Oklahoma Asphallic Deposits – Field Sheets and Map

(“The Goodrich File”)

Compiled by

Harold B. Goodrich
1943-1944

This document includes:


<table>
<thead>
<tr>
<th>Counties covered:</th>
<th>Atoka</th>
<th>Jefferson</th>
<th>McCurtain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Carter</td>
<td>Johnston</td>
<td>Murray</td>
</tr>
<tr>
<td></td>
<td>Coal</td>
<td>Kiowa</td>
<td>Ottawa</td>
</tr>
<tr>
<td></td>
<td>Comanche</td>
<td>LeFlore</td>
<td>Pontotoc</td>
</tr>
<tr>
<td></td>
<td>Craig</td>
<td>Love</td>
<td>Pushmataha</td>
</tr>
<tr>
<td></td>
<td>Garvin</td>
<td>Marshall</td>
<td>Stephens</td>
</tr>
</tbody>
</table>

- a 1:500,000 map showing locations of asphallic deposits.

The material was assembled by Harold Beach Goodrich (1870-1945) for an Oklahoma Geological Survey Open File Report that was never published.

See OFR 3-2006 and GM-8 for related information.
NOTE: The information below has been typed from handwritten comments found on the cover of the file folder.

ASPHALT & Liq. Asphalt - Compilation of field sheets

Complete File - These sheets (accd to field sheets) were made about 1936+. So they are later than Woodruffs report Asphalt deposits of Oklahoma 1934.

In 1939, Beach said in letter "we are preparing a short report on asphaltic occurrences etc".

In 1943-1944, H B Goodrich prepared card file keyed to a base map of Oklahoma, 1:500,000 showing localities of asphaltic rocks.

Counties included

<table>
<thead>
<tr>
<th>County</th>
<th>Sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atoka</td>
<td>3</td>
</tr>
<tr>
<td>Carter</td>
<td>12</td>
</tr>
<tr>
<td>Coal</td>
<td>2</td>
</tr>
<tr>
<td>Comanche</td>
<td>24</td>
</tr>
<tr>
<td>Craig</td>
<td>1</td>
</tr>
<tr>
<td>Garvin</td>
<td>2</td>
</tr>
<tr>
<td>Jefferson</td>
<td>9</td>
</tr>
<tr>
<td>Johnston</td>
<td>13</td>
</tr>
<tr>
<td>Kiowa</td>
<td>1</td>
</tr>
<tr>
<td>Le Flore</td>
<td>2</td>
</tr>
<tr>
<td>Love Co.</td>
<td>3</td>
</tr>
<tr>
<td>Marshall</td>
<td>7</td>
</tr>
<tr>
<td>McCurtain</td>
<td>3</td>
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<td>Murray</td>
<td>9</td>
</tr>
<tr>
<td>Ottawa</td>
<td>13</td>
</tr>
<tr>
<td>Pontotoc</td>
<td>8</td>
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<tr>
<td>Pushmataha</td>
<td>3</td>
</tr>
<tr>
<td>Stephens</td>
<td>10</td>
</tr>
</tbody>
</table>

(signed) L Jordan 1963

Okla. Geol. Survey
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW 1/4 NW 1/2 Sec. 29-30-31-32 T1S-R12E</td>
<td>Water in test hole, can't measure</td>
<td>5-1</td>
<td>Practically none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW 1/4 NW 1/2 Sec. 24-25-19-30 T1S-R14E</td>
<td>?</td>
<td>6-1</td>
<td>16.27% Very low</td>
<td>Quartz sand</td>
<td>Asphalt sand</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center Sec. 22 T1S-R12E</td>
<td>Water in test hole</td>
<td>8-1</td>
<td>1.74% High</td>
<td>90% qtz. sand</td>
<td>Asphalt sand</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**USED FOR:**

- Bitumen content entirely too low for any commercial purpose.
- Very excellent material for road topping. Could be used for building up other raw material with med. or high penetration test.
- Bitumen content of this sample is quite low, but could be used to advantage if blended with material reported under our analysis No. 1211.
ASPHALT

ATOKA COUNTY - Field Sheet No. 8 - 1 Sample

Location: Center of Section 28, T 1 S - R 12 E.

Accessibility: In the bed of Chickasaw Creek, which flows the year around. Overburden is about 10'. There are few roads in this area and they are passable in dry weather.

Quantity: The bed is about four feet thick, and carried small seams of asphalt.

Laboratory test:
Sample No. 8-1
Bitumen: 1.74%
Penetration test: High
Mineral residue: 90% quartz sand, 10% limestone
Minerals identified: Asphalt, Quartz, Limestone.

Recommendations: Bitumen content of this sample is quite low, but could be used to advantage if blended with material reported under our analysis No. 1211.
ASPHALT

ATOKA COUNTY - Field Sheet No. 5 - 1 Sample

Location: NE$\frac{1}{4}$ of NW$\frac{1}{4}$ Sec. 29, 30, 31, 32, T 1 S - R 12 E.
Has been worked but now abandoned.
Quantity: 24" thick dipping to about 40 degrees.

Accessibility: Overburden of about 4'. 50 tons have been
removed. Pit filled with water. Located on
country road. State Highway 69 one mile west.

Laboratory test:
Sample No. 1
Bitumen: practically none

Recommendations: Bitumen content entirely too low for any
commercial purpose.

ATOKA COUNTY - Field Sheet No. 6 - 1 Sample

Location: NW$\frac{1}{4}$ of NW$\frac{1}{4}$ - Sec. 24-25-19-30, T 1 S - R 14 E.
Has been worked but now abandoned.

Quantity: The bed runs due north for about 600' and then
strikes due west for about 700'. Is from 5 to 8'
thick, dipping off at about 28 degrees.

Accessibility: Located in rough country with few roads.
Trucks may be used in fair weather. Located
12 miles from State Highway #69 and also M.K.&T.
railroad.

Laboratory test:
Sample No. 1
Bitumen: 16.27
Penetration test: Very low
Mineral residue: Essentially quartz sand, asphalt.

