APPENDIX J – WELL DEVELOPMENT FORMS
## WELL DEVELOPMENT RECORD

<table>
<thead>
<tr>
<th>Project Name: KDHE Neodesha, KS</th>
<th>Project Number: 80435</th>
<th>Well Number: MW-144</th>
</tr>
</thead>
</table>

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.41387798, -95.68925602

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 792.74 ft
- **Top of Casing Elevation (TOC):** 795.41 ft

### Well Information
- **Date Well Installed:** 10/21/2014
- **Total Depth of Well:** 25.55 ft from TOC
- **Depth to Top of Screen:** 7.61 ft from TOC
- **Length of Casing Screened:** 17.94 ft
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
1 borehole volume (gallons) = water level thickness (ft) x 0.163 + (0.748 x saturated filter pack thickness); for 2-inch well

### Development Method
- **Equipment:** Surge X, Bail
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed (Gallons)</th>
<th>Total</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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*from TOC unless otherwise noted in Remarks*
## WELL DEVELOPMENT RECORD

### Project Information

- **Project Name:** KDHE Neodesha
- **Project Number:** 80435
- **Well Number:** MW-145
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.40928521, -95.68890581

### Elevation of Monitoring Well

- **Ground Surface Elevation (GS):** 792.74 ft
- **Top of Casing Elevation (TOC):** 795.74 ft

### Well Information

- **Date Well Installed:** 10/16/2014
- **Total Depth of Well:** 30.68 ft from TOC
- **Depth to Top of Screen:** 7.72 ft from TOC
- **Length of Casing Screened:** 22.96 ft
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation

- **Water Column:** 16.96 ft
- **1 Borehole Volume:** 20.77 gallons
- **5 Borehole Volumes:** 103.83 gallons

### Development Method

- **Equipment:** Surge, Airlift, Pump
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed Gallons</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
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*from TOC unless otherwise noted in Remarks

WELL PURGED DRY
**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-146

### Project Information

- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.40930310, -95.69117714

### Elevation of Monitoring Well

- **Ground Surface Elevation (GS):** 793.39
- **Top of Casing Elevation (TOC):** 795.40

### Well Information

- **Date Well Installed:** 10/16/2014
- **Total Depth of Well:** 25.96 feet from TOC
- **Depth to Top of Screen:** 7.06 feet from TOC
- **Length of Casing Screened:** 18.90 feet
- **Type of Formation Screened:** Alluvium

### Development Method

**Equipment:**
- Surge: X
- Bail
- Airlift
- Pump: X

**Method Description:** Well surged with pump. Well purged dry during development.

### Borehole Volume Calculation

- **Water Column:** 13.19 feet
- **1 Borehole Volume:** 16.97 gallons
- **5 Borehole Volumes:** 84.84 gallons

Initial height of water column (ft) = total depth (ft) - initial depth to water (ft)

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed (Gallons)</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
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**WELL PURGED DRY**
### WELL DEVELOPMENT RECORD

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-147

#### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building  
- **Location:** 37.40928060, -95.69265880

#### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 794.05  
- **Top of Casing Elevation (TOC):** 795.60

#### Well Information
- **Date Well Installed:** 10/21/2014  
- **Total Depth of Well:** 29.06 feet from TOC  
- **Depth to Top of Screen:** 9.06 feet from TOC  
- **Length of Casing Screened:** 20.00 feet  
- **Type of Formation Screened:** Alluvium

#### Borehole Volume Calculation
- **Water Column:** 16.60 feet  
- **1 Borehole Volume:** 18.39 gallons  
- **5 Borehole Volumes:** 91.93 gallons

#### Development Method
- **Equipment:**  
  - Surge: X  
  - Bail:  
  - Airlift:  
  - Pump: X  
- **Method Description:** Well surged with pump. Well purged dry during development.

