Bags

   Neat Cement Sand Cement Other Placement

   (94 lb):_________ _______ 1 From 0 ft; To 22 ft

   Gals of Water: _______ _______ 6 From ______ ft; To ______ ft

   Yards of Sand: _______ _______ 6 From ______ ft; To ______ ft

7. Explain Method of Emplacement of Material:

   removed cover, and well material over pushed hole & trmie grouted hole with neat cement & bentonite grout.

Tw-36-04

Mw-8

See Attached Map
Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling

Date: 12/09/2015

County: Faulkner

Well Location: (Show sketch of location on back of this form)

Township Range Section (if available)

Latitude: 34°96'38.13" Longitude: -92°42'8.48"

Owner and Address: Exxon Mobile Pipeline Co.

Use of Well: monitoring

Depth of Well: 18 Diameter of Well: 3/4 inch

Amount of Casing Removed: 18 Diameter: 3/4 inch

Sealing Material and Placement:

Bags (94 lb):

Gals of Water:

Yards of Sand:

Other Placements:

7. Explain Method of Emplacement of Material:

See Attached Map
Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling
David McCray
Registration #: 1193

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   County: Faulkner
   Township Range Section (if available)
   ______ ______ 1/4 1/4
   Latitude: 34°19'63.253" Longitude: 92°42'83.97".

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EMB-5771
   Houston, TX 77002

3. Use of Well: Monitoring

4. Depth of Well: 7' Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 7' Diameter: 3/4 inch

6. Sealing Material and Placement:
   Bags Neat Sand Other Placement
   (94 lb): Cement Cement 1 From 0 ft; To 7 ft
   Gals of Water: ______ 6 From___ ft; To___ ft
   Yards of Sand: ______ 6 From___ ft; To___ ft

7. Explain Method of Emplacement of Material:
   removed cover and well material over
   pushed hole & trmie grouted hole with
   neat cement & bentonite grout.

* Well & Formation Diagram: Sketch a diagram showing depths of well, formations, casing (if present), grouting materials &

See Attached Map

TW-44-02
MW-2
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Arkansas Water Well Abandonment Form

Contactor/Owner: McCray Drilling
David McCray

Registration #: 1193

Date: 12/09/2015 (MM/DD/YYYY)

1. Well Location: (Show sketch of location on back of this form)
   Placement, etc.
   County: Faulkner
   Township Range Section (if available)
   ________ ________ 1/4 1/4
   Latitude: 34° 9.6377' Longitude: 92° 42.8372'

2. Owner and Address: Exxon Mobile Pipeline Co.
   800 Bell Street, PL-EMB-5771
   Houston, TX 77002

3. Use of Well: Monitoring

4. Depth of Well: 7' Diameter of Well: 3/4 inch

5. Amount of Casing Removed: 7' Diameter: 3/4 inch

6. Sealing Material and Placement:
   Bags
   (94 lb):
   Neat Cement Sand Cement Other Placement From 0 ft; To 7 ft
   1

   %
   Gals of Water:
   Neat Cement Sand Cement Other Placement From ft; To ft
   6
   6

   Yards
eff Sand:
   Neat Cement Sand Cement Other Placement From ft; To ft
   6
   6

7. Explain Method of Emplacement of Material:
   Removed cover and well material over pushed hole & trmie grouted hole with
   neat cement & bentonite grout.

See Attached Map

Arkansas Water Well Construction Commission

Rev 2/01/11

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ATTACHMENT B

Photolog
<table>
<thead>
<tr>
<th>Well ID</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TW-44-01</td>
<td>12/07/2015</td>
<td>Removal of concrete well pad.</td>
</tr>
<tr>
<td>TW-24-01</td>
<td>12/07/2015</td>
<td>Removal of concrete well pad and well pipe.</td>
</tr>
<tr>
<td>TW-36-03</td>
<td>12/08/2015</td>
<td>Overdrilling activities.</td>
</tr>
</tbody>
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Well ID: TW-36-03
Date: 12/09/2015
Description: Grouting activities.

Well ID: TW-24-02
Date: 12/09/2015
Description: Grouted well location.

Well ID: TW-44-03
Date: 12/09/2015
Description: Grading activities at a former well location.