Recommendations:
Very excellent material for road topping purposes. Could
be used for building up other raw material with
medium or high penetration test.
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>P.S. #</th>
<th>HITU-MEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carter</td>
<td>NW₁ of SW₁ sec. 24 T6S, R1E.</td>
<td>?</td>
<td>8-1</td>
<td>3.37%</td>
<td>Low</td>
<td>Asphlt. sand, 99%</td>
<td>Quartz Oil</td>
<td>Excellent road topping when properly &amp; sufficiently blended.</td>
</tr>
<tr>
<td>Carter</td>
<td>NW₁ NE₁ sec. 26 T6S, R1E.</td>
<td>?</td>
<td>104-1</td>
<td>17.24%</td>
<td>Low</td>
<td>Asphlt. sand, 99%</td>
<td>Asphalt Oil</td>
<td>High oil content. Excellent base material for floor sweep.</td>
</tr>
<tr>
<td>Carter</td>
<td>Ditto</td>
<td>?</td>
<td>104-1</td>
<td>12.66%</td>
<td>Medium</td>
<td>90% quartz sand</td>
<td>Asphalt</td>
<td>Floor sweep, as is, or blended with sawdust. Lubricating oil, limestone aggregate &amp; small amount high Pen.test cut back refinery asphalt.</td>
</tr>
<tr>
<td>Carter</td>
<td>Ditto</td>
<td>?</td>
<td>104-2</td>
<td>5.84%</td>
<td>Very low</td>
<td>88% qts sand</td>
<td>Asphalt</td>
<td>Road topping, needs to be blended with limestone aggregate &amp; a proper amt. of high Pen.test cut back refinery asphalt.</td>
</tr>
<tr>
<td>Carter</td>
<td>NW₁ SW₁ sec. 16 T4S-R1E</td>
<td>?</td>
<td>109-1</td>
<td>9.60%</td>
<td>Very low</td>
<td>88% qts sand</td>
<td>Asphalt</td>
<td>1. Road topping, as is. E. Excellent floor sweep if mixed with lighter oil &amp; saw dust.</td>
</tr>
<tr>
<td>Carter</td>
<td>Ditto</td>
<td>?</td>
<td>109-1</td>
<td>1.2%</td>
<td>High</td>
<td>Quartz sand</td>
<td>Oil</td>
<td>Bitumen content too low to be of commercial use.</td>
</tr>
<tr>
<td>Carter</td>
<td>NW₁ SE₁ 41-45-1E</td>
<td>?</td>
<td>113-1</td>
<td>9.65%</td>
<td>Very low</td>
<td>Quartz sand</td>
<td>Asphalt</td>
<td>1. Road topping, as is. E. Floor sweep, if mixed with lighter oil &amp; saw dust.</td>
</tr>
</tbody>
</table>
### CARTER COUNTY ASPHALT

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S. %</th>
<th>BITUMEN PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE ¼ NW ¼</td>
<td>?</td>
<td>113-2</td>
<td>13.40% Low</td>
<td>Quartz sand</td>
<td>Asphalt Quartz</td>
<td>1. Road topping, as is.</td>
</tr>
<tr>
<td>Sec. 21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2. If mixed with lighter oil and admixture, good floor sweep.</td>
</tr>
<tr>
<td>T4S-R1E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE ½ SE ¼</td>
<td>?</td>
<td>114-1</td>
<td>4.78% Medium</td>
<td>Asphalitic Quartz sand 98%</td>
<td>Asphalt Quartz 1% Oil</td>
<td>Good for road topping, when properly &amp; sufficiently blended.</td>
</tr>
<tr>
<td>Sec. 10</td>
<td>1st.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>T5S-R1E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>114-1</td>
<td>8.89% Very low</td>
<td>Quartz sand 98%</td>
<td>Quartz Asphalt</td>
<td>High grade road topping material and needs to be blended with a proper amount of limestone aggregate and the proper amount of medium test cut back refinery asphalt to make an ideal road topping material.</td>
</tr>
<tr>
<td></td>
<td>re-run</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>NE ¼ NE ¼</td>
<td>?</td>
<td>116-1</td>
<td>7.03% Very low</td>
<td>98% Qtz. sand</td>
<td>Quartz Asphalt</td>
<td>Ditto</td>
</tr>
<tr>
<td>Sec. 23</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>T5S-R1E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE ¼ SE ¼</td>
<td>?</td>
<td>264-1</td>
<td>6.00% Low</td>
<td>85% Qtz. sand</td>
<td>Quartz 15% L.S. Limestone</td>
<td>1. Road topping.</td>
</tr>
<tr>
<td>Sec. 10</td>
<td></td>
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<tr>
<td>T5S-R1E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>¼ of NE ¼</td>
<td>200,000</td>
<td>125-1</td>
<td>10.7% Medium</td>
<td>Quartz sand</td>
<td>Oil quartz</td>
<td>Excellent material, as is, for road topping purposes. Might be blended with a small amount of asphalt with low penetration test.</td>
</tr>
<tr>
<td>Sec. 11 &amp;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW ¼ of NW ¼</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sec. 12</td>
<td></td>
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<tr>
<td>T3S-R1E</td>
<td></td>
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<tr>
<td>NE ¼ of NE ¼</td>
<td>230</td>
<td>7-1</td>
<td>3.24 Medium</td>
<td>Quartz sand small oil asphalt</td>
<td>Quartz Quartz</td>
<td>Fair material for road topping purposes.</td>
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<tr>
<td>Sec. 25</td>
<td></td>
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<tr>
<td>LOCATION</td>
<td>AMOUNT</td>
<td>F.S.#</td>
<td>BITUMEN</td>
<td>PENETRATION TEST</td>
<td>MINERALS IDENTIFIED</td>
<td>RESIDUE</td>
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<td>-------</td>
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<td>------------------</td>
<td>--------------------</td>
<td>---------</td>
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<tr>
<td>NE 1/2 of SW 1/4 Sec. 19 T5S-R1E</td>
<td>1800 cu. yds</td>
<td>127-1</td>
<td>5.16</td>
<td>Very low</td>
<td>Quartz</td>
<td>Quartz sand</td>
</tr>
<tr>
<td>NW 1/4 Sec. 11 T2S-R2W</td>
<td>2000 cu. yds</td>
<td>126-1</td>
<td>6.65</td>
<td>Medium</td>
<td>Oil</td>
<td>Quartz sand</td>
</tr>
<tr>
<td>SW 1/4 NW 1/4 SW 1/4 Sec. 9 T1S-R2W</td>
<td>10 tons</td>
<td>129-1</td>
<td>5.32%</td>
<td>Low</td>
<td>Asphalt</td>
<td>Quartz sand</td>
</tr>
<tr>
<td>SW 1/4 SW 1/4 NH 1/4 Sec. 34 T1S-R2W</td>
<td>250 cu. yrs</td>
<td>128-1</td>
<td>5.56%</td>
<td>High</td>
<td>Asphalt</td>
<td>Quartz sand</td>
</tr>
<tr>
<td>SE 1/4 SW 1/4 Sec. 35 T5S-R1E</td>
<td>130 cu. yrs</td>
<td>279-1 less than 1%</td>
<td>Quartz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE 1/4 SE 1/4 NH 1/4 Sec. 19 T5S-R1W</td>
<td>2000 cu. yrs</td>
<td>130-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW 1/4 Sec. 5 T4S-R2W</td>
<td>800 cu. yds</td>
<td>293-1</td>
<td>3.49%</td>
<td>High</td>
<td>Oil</td>
<td>Quartz sand</td>
</tr>
<tr>
<td>SE 1/4 Sec. 13 T4S-R2W</td>
<td>120 cu. yds</td>
<td>294-1 neg.</td>
<td>Asphalt</td>
<td>Quartz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW 1/4 Sec. 20 T4S-R2W</td>
<td>50 cu. yds</td>
<td>295</td>
<td></td>
<td></td>
<td></td>
<td>Ditto</td>
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</tbody>
</table>
Carter County—Field Sheet No. 8 - 1 sample

Location: NE1/4 Sec. 24, T56S, R12E. Owner — — — —

Quantity: ————Possibly 200 yds. long and 50 yds. wide.