#### Observations During Development
<table>
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<th>Time</th>
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<th>Temp. (°C)</th>
<th>pH (units)</th>
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</tbody>
</table>

*from TOC unless otherwise noted in Remarks

**WELL PURGED DRY**
### WELL DEVELOPMENT RECORD

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-148

#### Project Information

- **Facility Name:** Former Refinery/BP Remediation Building  
- **Location:** 37.43227081 -95.69202900

#### Elevation of Monitoring Well

- **Ground Surface Elevation (GS):** 828.80
- **Top of Casing Elevation (TOC):** 832.09

#### Well Information

- **Date Well Installed:** 10/21/2014  
- **Total Depth of Well:** 30.75 feet from TOC  
- **Depth to Top of Screen:** 8.34 feet from TOC  
- **Length of Casing Screened:** 22.41 feet  
- **Type of Formation Screened:** Alluvium

#### Borehole Volume Calculation

- **Water Column:** 22.03 feet  
- **1 Borehole Volume =** 21.16 gallons  
- **5 Borehole Volumes =** 105.80 gallons

#### Development Method

- **Surge:** X  
- **Bail:**  
- **Airlift:**  
- **Pump:** X  

#### Equipment: Method Description: Well surged with pump.

#### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed Gallons</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (mS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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*from TOC unless otherwise noted in Remarks*
**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-149

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.43193417 -95.68596723

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 822.84
- **Top of Casing Elevation (TOC):** 822.49

### Well Information
- **Date Well Installed:** 10/22/2014
- **Total Depth of Well:** 28.46 feet from TOC
- **Depth to Top of Screen:** 13.50 feet from TOC
- **Length of Casing Screened:** 14.96 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column =** 3.13 feet
- **1 Borehole Volume =** 12.24 gallons
- **5 Borehole Volumes =** 61.19 gallons

### Development Method
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed Gallons</th>
<th>Total</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks (turbidity, color, odor, etc.)</th>
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*from TOC unless otherwise noted in Remarks

**WELL PURGED DRY**
**WELL DEVELOPMENT RECORD**

<table>
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<th>Project Name: KDHE Neodesha</th>
<th>Project Number: 80435</th>
<th>Well Number: MW-150</th>
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### Project Information
- Facility Name: Former Refinery/BP Remediation Building
- Location: 37.43139456 -95.68484338

### Elevation of Monitoring Well
- Ground Surface Elevation (GS): 818.78
- Top of Casing Elevation (TOC): 818.41

### Well Information
- Date Well Installed: 10/22/2014
- Total Depth of Well: 28.20 feet from TOC
- Depth to Top of Screen: 13.28 feet from TOC
- Length of Casing Screened: 14.92 feet
- Type of Formation Screened: Alluvium

### Development Method
- Equipment: Surge X Bail
- Method Description: Well surged with pump. Well purged dry during development.

### Borehole Volume Calculation
- Water Column = 6.58 feet
- 1 Borehole Volume = 12.77 gallons
- 5 Borehole Volumes = 63.85 gallons

### Observations During Development

<table>
<thead>
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<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed (Gallons) Total</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (μS/cm)</th>
<th>Fluid Appearance and Remarks (turbidity, color, odor, etc.)</th>
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<tbody>
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<td>7.1</td>
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<tr>
<td>10/30/14</td>
<td>1712</td>
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<td>5 15</td>
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</tr>
<tr>
<td>10/30/14</td>
<td>1714</td>
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<td>7.0</td>
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<tr>
<td>10/30/14</td>
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<td>7.0</td>
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<tr>
<td>10/30/14</td>
<td>1718</td>
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<td>6.9</td>
<td>1040</td>
<td>Cloudy-Clear</td>
</tr>
</tbody>
</table>

*from TOC unless otherwise noted in Remarks

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**WELL PURGED DRY**
## WELL DEVELOPMENT RECORD

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-151

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.43019929, -95.68598230

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 820.41
- **Top of Casing Elevation (TOC):** 819.89

### Well Information
- **Date Well Installed:** 10/22/2014
- **Total Depth of Well:** 29.10 feet from TOC
- **Depth to Top of Screen:** 14.24 feet from TOC
- **Length of Casing Screened:** 14.86 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column:** 6.04 feet
- **1 Borehole Volume:** 12.63 gallons
- **5 Borehole Volumes:** 63.17 gallons

### Development Method
- **Equipment:** | **Method Description:** Well surged with pump. Well purged dry during development.
  - Surge | X
  - Bail
  - Airlift | Pump | X

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed Gallons</th>
<th>Total</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks (turbidity, color, odor, etc.)</th>
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<tbody>
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</tr>
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</table>

**WELL PURGED DRY**

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*from TOC unless otherwise noted in Remarks*
**WELL DEVELOPMENT RECORD**

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-152

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.42971790 -95.68794460

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 815.18
- **Top of Casing Elevation (TOC):** 814.83

### Well Information
- **Date Well Installed:** 10/17/2014
- **Total Depth of Well:** 22.78 feet from TOC
- **Depth to Top of Screen:** 9.90 feet from TOC
- **Length of Casing Screened:** 12.88 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation

\[
\text{Water Column} = 8.42 \text{ feet} \\
\text{1 Borehole Volume} = 11.47 \text{ gallons} \\
\text{5 Borehole Volumes} = 57.35 \text{ gallons}
\]

### Development Method
- **Equipment:** Surge X, Bail, Airlift Pump X
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed Gallons</th>
<th>Fluid Removed Total</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks (turbidity, color, odor, etc.)</th>
</tr>
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<tbody>
<tr>
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<td>16.0</td>
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<td>720</td>
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<td>NA</td>
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<td>10</td>
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<td>770</td>
<td>Brown, Turbid</td>
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<td>15</td>
<td>16.6</td>
<td>6.9</td>
<td>750</td>
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<td>NA</td>
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<td>20</td>
<td>16.6</td>
<td>6.9</td>
<td>750</td>
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<td>25</td>
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<td>6.9</td>
<td>750</td>
<td>Cloudy</td>
</tr>
</tbody>
</table>

*from TOC unless otherwise noted in Remarks

WELL PURGED DRY
# WELL DEVELOPMENT RECORD

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-153

## Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.42185135 -95.68207211

## Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 800.42
- **Top of Casing Elevation (TOC):** 799.96

## Well Information
- **Date Well Installed:** 10/24/2014
- **Total Depth of Well:** 18.01 feet from TOC
- **Depth to Top of Screen:** 6.11 feet from TOC
- **Length of Casing Screened:** 11.90 feet
- **Type of Formation Screened:** Alluvium

## Borehole Volume Calculation
- **Water Column:** 9.44 feet
- **1 Borehole Volume:** 10.87 gallons
- **5 Borehole Volumes:** 54.34 gallons

## Development Method
- **Method Description:** Well surged with pump. Well purged dry during development.

## Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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</thead>
<tbody>
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<td>NA</td>
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<td>21.6</td>
<td>7.4</td>
<td>810</td>
<td>Light Yellow Brown</td>
</tr>
<tr>
<td>10/30/14</td>
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<td>NA</td>
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<td>21.5</td>
<td>7.4</td>
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<td>Light Cloudy Gray</td>
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**WELL PURGED DRY**
# WELL DEVELOPMENT RECORD

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-154

## Project Information

<table>
<thead>
<tr>
<th>Facility Name: Former Refinery/BP Remediation Building</th>
<th>Elevation of Monitoring Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Surface Elevation (GS): 807.68</td>
<td>Top of Casing Elevation (TOC): 807.16</td>
</tr>
<tr>
<td>Location: 37.42379268 -95.68750118</td>
<td></td>
</tr>
</tbody>
</table>

## Well Information

<table>
<thead>
<tr>
<th>Date Well Installed: 10/23/2014</th>
<th>Borehole Volume Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Depth of Well: 19.82 feet from TOC</td>
<td>Water Column = 5.46 feet</td>
</tr>
<tr>
<td>Depth to Top of Screen: 4.90 feet from TOC</td>
<td>1 Borehole Volume = 12.59 gallons</td>
</tr>
<tr>
<td>Length of Casing Screened: 14.92 feet</td>
<td>5 Borehole Volumes = 62.94 gallons</td>
</tr>
</tbody>
</table>

Type of Formation Screened: Alluvium

## Development Method

**Equipment:** 
- Surge: X Bail
- Airlift: Pump X

**Method Description:** Well surged with pump. Well purged dry during development.

## Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed Gallons</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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<tbody>
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<td>NA</td>
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<td>19.9</td>
<td>7.1</td>
<td>890</td>
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<tr>
<td>10/30/14</td>
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<td>20.2</td>
<td>7.0</td>
<td>870</td>
<td>Cloudy Brown</td>
</tr>
</tbody>
</table>