Accessibility—Overburden is about 1'. The mine is located
100 yds east of road and approx. 1600 cu. yds.
of asphalt have been removed from it.

Laboratory test—

Sample #1
Asphalt 3.37%
Pen. test - low
Physical Characteristics: Asphalgtic sand, 99% - Quartz, 1%
Minerals identified: Quartz, Asphalt, Oil.
Recommendations: Excellent road topping when properly and
sufficiently blended.

Carter County— Field Sheet No. 104 - 2 samples

Location: ————NE1/4 Sec. 26, T56S, R12E. Owner — — — —

Quantity: ————The lateral dimension possibly is extended
for several 100' to the south east.

Accessibility—Overburden at these pits is practically zero.
Thickness could not be determined.

Laboratory test—

Sample #104-1
Test No. 1
Asphalt 17.24%
Pen. test - low
Physical characteristics: Asphalgtic sand, 99% (Quartz, 1%
Minerals identified: Quartz, Asphalt, Oil.
Recommendations: High oil content. Excellent base material
for floor sweep.

Test No. 2
Bitumen 12.80%
Pen. test - medium
Residue - 98% qtz sand
Minerals identified: Quartz, Asphalt.
Recommendations: This material can be used to excellent
advantage as a floor sweep as is, or it
can be blended with a small amount of saw
dust, or with a small amount of light
lubricating oil, or it can be blended with
limestone aggregate and with a small amount
of high penetration test cut back refinery
asphalt for road topping purposes.

Sample #104-2
Bitumen 5.84%
Pen. test - very low
Residue - 98% qtz sand
Minerals identified: Quartz, Asphalt

**Recommendations:** This is excellent material for road topping and needs to be blended with limestone aggregate, and a proper amount of high penetration test cut back refinery asphalt.

**Carter County-Field Sheet No. 109 - 1 sample**

**Location:** SE1/4 SW1/4 Sec. 16, T4S, R1E. **Owner:** Southern Rock and Asphalt Company.

**Quantity:** The lateral extent of the veins has not been determined either in a Southeast or Northwest direction.

**Accessibility:** Overburden 12" and Exposure is 300'x20' thick. The deposit is well drained and easily accessible, being only 100 yds. north of a good gravel road.

**Laboratory test:**

Sample No. 109-1—Personally selected by Robert H. Dott

- Bitumen 9.60%
- Penetration test - very low
- Residue - qtz sand, 98% - limestone, 2%
- Minerals identified: Asphalt, Quartz, Limestone.

**Recommendations:** Excellent material for: 1. Road topping as is, 2. If mixed with lighter oil and saw dust, excellent floor sweep.

Additional information on page 2-A

**Carter County-Field Sheet No. 113 - 2 Samples**

**Sample No. 113-1**

**Location:** NW1/4 SE1/4 Sec. 11, T4S, R1E. **Owner:**

**Quantity:** Has a worked area of 210' by 36' and approx. 15' deep.

**Accessibility:** The deposit outcropped at the surface and thus had no overburden. The rock dips almost vertically and strikes in a NW,SE direction.

**Laboratory test:**

- Bitumen 9.65%
- Penetration test - very low
- Residue - essentially quartz sand
- Minerals identified: Asphalt, Quartz

**Recommendations:** Excellent material for: 1. Road topping as is, 2. If mixed with lighter oil and saw dust, excellent floor sweep.

**Sample No. 113-2**

**Location:** SE1/4 NW1/4 Sec. 11, T4S, R1E. **Owner:** Southern Rock & Asphalt Company

**Quantity:** The vein is 40' wide and has been stripped for a distance of 75'. The depth could not be determined.
Sample No. 109-1

Bitumen: 1.2
Penetration test: High
Residues: Essentially quartz sand
Minerals identified: Oil, Quartz

Recommendations: This material contains too small quantity of bitumen to be of any commercial value.
Accessibility: Overburden 3', being stripped off with a drag line. The deposit is approx. 200 yds. NW of the above cited pit and is undoubtedly the same vein. It is 40' wide and has been stripped for a distance of 75'. Deposits easily accessible, a road leading from them to a gravel road north 1/2 mile. Both well drained by a creek 100 yds. west and a dinky railway is located 200 yds. west, as

Laboratory test-

Bitumen 13.40%
Penetration test — low
Residue — essentially quartz sand
Minerals identified: Asphalt, Quartz.
Recommendations: Excellent material for: 1. Road topping as is. 2. If mixed with a lighter oil and with sawdust, excellent floor sweep.

Carter County—Field Sheet No. 114 - 1 sample

Location: NE 1/4, Sec. 10, T5S, R1E. Owner:

Quantity: Deposit has been partially worked. Approx. 6800 cu. ft. having been removed. Thickness not determined. Present depth of worked area is about 10'.

Accessibility—There is no road to this deposit but it is easily accessible. It is approx. 300 yds. from a good dirt road. There is gravel in the creek shown on Field Sheet that could be used for constructing a road to this deposit.

Laboratory test-

Sample No. 114-1
Test No. 1
Asphalt 4.78%
Penetration test — medium
Physical Characteristics: Asphaltic sand, 99% — quartz, 1%
Minerals identified: Quartz, Asphalt, Oil.
Recommendations: Good material for road topping, when properly and sufficiently blended.

Test No. 2
Bitumen 8.89%
Penetration test — very low
Residue — qtz sand, 98%
Minerals identified: Quartz, Asphalt.
Recommendations: This is very high grade road topping material and needs to be blended with a proper amount of limestone aggregate and the proper amount of medium test cut back refinery asphalt to make an ideal road topping material.

Carter County—Field Sheet No. 115 — 1 sample.

Location: NE 1/4, Sec. 23, T5S, R1E. Owner: — —

Quantity: This deposit has never been worked and is evidently a source of a large quantity of material. It is in vein from approx. 3' wide & protrudes out of a creek bank approx. 7'. Depth could not be determined.
Accessibility:—The lateral extent could not be determined, but it outcrops again about 10' back from bank. Overburden between bank and this outcrop is 3'.

Laboratory test—

Sample No. 115-1
Bitumen 7.93%
Penetration test - very low
Residue 98% qtz., sand
Minerals identified: Quartz, Asphalt

Recommendations: This is a high grade material for road topping purposes, and needs only to be blended with the proper amount of limestone aggregate and the proper amount of medium penetration test cut back refinery asphalt or other asphaltic material.

Carter County-Field Sheet No. 264 - 1 sample

Location:—---NE1/4 Sec. 10, T58, R1E. Owner—

Quantity:—---This mine has a worked area of 34'x16'x7', and would justify further exploitation. The width of the ledge of asphalt is 16' but the depth could not be determined and the lateral extent to the north was questionable.

Accessibility—-It is easily accessible and could be mined with steam shovel, drills and dynamite. Well drained by Hickory Creek 100 yds. west of the deposit.

Laboratory test—

Sample No. 264-1
Bitumen 6.00%
Penetration test - low
Residues qtz., sand 35%
limestone 15%

Recommendations: Good material for: 1. Road topping,
ASPHALT

CARTER COUNTY - Field Sheet No. 125 - 1 Sample

Location:  N½ of NE¼ - Sec. 11, & SW¼ of NW¼ of Sec. 12, T 3 S - R 1 E. Sample was taken from Sec. 12. Abandoned. Was worked at four openings. Openings averaged about 100' in length, 50' in width, and 50 or 60' in depth.

Quantity:  A sandstone ledge is standing vertically and the asphalt extends for 1/2 mile continuously along the outcrop. The sandstone outcrop is from 60 to 100' wide and is impregnated with asphalt throughout the outcrop. There is easily 200,000 cu yds. of material available.

Accessibility:  Private road is adjacent to the deposit; it is 1/2 mile from a county highway.

Laboratory test:
Sample No. 125-1
Bitumen:  10.7%
Penetration test:  Medium
Mineral residue:  Essentially quartz sand.
Minerals identified:  Oil, Asphalt, Quartz.

Recommendations:  Excellent material, as is, for road topping purposes. Might be blended with a small amount of asphalt with low penetration test.

CARTER COUNTY - Field Sheet No. 7 - 1 Sample

Location:  NE¼ of NE¼ - Sec. 23, T 5 S - R 1 E.

Quantity:  The deposit outcrops along creek 200 yds south of creek bridge. Also small deposit west of creek deposit in ravine or wash 40 yds. joining creek stream. Length of creek deposit is 25' and the width is 4½'. Ravine deposit is 5' in length and 2½' in width.

Accessibility:  Dirt road is located 200 yds west of creek bank deposit. Overburden in creek bank deposit is 12'. Ravine deposit overburden is 9' of soil. These deposits are surrounded with timber and brush.

Laboratory test:  Bitumen:  3.24%
Penetration test:  Medium
Mineral residue:  Essentially quartz sand.
Minerals identified:  Small amount of oil, Asphalt, Quartz.

Recommendations:  Fair material for road topping purposes.
Location: NW 1/4 of SW 1/4 - Sec. 19, T 3 S - R 1 E. Has been worked, to a depth of 15 feet.

Quantity: It is about 200 by 30 feet, 1,000 cu yds available at present. Thickness of stratum 15'.

Accessibility: Private road extends 1/2 mile from the county road to the outcrop. This deposit is recommended for production at present time.

Laboratory test:

Bitumen: 5.16%
Penetration test: Very low
Mineral residue: Essentially quartz sand.
Minerals identified: Asphalt, Quartz.

Recommendations: Excellent material for road topping purposes, but must be added to an asphalt of same penetration test.

Location: NW 1/4 of Sec. 11, T 2 S - R 2 W. In Circular No. 19.

Two openings have been worked. One is about 30 x 20 x 10', in NW part of deposit. Another 20 x 10 x 5', in NE part of deposit.

Quantity: There is probably 2000 cu yds of asphaltic sandstone available at present. Thickness of stratum is 3 to 10'.

Accessibility: asphalt occurs in about 300' along the east side of a sandstone ledge and 150' on the north side. A private road is 200 yds from the deposit connects with a gravelled county highway.

Laboratory test:

Bitumen: 6.55%
Penetration test: Medium
Mineral residue: Essentially quartz sand.
Minerals identified: Oil, asphalt, quartz.

Recommendations: Excellent material for road topping purposes if blended with sufficient amount of high penetration test asphalt. Fair material for floor sweep base.
ASPHALT

CARTER COUNTY - Field Sheet No. 129 - Sample 1

Location: SW ¼ of NW ¼ of SW ¼ - Sec. 9, T 1 S - R 2 W.
The asphalt is in a stream conglomerate in the old Homer oil field.

Quantity: There is not over 10 tons in sight, occurring irregularly in a stratum 1 to 2 feet thick along the stream at different intervals.

Accessibility: Average overburden of 3 to 5 feet. Easily accessible and seems to be of excellent quality. Would be necessary to do extensive stripping to obtain a quantity of material. Graded road runs 1/4 mile to the west; state highway 3/4 mile to the north.

Laboratory test:
Sample No. 129-1
Bitumen: 5.82%
Penetration test: Low
Residue: Mostly quartz sand, some limestone
Minerals identified: Asphalt, Quartz, Calcite.

Recommendations:
Excellent material for: (1) Road topping.

---

CARTER COUNTY - Field Sheet No. 128 - 1 Sample

Location: SW ¼ of NW ¼ of NE ¼ - Sec. 34, T 1 S - R 2 W.

Quantity: Deposit is 90 by 30 feet on surface and has a thickness of about 4 feet exposed. There is probably 350 cu. yds. available.

Accessibility: About 1/4 mile north of Poolville and within 1/8 mile of a graded road. Did not appear to warrant extensive prospecting, and is not recommended for commercial use.

Laboratory test:
Sample No. 128-1
Bitumen: -2.66%
Penetration test: High
Residue: Mostly quartz sand,
Minerals identified: Asphalt, Quartz, Dik.

Recommendations:
Excellent material for: 1. Road topping, but must be mixed with sufficient quantity of low penetration test asphalt.
CARTER COUNTY - Field Sheet No. 279 - 1 Sample

Location: SE1/4 of SW1/4 - Sec. 35, T 5 S - R 1 E.
East of the Hickory Creek bridge 200 yds. Sec 26 - S 1/2, 1 E.

Quantity: Outercrop length 10', width 7'.

Accessibility: Overburden of 6 ft. of clay, soil, and stone.
Deposit is located in a ravine in a hill.

Laboratory tests: Less than 1 percent.

Recommendations: Too low for any commercial value at this time.