**WELL PURGED DRY**

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*from TOC unless otherwise noted in Remarks*
### Project Information
- **Facility Name**: Former Refinery/BP Remediation Building
- **Location**: 37.42264383 -95.68628953

### Well Information
- **Date Well Installed**: 10/23/2014
- **Total Depth of Well**: 24.40 feet from TOC
- **Depth to Top of Screen**: 9.94 feet from TOC
- **Length of Casing Screened**: 14.46 feet
- **Type of Formation Screened**: Alluvium

### Borehole Volume Calculation
1 borehole volume (gallons) = water level thickness (ft) x 0.163 + (0.748 x saturated filter pack thickness); for 2-inch well

### Development Method
- **Equipment**: Surge X, Bail, Airlift, Pump X
- **Method Description**: Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed (Gallons)</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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<td>NA</td>
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</table>

**WELL PURGED DRY**
**WELL DEVELOPMENT RECORD**

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-156

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.42111300, -95.68686319

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 809.09
- **Top of Casing Elevation (TOC):** 808.49

### Well Information
- **Date Well Installed:** 10/23/2014
- **Total Depth of Well:** 21.85 feet from TOC
- **Depth to Top of Screen:** 9.45 feet from TOC
- **Length of Casing Screened:** 12.40 feet
- **Type of Formation Screened:** Alluvium

### Borhole Volume Calculation
- **Water Column:** 5.87 feet
- **1 Borehole Volume:** 10.68 gallons
- **5 Borehole Volumes:** 53.39 gallons

### Development Method
- **Equipment:** Surge, Airlift  
  - **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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<td>10/30/14</td>
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<td>I</td>
<td>7.1</td>
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</tr>
<tr>
<td>10/30/14</td>
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<td>7.1</td>
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<td>10/30/14</td>
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<td>7.5</td>
<td>7.0</td>
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<td>Cloudy Gray-Clear</td>
</tr>
</tbody>
</table>

**WELL PURGED DRY**

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*From TOC unless otherwise noted in Remarks*
## WELL DEVELOPMENT RECORD

### Project Information
- **Project Name:** KDHE Neodesha
- **Project Number:** 80435
- **Well Number:** MW-157

#### Facility Name:
- Former Refinery/BP Remediation Building

#### Location:
- 37.42054442, -95.68503695

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 812.51
- **Top of Casing Elevation (TOC):** 811.96

### Well Information
- **Date Well Installed:** 10/23/2014
- **Total Depth of Well:** 24.33 feet from TOC
- **Depth to Top of Screen:** 9.41 feet from TOC
- **Length of Casing Screened:** 14.92 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column:** 4.63 feet
  - **1 Borehole Volume:** 12.45 gallons
  - **5 Borehole Volumes:** 62.26 gallons

### Development Method
- **Equipment:**
  - Surge: X
  - Bail
  - Airlift
  - Pump: X

#### Method Description:
- Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Fluid Removed (Gallons)</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks (turbidity, color, odor, etc.)</th>
</tr>
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<tbody>
<tr>
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<tr>
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<td>0 I</td>
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<td>7.1</td>
<td>1400</td>
<td>Clear</td>
</tr>
</tbody>
</table>

**WELL PURGED DRY**

---

*Depth to Total Fluid Removed* (turbidity, color, odor, etc.)

*from TOC unless otherwise noted in Remarks*
### WELL DEVELOPMENT RECORD

<table>
<thead>
<tr>
<th>Project Name: KDHE Neodesha</th>
<th>Project Number: 80435</th>
<th>Well Number: MW-158</th>
</tr>
</thead>
</table>

#### Project Information
- **Location:** 37.41957448 -95.68478630
- **Facility Name:** Former Refinery/BP Remediation Building

#### Elevation of Monitoring Well
- Ground Surface Elevation (GS): 812.28
- Top of Casing Elevation (TOC): 811.80

#### Well Information
- **Date Well Installed:** 10/23/2014
- **Total Depth of Well:** 26.06 feet from TOC
- **Depth to Top of Screen:** 11.16 feet from TOC
- **Length of Casing Screened:** 14.90 feet
- **Type of Formation Screened:** Alluvium

#### Borehole Volume Calculation
- **Water Column =** 6.52 feet
- **1 Borehole Volume =** 12.74 gallons
- **5 Borehole Volumes =** 63.72 gallons

#### Development Method
- **Equipment:** Surge X, Bail, Airlift Pump X
- **Method Description:** Well surged with pump. Well purged dry during development.

#### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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*from TOC unless otherwise noted in Remarks

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091294 Form WCIRLPK
**WELL DEVELOPMENT RECORD**

<table>
<thead>
<tr>
<th>Project Name: KDHE Neodesha</th>
<th>Project Number: 80435</th>
<th>Well Number: MW-159</th>
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</thead>
</table>

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.41957704, -95.68626612

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 808.10
- **Top of Casing Elevation (TOC):** 807.65

### Well Information
- **Date Well Installed:** 10/24/2014
- **Total Depth of Well:** 19.65 feet from TOC
- **Depth to Top of Screen:** 9.65 feet from TOC
- **Length of Casing Screened:** 10.00 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column =** 4.57 feet
- **1 Borehole Volume =** 8.58 gallons
- **5 Borehole Volumes =** 42.92 gallons

### Development Method
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Water* (ft)</th>
<th>Depth* (ft)</th>
<th>Fluid Removed</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks (turbidity, color, odor, etc.)</th>
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*from TOC unless otherwise noted in Remarks
**WELL DEVELOPMENT RECORD**

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-160

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.41989675,-95.68843699

### Project Information
- **Elevation of Monitoring Well**
  - **Ground Surface Elevation (GS):** 808.03
  - **Top of Casing Elevation (TOC):** 810.39

### Well Information
- **Date Well Installed:** 10/15/2014
- **Total Depth of Well:** 23.38 feet from TOC
- **Depth to Top of Screen:** 8.50 feet from TOC
- **Length of Casing Screened:** 14.88 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column:** 8.69 feet
- **1 Borehole Volume:** 13.08 gallons
- **5 Borehole Volumes:** 65.41 gallons

### Development Method
- **Equipment:** Surge X, Bail, Airlift, Pump X
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

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<thead>
<tr>
<th>Date</th>
<th>Time</th>
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<th>Total Depth* (ft)</th>
<th>Fluid Removed Gallons</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
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</table>

*from TOC unless otherwise noted in Remarks

**WELL PURGED DRY**
**WELL DEVELOPMENT RECORD**

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-161

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building  
- **Location:** 37.41983831,-95.68953042  
- **Ground Surface Elevation (GS):** 807.80 ft  
- **Top of Casing Elevation (TOC):** 809.83 ft

### Well Information
- **Date Well Installed:** 10/15/2014
- **Total Depth of Well:** 22.01 ft from TOC
- **Depth to Top of Screen:** 7.11 ft from TOC
- **Length of Casing Screened:** 14.90 ft
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column =** 8.24 ft
- **1 Borehole Volume =** 13.02 gallons
- **5 Borehole Volumes =** 65.12 gallons

### Development Method
**Method Description:** Well surged with pump. Well purged dry during development.

#### Equipment
- **Surge:** X  
- **Bail:**  
- **Airlift:**  
- **Pump:** X

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed (Gallons)</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks (turbidity, color, odor, etc.)</th>
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</table>

**Initial height of water column (ft) = total depth (ft) - initial depth to water (ft)**

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Footnotes:
- *from TOC unless otherwise noted in Remarks
- 091294 Form WCI OP6-1

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**WELL PURGED DRY**
### Project Name: KDHE Neodesha
#### Project Number: 80435
#### Well Number: MW-162

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.41945229 -95.69101483

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 805.48
- **Top of Casing Elevation (TOC):** 805.09

### Well Information
- **Date Well Installed:** 10/21/2014
- **Total Depth of Well:** 15.78 feet from TOC
- **Depth to Top of Screen:** 4.38 feet from TOC
- **Length of Casing Screened:** 11.40 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column =** 6.45 feet
- **1 Borehole Volume =** 9.99 gallons
- **5 Borehole Volumes =** 49.94 gallons

### Development Method
- **Equipment:** Surge X Bail
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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**WELL PURGED DRY**
WELL DEVELOPMENT RECORD