CARTER COUNTY - Field Sheet No. 130 - 1

Location: SE1/4 of SW1/4 of NE1/4 - Sec. 16, T 5 S - R 1 E.
Possibly 1500 cu yds of material have been removed.

Quantity: There is probably as much as 2000 cu. yds. of available asphalt at the deposit.

Accessibility: Occurs in sandstone ledge capping a small hill. About 4 feet overburden of sandstone. It would be necessary to improve about 3/4 mile of road to reach the location.

Laboratory test:

Recommendations:
ASPHALT

CARTER COUNTY - Field Sheet No. 293

Location: SW\(\frac{1}{4}\) SW\(\frac{1}{4}\) Section 5, and NW\(\frac{1}{4}\) NW\(\frac{1}{4}\) Section 6, T 4 S - R 2 W.

Quantity: The deposit is about 100 x 50 x 4 feet north of the road and 100 x 20 x 4 feet south of the road. There is probably 200 cu. yds. material available.

Accessibility: There is from 2 to 3 feet overburden of clay. A county road cuts the deposit.

Laboratory test:
Sample No. 293-1
Bitumen: 5.48%
Penetration test: High
Mineral residue: Essentially quartz sand.
Minerals identified: Oil, Asphalt, Quartz.
Recommendations: Fair material for: 1. Road topping purposes if mixed with higher penetration test asphalt. 2. Floor sweep base.

CARTER COUNTY - Field Sheet No. 294

Location: NE\(\frac{1}{4}\) of SE\(\frac{1}{4}\), Sec. 19, and NW\(\frac{1}{4}\) of SW\(\frac{1}{4}\), Sec. 20, T4S-R2E.

Quantity: There is probably 150 cu. yds. material available.

Accessibility: The deposit is exposed about 90 feet along the road, and strikes northwest about 80°. The ledge is about 2 feet thick with 2 to 3 feet of overburden.

Laboratory test:
Sample No. 294-1
Bitumen: Negative.
Recommendations: Bitumen content too low for any practical purpose.

CARTER COUNTY - Field Sheet No. 295

Location: SW\(\frac{1}{4}\) SW\(\frac{1}{4}\) Sec. 20, T 4 S - R 2 W.

Quantity: This deposit is coarse sand with fine gravel with a 2 foot stratum of asphalt at the base. There is about 50 cu. yds. of asphalt in sight.

Accessibility: The asphalt has 6 feet gravel overburden. A gravel road is immediately adjacent.

Laboratory test:
Sample No. 295-2
Bitumen: Negative
Recommendations: Bitumen content too low for any commercial purpose.
## Coal County Asphalt

<table>
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<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>Penetration Test</th>
<th>Residue</th>
<th>Minerals Identified</th>
<th>Used For</th>
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<tbody>
<tr>
<td>Through Sections</td>
<td>300,000 cu.yds.</td>
<td>9</td>
<td>0.24%</td>
<td>Very low sand</td>
<td>Quartz</td>
<td>Asphalt</td>
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</table>
ASPHALT

COAL COUNTY - Field Sheet No. 9

Location: An outcrop of asphal tic sandstone was located in an erosion along the roadside on the west side of Section 29, 1100' south of NW corner of the section. Another outcrop was also located on the north side of section 30 a distance of 1800' west of the northeast corner of the section. The two separate outcrops were checked and traced in Sections 29, 30, 19, 20, 17, 16, 15 and 14 and found to be continuous in these sections.

Quantity: Estimated 300,000 cu. yds.

Accessibility: Depth of overburden 18".

Laboratory test:

Sample No. 9-1

Bitumen: 0.24
Penetration test: Very low
Mineral residue: Quartz sand,
Minerals identified: Quartz, Asphalt.

Recommendations: This material is too low in Bitumen content for any industrial purpose at this time.
ASPHALT

COMANCHE COUNTY - Field Sheet No. 17 - 1 Sample

Location: Center 20 acres of the NE\(^2\) of NW\(^2\) of Section 26, T 4 N - R 11 W, and a strip along the south line of the NW\(^\frac{1}{2}\) of Section 26, all in T 4 N - R 11 W. Asphalt mine owned by         

Quantity: Area of asphalt: 690 ft. wide and 1250 ft. long. 
Thickness of stratum:

Accessibility: Located on creek bank. Brick clay was found 300 ft. south of asphalt mine.

Laboratory test: 
Sample No. 17-9
Asphalt: 3.27%
Pen. test: Low
Physical Characteristics: Asphalitic sandstone-91%
Limestone 9%
Minerals identified: Asphalt, Oil, Quartz, Calcite.

Recommendations: Excellent material for roads, if properly and sufficiently blended.

COMANCHE COUNTY - Field Sheet No. 40 - 11 Samples

Location: SE\(^\frac{1}{4}\) NW\(^\frac{1}{4}\) Sec. 16, T 2 N - R 11 W. Owned by U.S.Fed. Government.

Quantity: About 15 acres, possibly only 10 acres good.

Accessibility: Near roads that need surfacing, in a Federal Government Reservation. Overburden about 2 ft.

Laboratory test: 
Sample No. 40-1
Bitumen: 12.21%
Penetration test: High
Residue: 70% limestone 30% quartz sand
Minerals identified: Calcite, Quartz, Oil, Asphalt.

Recommendations: This material is good for:
(1) Floor sweep base
(2) Road topping

Sample No. 40-2
Bitumen: 13.13%
Penetration test: High
Residue: Limestone: 67%
High Iron
Manganese: about 1%
Minerals Identified: Oil, Asphalt, Calcite, Hematite, and Pyrolusite.

Recommendations: This material excellent for (1) Floor sweep base & (2) Road topping.
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<td>80% &quot; &quot;</td>
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<td>90% &quot; &quot;</td>
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<td>95% &quot; &quot;</td>
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<td>NW 1/4 of SE 1/4 &amp; NE 1/4 of SW 1/4 Sec. 9 T3N-R11W</td>
<td>24' lo. 16' wi.</td>
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</tbody>
</table>
ASPHALT

COMANCHE COUNTY - Field Sheet No. 40 (continued)

Laboratory test:
Sample No. 40-3

Bitumen: 2.50%
Penetration test: Very low.
Residue: Quartz sand: 98%
Limestone: 2%

Minerals identified: Quartz, Calcite, Asphalt.

Recommendations: The Bitumen content of this material is almost too low to be of commercial value.

Sample No. 40-4

Bitumen: 14.60%
Penetration test: Low
Residue: Quartz sand: 95%
Limestone: 5%

Minerals identified: Quartz, Calcite, Asphalt, Oil.

Recommendations: Excellent material for: (1) Road topping.
(2) Extraction for asphalt paints.

Sample No. 40-5

Bitumen: 44.10%
Penetration test: Very low
Residue: Essentially quartz sand.

Minerals identified: Quartz, Asphalt.

Recommendations: Most excellent material for:
(1) Road topping.
(2) Extraction for asphalt paints
(3) Roofing material. This should make good roofing material as is, and should form most excellent raw material for industrial extraction by continuous acting centrifuges.

Sample No. 40-6

Bitumen: 8.75%
Penetration test: Low
Residue: Essentially quartz sand.

Minerals identified: Quartz, Asphalt.

Recommendations: Excellent material for: (1) Road topping.

Sample No. 40-7

Bitumen: 6.94%
Penetration test: Very low
Residue: High in limestone
Low in quartz sand

Minerals identified: Asphalt, Quartz, Calcite.

Recommendations: This material is good for: (1) Road topping.

Sample No. 40-8

Bitumen: 2.2%
Penetration test: Very low
Residue: High in limestone
Low in quartz sand

Minerals identified: Asphalt, Quartz, Calcite.

Recommendations: Excellent for: (1) Road topping.
ASPHALT

COMANCHE COUNTY - Field Sheet No. 40 (continued)

Laboratory test:
Sample No. 40-9

Bitumen: 16.13%
Penetration test: Low
Residue: High in limestone
Low in quartz sand.

Minerals identified: Asphalt, Calcite, Quartz

Recommendations: Excellent material for: (1) Road topping.

Sample No. 40-10

Bitumen: 12.9%
Penetration test: Low
Residue: High in limestone
Low in quartz sand

Minerals identified: Asphalt, Calcite, Quartz.

Recommendations: Excellent material for: (1) Road topping.

Sample 40-11

Bitumen: 42.20%
Penetration test: Very low
Residue: Essentially quartz sand

Minerals identified: Asphalt, Quartz.

Recommendations: Most excellent material for: (1) Road topping
(2) Extraction to be manufactured into roofing materials and paints.
(3) Good roofing material as is.

(Sample No. 40-12 will be found on page (g-2).)

COMANCHE COUNTY--Field Sheet No. 96.--14 Sampled

Location: NE² of SW¹/² Sec. 9, T 3 N - R 11 W

Quantity:

Accessibility:

Laboratory test:
Sample No. 96-1

Bitumen: 30.65%
Penetration test: Low
Residue: Limestone 75%
Quartz sand: 25%

Minerals identified: Excellent material for:
(1) Road topping
(2) Extracted material, excellent roofing material, and asphalt paints.

Sample No. 96-11A (re-run given later) April 8, 1936

Bitumen: 42.95%
Penetration test: Very low
Residue: Quartz sand 98%
Limestone: 2%

Minerals identified: Asphalt, Quartz, Limestone

Recommendations: Excellent material for: Road topping &
Extracted material, excellent roofing material or for asphalt paints.
ASPHALT

COMANCHE COUNTY - Field Sheet No. 96 (continued)

Laboratory test:

Sample No. 96-3
Bitumen: 26.8
Penetration test: Very low
Residue: Essentially quartz sand
Minerals Identified: Asphalt; Quartz

Recommendations: Excellent material for: (1) Road topping, (2) Extraction for the preparation of asphalt paints and for roofing material.

Sample No. 96-4
Bitumen: 21.3
Penetration test: Very low
Residue: Essentially quartz sand
Minerals Identified: Asphalt; Quartz

Recommendations: Excellent material for: (1) Road topping, (2) Extraction for the preparation of asphalt paints and for roofing material.

Sample No. 96-5A
Bitumen: 13.5
Penetration test: Very low
Residue: Quartz sand - 95%
Limestone - 5%
Minerals identified: Asphalt; Silica; Limestone.

Recommendations: Excellent material for road topping, as is.

Sample No. 96-6
Bitumen: 32.4
Penetration test: Very low
Residue: Essentially quartz sand
Minerals Identified: Oil; Asphalt; Quartz.

Recommendations: Excellent material for: (1) Road topping, (2) Extraction for the preparation of asphalt paints and for roofing material.

Sample No. 96-7
Bitumen: 21.3
Penetration test: High
Residue: Essentially quartz sand
Minerals Identified: Oil; Asphalt; Quartz

Recommendations: Good material for: (1) Road topping, Excellent material for: (1) Base for preparation for floor sweep, (2) Extraction for manufacture of asphalt paints and for roofing material.

Sample No. 96-8
Bitumen: 13.4
Penetration test: High
Residue: Quartz sand - 98%
Limestone - 2%
Minerals Identified: Oil; Asphalt; Quartz; Limestone.

Recommendations: Rather soft for road topping purposes but excellent if mixed with a high penetration test asphalt. Excellent for: 1. Base as floor sweep compound.
ASPHALT

COMANCHE COUNTY - Field Sheet No. 96 (continued)

Laboratory test:

Sample No. 96-9
Bitumen: 13.4
Penetration test: High
Residue: Quartz sand - 98%
       Limestone --- 2%
Minerals Identified: Oil; Asphalt; Quartz
Recommendations: Rather soft for road topping purposes, but excellent if mixed with a high penetration test asphalt. Excellent material for:
(1) Floor sweep compound as is.

Sample No. 96-10
Bitumen: 14.8
Penetration test: Very low
Residue: Essentially quartz sand
Minerals Identified: Asphalt; Silica
Recommendations: Excellent material for road topping.

Sample No. 96-12
Bitumen: 25.5
Penetration test: Medium
Residue: Silica --- 60%
       Limestone- 40%
Minerals Identified: Asphalt; Quartz; Li-mestone
Recommendation: Excellent material for: (1) Road topping purposes although it should be mixed with a small amount of high penetration test asphalt. (2) Extraction for the manufacture of asphalt paints or roofing material. (3) Floor sweep as is.

Sample No. 96-11A (re-run) May 2, 1936
Bitumen: 9.97%
Penetration test: High
Mineral residue: Essentially quartz sand
Minerals Identified: Oil, Asphalt, Quartz
Recommendation: Excellent material for: 1. Base for compounding floor sweep. Fair material for:
2. Road topping if blended with high penetration asphalt.

Sample No. 96-11A (re-run) May 1, 1936
Bitumen: 5.83
Penetration test: High
Mineral residue: 92% qtz. sand, 8% limestone.
Minerals Identified: Oil, Asphalt, Quartz, Limestone

Sample No. 96-11A (re-run) April 17, 1936
Bitumen: 11.0%
Penetration test: Medium
Residue: Essentially quartz sand
Minerals Identified: Asphalt, Silica
Recommendation: Excellent material for use as road topping, as is.
ASPHALT

COMANCHE COUNTY - Field Sheet No. 96 (continued)

Laboratory test:
Sample No. 96-13

Bitumen: 24.13%
Penetration test: Medium
Residue: Essentially quartz sand
Minerals identified: Asphalt, Quartz

Recommendations: Excellent material for: (1) Road topping
(2) Extraction for production of asphalt paints, and for roofing material.