Project Name: KDHE Neodesha
Project Number: 80435
Well Number: MW-163

<table>
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<th>Project Information</th>
<th>Elevation of Monitoring Well</th>
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<td>Facility Name: Former Refinery/BP Remediation Building</td>
<td>Ground Surface Elevation (GS): 805.19</td>
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<tr>
<td>Location: 37.42090572 -95.69144425</td>
<td>Top of Casing Elevation (TOC): 804.96</td>
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<table>
<thead>
<tr>
<th>Well Information</th>
<th>Borehole Volume Calculation</th>
</tr>
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<tr>
<td>Date Well Installed: 10/21/2014</td>
<td>Water Column = 6.97 feet</td>
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<tr>
<td>Total Depth of Well: 16.21 feet from TOC</td>
<td>1 Borehole Volume = 9.60 gallons</td>
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<tr>
<td>Depth to Top of Screen: 5.41 feet from TOC</td>
<td>5 Borehole Volumes = 48.02 gallons</td>
</tr>
<tr>
<td>Length of Casing Screened: 10.80 feet</td>
<td>1 borehole volume (gallons) = water level thickness (ft) x .163 + (0.748 x saturated filter pack thickness); for 2-inch well</td>
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<tr>
<td>Type of Formation Screened: Alluvium</td>
<td>initial height of water column (ft) = total depth (ft) - initial depth to water (ft)</td>
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Development Method

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<th>Method Description: Well surged with pump. Well purged dry during development.</th>
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Observations During Development

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<th>Time</th>
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<th>Fluid Removed Gallons</th>
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<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
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WELL PURGED DRY

*from TOC unless otherwise noted in Remarks

031294 Form WCI-EPCA
## WELL DEVELOPMENT RECORD

### Project Information
- **Project Name:** KDHE Neodesha
- **Project Number:** 80435
- **Well Number:** MW-164
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.42130431 -95.69096108
- **Ground Surface Elevation (GS):** 807.54
- **Top of Casing Elevation (TOC):** 809.91

### Well Information
- **Date Well Installed:** 10/15/2014
- **Total Depth of Well:** 20.61 feet from TOC
- **Depth to Top of Screen:** 7.71 feet from TOC
- **Length of Casing Screened:** 12.90 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- 1 Borehole Volume = 11.19 gallons
- 5 Borehole Volumes = 55.95 gallons

### Development Method
- **Equipment:** Surge X Bail
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

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<th>Time</th>
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*from TOC unless otherwise noted in Remarks
## WELL DEVELOPMENT RECORD

### Project Information
- **Project Name:** KDHE Neodesha
- **Project Number:** 80435
- **Well Number:** MW-165

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 810.26
- **Top of Casing Elevation (TOC):** 812.42

### Facility Name: Former Refinery/BP Remediation Building
- **Location:** 37.42160192 -95.68987970

### Well Information
- **Date Well Installed:** 10/15/2014
- **Total Depth of Well:** 24.37 feet from TOC
- **Depth to Top of Screen:** 9.45 feet from TOC
- **Length of Casing Screened:** 14.92 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column:** 9.27 feet
- **1 Borehole Volume:** 13.21 gallons
- **5 Borehole Volumes:** 66.04 gallons

### Development Method
- **Equipment:** Surge X, Bail, Airlift, Pump X
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

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<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
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*from TOC unless otherwise noted in Remarks

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**WELL PURGED DRY**

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031294 Form WCI WPC
## WELL DEVELOPMENT RECORD

### Project Information

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-166

**Facility Name:** Former Refinery/BP Remediation Building  
**Location:** 37.42244290 -95.68841207

### Elevation of Monitoring Well

**Ground Surface Elevation (GS):** 809.17  
**Top of Casing Elevation (TOC):** 808.69

### Well Information

**Date Well Installed:** 10/20/2014  
**Total Depth of Well:** 18.60 feet from TOC  
**Depth to Top of Screen:** 4.66 feet from TOC  
**Length of Casing Screened:** 13.94 feet  
**Type of Formation Screened:** Alluvium

### Borehole Volume Calculation

Water Column = 7.77 feet  
1 Borehole Volume = 12.20 gallons  
5 Borehole Volumes = 60.98 gallons

Initial height of water column (ft) = total depth (ft) - initial depth to water (ft)