Sample 96-14

Bitumen: 24.1
Penetration test: Medium
Residue: Quartz sand
Minerals identified: Quartz, Asphalt.

Recommendations: Excellent material for: (1) Road topping
(2) Extraction for production of asphalt paints or roofing material.

(Samples No. 96-11A, 96-11A, 96-11B, will be found on page (g-2).)

COMANCHE COUNTY - Field Sheet No. 199 - 4 Samples

Location: SE 1/4 Sec. 32, T 4 N - R 11 W. Owner:

QUANTITY: 7260 Cu. yds.
Thickness of Stratum: 2' to 4'

Accessibility: No overburden.

Laboratory test:
Sample No. 199-1

Bitumen: 5.40%
Penetration test: High
Residue: Mostly quartz sand, some limestone.
Minerals identified: Oil, Asphalt, Quartz, Limestone.

Recommendations: Fair material for:
(1) Road topping.
Excellent material for:
(2) Base for preparations of floor sweep compounds.

Sample No. 199-2

Bitumen: 4.92%
Penetration tests Medium
Residue: Mostly quartz sand; small amount of limestone.
Minerals identified: Asphalt, Quartz, Limestone.

Recommendations: Good material for: (1) Road topping.
COMANCHE COUNTY - Field Sheet No. 199-3

Laboratory test:
Sample No. 199-3
  Bitumen: 9.11%
  Penetration test: Medium
  Mineral residue: Essentially quartz sand
  Minerals identified: Small amount of oil, Quartz sand.

Recommendations: Excellent material as is for:
  (1) Road topping purposes. May require the addition of small amount of low penetration test asphalt.
  (2) Base for compounding floor sweep.

Sample No. 199-4
  Bitumen: 2.65%
  Penetration test: Medium
  Mineral residue: 98% quartz sand
  2% limestone
  Minerals identified: Oil, Asphalt, Quartz, Calcite

Recommendations: Fair material for:
  (1) Road topping.
  (2) Base for compounding floor sweep.

COMANCHE COUNTY - Field Sheet No. 40 (continued)

Laboratory test:
Sample No. 40-12 ---- Bitumen: practically none.

Recommendations: Bitumen content in this sample is too low for any commercial purposes at this time.

COMANCHE COUNTY - Field Sheet No. 96 (continued)

Laboratory test:
Sample No. 96-11A (re-run, May 1, 1936)
  Bitumen: 5.83%
  Penetration test: High
  Mineral residue: 92% qtz. sand, 8% Limestone

Recommendations: Fair material for:
  (1) Road topping purposes.
  Good material for:
  (2) Floor sweep base.
  Minerals identified: Oil, Asphalt, Quartz, Limestone.

Sample No. 96-11A (re-run, May 9, 1936)
  Bitumen: 5.83%
  Penetration test: High
  Mineral residue: 92% qtz. sand, 8% limestone
  Minerals identified: Oil, Asphalt, Quartz, Calcite.

Recommendations: Fair material for:
  1. Road topping purposes, if mixed with asphalt of higher penetration test.
  2. Fair material for floor sweep base as is.

Sample No. 96-11B
  Bitumen: 10.27%
  Penetration test: Very low
  Mineral residue: Essentially quartz sand.
  Minerals identified: Asphalt and Quartz.

Recommendations: Very excellent material as is for:
  Road topping.
COMANCHE COUNTY - Field Sheet No. 96 (continued)

Laboratory test:

Sample No. 96-3
Bitumen: 26.8%
Penetration test: Very low.
Mineral residue: Essentially quartz sand.
Minerals identified: Asphalt and Quartz.

Recommendations:
Excellent material for:
1. Road topping.
2. Extraction for the preparation of asphalt paints and for roofing material.
ASPHALT

COMANCHE COUNTY - Field Sheet No. 207 - 1 Sample

Location: Southeast Corner of Sec. 27, T 4 N - R 11 W
Owner: 

Quantity: Surface outcropping of asphalt, however, of no commercial value, as to quantity.

Laboratory test:
Sample 207-1
Bitumen: 4.27%
Penetration test: Medium
Residue: Essentially quartz sand.
Minerals identified: Small amount of oil
Large amount of asphalt
Quartz sand.

Recommendations: Excellent material for road topping purpose, but must be mixed with sufficient amount of low penetration test asphalt.

COMANCHE COUNTY - Field Sheet No. 244 - 1 Sample

Location: SW¼ SW¼ Sec. 15, T 4 N - R 11 W. Owner:

Quantity: Asphalt Sample 243-1 was taken from the creek bed surface. Asphalt deposit is 50' in length and 20' in width. It has an overburden of about 10' with the asphalt running about 10 degree angle into bank of Tony Creek. Unlimitted.

Accessibility: Accessible to good roads and U.S. Highway No. 62.

Laboratory test:
Sample No. 244-1 (May 1, 1936)
Bitumen: 1.96%
Penetration test: High
Mineral residue: Quartz sand
Minerals identified: Oil, Asphalt, Quartz.

Recommendations:
Low grade material that might be used for:
1. Road topping purposes.
2. Floor sweep base.

Sample No. 244-1 (May 9, 1936)

Bitumen: 1.96%
Penetration test: High
Mineral residue: Essentially quartz sand.

Recommendations: This sand contains too small amount of Bitumen content to be of practical use at this time.
ASPHALT

COMANCHE COUNTY - Field Sheet No. 293 - 2 Samples

Location: NW 1/4 NE 1/4 Sec. 34, T 2 N - R 12 W. Owner:
This deposit has been mined.

Quantity: Thickness of stratum varied 5' to 8',
10,793 cu. yds.

Accessibility: Good

Laboratory test:
Sample No. 293-1
Bitumen: 5.39%
Penetration test: Medium
Mineral residue: Essentially quartz sand
Minerals identified: Oil Asphalt, Quartz

Recommendations: Very good material for: Road topping.

Sample No. 293-2
Bitumen: Practically none

Recommendations: Bitumen content entirely too low for any commercial purposes.

COMANCHE COUNTY - Field Sheet No. 294 - 3 Samples

Location: SW 1/4 NE 1/4 Sec. 24, T 2 N - R 11 W. Owner:
This deposit has been mined.

Quantity: 1808 cu. yds.
Thickness of stratum 3' to 4'

Accessibility: Good

Laboratory test:

(*Samples 294-2 & 294-3 on following page.)

COMANCHE COUNTY - Field Sheet No. 295 - 3 Samples.

Location: SW 1/4 NE 1/4 Sec. 21, T 2 N - R 11 W. Owner:

Quantity: Unlimited. Thickness of stratum 2' to 4'
Accessibility: Overburden 10'. Roads, fair.