### Development Method

**Equipment:**  
- Surge: X  
- Bail:  
- Airlift:  
- Pump: X  

**Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
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**WELL PURGED DRY**
# WELL DEVELOPMENT RECORD

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-167

## Project Information
- **Facility Name:** Former Refinery/BP Remediation Building  
- **Location:** 37.42329858 -95.68964069

## Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 804.28  
- **Top of Casing Elevation (TOC):** 806.80

## Well Information
- **Date Well Installed:** 10/16/2014  
- **Total Depth of Well:** 16.85 feet from TOC  
- **Depth to Top of Screen:** 7.95 feet from TOC  
- **Length of Casing Screened:** 8.90 feet  
- **Type of Formation Screened:** Alluvium

## Borehole Volume Calculation
- **Water Column:** 9.85 feet  
- **1 Borehole Volume:** 8.58 gallons  
- **5 Borehole Volumes:** 42.92 gallons

## Development Method
- **Equipment:** Surge X  
- **Method Description:** Well surged with pump. Well purged dry during development.

## Observations During Development

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*from TOC unless otherwise noted in Remarks

## WELL PURGED DRY
**WELL DEVELOPMENT RECORD**

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### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.42409752 -95.68842566

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 806.08
- **Top of Casing Elevation (TOC):** 805.74

### Well Information
- **Date Well Installed:** 10/14/2014
- **Total Depth of Well:** 16.18 feet from TOC
- **Depth to Top of Screen:** 6.18 feet from TOC
- **Length of Casing Screened:** 10.00 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column = 8.99 feet**
- **1 Borehole Volume = 9.31 gallons**
- **5 Borehole Volumes = 46.53 gallons**

### Development Method
- **Equipment:** Surge X Bail
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

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*from TOC unless otherwise noted in Remarks*
# WELL DEVELOPMENT RECORD

**Project Name:** KDHE Neodesha  
**Project Number:** 80435  
**Well Number:** MW-169

## Project Information
- **Facility Name:** Former Refinery/BP Remediation Building  
- **Location:** 37.42423519,-95.69294219

## Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 803.95  
- **Top of Casing Elevation (TOC):** 803.60

## Well Information
- **Date Well Installed:** 10/20/2014  
- **Total Depth of Well:** 14.35 feet from TOC  
- **Depth to Top of Screen:** 4.85 feet from TOC  
- **Length of Casing Screened:** 9.50 feet  
- **Type of Formation Screened:** Alluvium

## Borehole Volume Calculation
- Water Column = 11.06 feet  
- 1 Borehole Volume = 9.25 gallons  
- 5 Borehole Volumes = 46.25 gallons

## Development Method
- **Equipment:** Surge X, Bail, Airlift X  
- **Method Description:** Well surged with pump. Well purged dry during development.

## Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
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<th>Fluid Removed (Gallons)</th>
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<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
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**WELL PURGED DRY**

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*from TOC unless otherwise noted in Remarks*
## WELL DEVELOPMENT RECORD

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### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.42507256, -95.69376966

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 805.06
- **Top of Casing Elevation (TOC):** 807.63

### Well Information
- **Date Well Installed:** 10/20/2014
- **Total Depth of Well:** 17.28 feet from TOC
- **Depth to Top of Screen:** 7.83 feet from TOC
- **Length of Casing Screened:** 9.45 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
- **Water Column =** 11.88 feet
- **1 Borehole Volume =** 9.35 gallons
- **5 Borehole Volumes =** 46.73 gallons

### Development Method
- **Equipment:** Surge X, Airlift, Pump X
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed (Gallons)</th>
<th>Total</th>
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<td>7.0</td>
<td>1220</td>
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<tr>
<td>10/30/14</td>
<td>1033</td>
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<td>6.9</td>
<td>1430</td>
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</tr>
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<td>10/30/14</td>
<td>1038</td>
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<td>14</td>
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<td>25</td>
<td>19.5</td>
<td>7.0</td>
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<td>Light Gray Cloudy</td>
</tr>
</tbody>
</table>

**WELL PURGED DRY**
**WELL DEVELOPMENT RECORD**

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>KDHE Neodesha</th>
<th>Project Number:</th>
<th>80435</th>
<th>Well Number:</th>
<th>MW-171</th>
</tr>
</thead>
</table>

### Project Information
- **Facility Name:** Former Refinery/BP Remediation Building
- **Location:** 37.42691918 -95.69426374

### Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 804.82
- **Top of Casing Elevation (TOC):** 807.02

### Well Information
- **Date Well Installed:** 10/21/2014
- **Water Column =** 7.89 feet
- **Total Depth of Well:** 12.89 feet from TOC
- **1 Borehole Volume =** 5.53 gallons
- **Depth to Top of Screen:** 7.48 feet from TOC
- **5 Borehole Volumes =** 27.64 gallons
- **Length of Casing Screened:** 5.41 feet
- **Type of Formation Screened:** Alluvium

### Borehole Volume Calculation
1 borehole volume (gallons) = water level thickness (ft) x .163 + (0.748 x saturated filter pack thickness); for 2-inch well

### Development Method
- **Method Description:** Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed (gallons)</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/29/14</td>
<td>1051</td>
<td>5.00</td>
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<td>970</td>
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<td>NA</td>
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<td>6.8</td>
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<td>Lightly Turbid</td>
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<td>NA</td>
<td>10</td>
<td>10</td>
<td></td>
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<td>WELL PURGED DRY</td>
</tr>
</tbody>
</table>

*from TOC unless otherwise noted in Remarks

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031294 Form WCI 01-12-00
## Project Information

- **Project Name:** KDHE Neodesha
- **Project Number:** 80435
- **Well Number:** MW-172

## Facility Name:
Former Refinery/BP Remediation Building

## Location:
37.43131633, -95.69271604

## Elevation of Monitoring Well
- **Ground Surface Elevation (GS):** 821.40
- **Top of Casing Elevation (TOC):** 821.10

## Well Information

- **Date Well Installed:** 10/20/2014
- **Total Depth of Well:** 22.93 feet from TOC
- **Depth to Top of Screen:** 5.02 feet from TOC
- **Length of Casing Screened:** 17.91 feet
- **Type of Formation Screened:** Alluvium

## Borehole Volume Calculation

- Water Column = 18.38 feet
- 1 Borehole Volume = 17.04 gallons
- 5 Borehole Volumes = 85.19 gallons

Initial height of water column (ft) = total depth (ft) - initial depth to water (ft)

## Development Method

- **Equipment:**
  - Surge: X
  - Bail: X
  - Airlift: Pump
  - Pump: X

- **Method Description:** Well surged with pump. Well purged dry during development.

## Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed Gallons</th>
<th>Fluid Removed Total (gallons</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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<td>7.0</td>
<td>990</td>
<td>Medium Brown</td>
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</table>

**WELL PURGED DRY**
**WELL DEVELOPMENT RECORD**

<table>
<thead>
<tr>
<th>Project Name: KDHE Neodesha</th>
<th>Project Number: 80435</th>
<th>Well Number: MW-173</th>
</tr>
</thead>
</table>

### Project Information
- Facility Name: Former Refinery/BP Remediation Building
- Location: 37.41916860 -95.68892032

### Elevation of Monitoring Well
- Ground Surface Elevation (GS): 806.60
- Top of Casing Elevation (TOC): 809.06

### Well Information
- Date Well Installed: 10/16/2014
- Total Depth of Well: 22.00 feet from TOC
- Depth to Top of Screen: 9.25 feet from TOC
- Length of Casing Screened: 12.75 feet
- Type of Formation Screened: Alluvium

### Borehole Volume Calculation
- Water Column = 8.81 feet
- 1 Borehole Volume = 11.43 gallons
- 5 Borehole Volumes = 57.16 gallons

Initial height of water column (ft) = total depth (ft) - initial depth to water (ft)

### Development Method
- Equipment: Surge X Bail
- Method Description: Well surged with pump. Well purged dry during development.

### Observations During Development

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Depth to Water* (ft)</th>
<th>Total Depth* (ft)</th>
<th>Fluid Removed (Gallons)</th>
<th>Temp. (°C)</th>
<th>pH (units)</th>
<th>S.C. (µS/cm)</th>
<th>Fluid Appearance and Remarks</th>
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<td>7.1</td>
<td>1710</td>
<td>Brown Gray</td>
</tr>
</tbody>
</table>

*from TOC unless otherwise noted in Remarks

**WELL PURGED DRY**