Laboratory test:

*See next page for rest of samples.
COMANCHE COUNTY - Field Sheet No. 294 (continued)

Laboratory test:

Sample No. 294-2
Bitumen: 8.25
Penetration test: High
Mineral residue: 90% quartz sand
10% limestone
Minerals identified: Asphalt, Quartz, Limestone

Recommendations: Good material for:
1. Road topping.
2. Base for floor sweep compound.

Sample No. 294-3
Bitumen: 5.5%
Penetration test: High
Mineral residue: Quartz sand
Minerals identified: Oil, Quartz sand, Asphalt.

Recommendations: Fair material for:
1. Road topping.
2. Base for floor sweep compound.

COMANCHE COUNTY - Field Sheet No. 295 (continued)

Laboratory test:

Sample No. 295-1
Bitumen: 7.0%
Penetration test: High
Mineral residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz

Recommendations: Fair material for road topping purposes, but must be blended with asphalt of low penetration test.

Sample No. 295-2 will be found on page (p-3)

Sample No. 295-3
Bitumen: 3.9%
Penetration test: High
Mineral residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz

Recommendations: Fair material for road topping purposes, but must be blended with asphalt of low penetration test.

COMANCHE COUNTY - Field Sheet No. 293 (continued)
Sample No. 293-1 (re-run)
Bitumen: 5.0%
Penetration test: Medium
Mineral residue: Quartz sand
Minerals identified: Oil, Asphalt, Quartz.

Recommendations: Good material for road topping purposes if blended with asphalt of low penetration test.
COMANCHE COUNTY - Field Sheet No. 295 (continued)

Laboratory test:

Sample No. 295-2
Bitumen: 2.27%
Penetration test: High
Mineral residue: Quartz sand.
Minerals identified: Asphalt, Oil, Quartz.
Recommendations:
Low grade material for:
  1. Road topping purposes.
Fair material for:
  2. Floor sweep base.

COMANCHE COUNTY - Field Sheet No. 511

Location: NW SW SW NW\(^1\) of Sec. 32, T 2 N - R 10 W.

Quantity: Well was full of oil making it impossible to
test the depth of the well.

Accessibility: Shovels and Steam shovels are the mining
methods recommended. No other data given.

Laboratory test:

Sample No. 511-1
Bitumen:
Penetration test:
Mineral residue:
Minerals identified:
Recommendations:
COMMANCHE COUNTY

COMMANCHE COUNTY - Field Sheet No. 376

Location: N $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 21, T4N, R11W.

Quantity: Sample #376-1 taken at a depth of 10'. A well had been dug in this location 26 years ago, going down 1000'; but only finding a dry hole. Gas bubbles are coming up through the oil continually. Asphalt located in sec. 15, 27 and 26 in the same township. All within a distance of about one mile from where this sample came from. No paraffin base at all.

Laboratory test:
Sample No. 376-1
Substance: Asphalnic oil.
Residue: 8.3% by weight
Penetration test: none.
Remarks: Low grade asphalnic oil. Good material for feed stock in cracking unit. Residue carbon, non-asphaltic. Cut some 60 to 90% for fair stock for preparation of asphalt base lubricating oil.

COMMANCHE COUNTY - Field Sheet No. 344-A

Location: NW $\frac{1}{4}$, Sec. 1, T1 S - R13 W.

Quantity: 3 acres. Believed not to be in sufficient amount to be of commercial value.

Accessibility: Depth of overburden: 2'
Thickness of stratum: 18'

Laboratory test:
Sample No. 344 A - 1.
OLYAHOMA GEOLOGICAL SURVY

Norman, Oklahoma

Sheet No. 96

Observer: M. A. Mansur Date: Feb. 21, 1936

Investigation: State Mineral Survey Branch: Road & Construction Material

Details Here Recorded: Asphalt - 96-1 to 96-12 - Creek Bed Deposit.

Section 9, Township 3N, Range 11W, Comanche County

Notes: (X) indicates where asphalt sample no. 96-1 was taken.

Figures indicates other samples.

The first nine samples are grab samples that were taken from the surface of asphalt outcroppings in Sec. 9, T3N, R11W.
Sample #96-1. Sample 96-2 was taken 12' north of sample 96-1.
Sample 96-3 was taken 33' south and east of sample 96-1.
Sample 96-4 was taken 20' north and west of sample 96-1.
Sample 96-5A was taken 325 yds east of test 96-1.
Sample 96-8 was taken 325 yds east of test 96-1.
Sample 96-6 was taken 18' south of 96-5.
Sample #96-7 was taken 39' south and east of sample 96-5.
Sample 96-8 was taken 107 yds east and 24 yds south of 96-5.
Sample 96-9 was taken 45' east of sample 96-8.
24' south of sample 96-7 is another outcropping of asphalt, 24'x12'. Same material as sample 96-7. 30' on southwest another outcropping of asphalt 5' in diameter, same as sample 96-7.
Continuing on southwest for 18' find another outcropping of asphalt 4' in diameter.
Sample 96-8 shows an asphalt outcropping with an area of 24'x16'.
Sample 96-9 shows an asphalt outcropping with an area of 27'x21'.
Test & Sample 96-10A will show a 6' layer of asphalt at 5'.
Test & Sample 96-10B will show a 6' layer of asphalt at 7' and then strikes a blue shale for 6' and then a layer of asphalt for 6'x4'.
Test and sample 96-11 is located 20' north of test 96-10.
Test and Sample 96-12 will show a stratum of asphalt for 5'.
Test 96-12 is located 120' SW of sample 96-10, at a depth of 7', with no overburden.
Test & Sample 96-13 will show asphalt at 3' and continues for a depth of 3' and then strikes rock for 2½'. Depth of rock not determined. In each layer and crevice of this rock showed oil seepage.
Notes: The shaded area on map indicates tests that were made on the U.S. Military Reservation for Asphalt. Pencil dots indicate test holes.

Sample #37-1 was discovered at 2' and continued for 5' then strikes soil for 1' and hits asphalt and continued for 6' and

(over)
strikes asphalt oil for 1', which caused it impossible to complete the test.
Sample #37-2. Located 420' north and west of test 37-1 will show asphalt at 2' in layers 3' thick. Then strikes soil for 3'.
Sample 37-3. Located 190' north and east of test 37-1 will show asphalt in layers at 2', 2' thick for 4' apart and continues for 4'.
Samples 37-4. Located 100' east of test 37-1, will show asphalt in layers at 2', 2' thick for 4'.
Sample #37-5. Located 150' east of test 37-1 will show asphalt in layers at 2', 2' thick and continues for 5'.
Sample #37-6. Located 300' south and east of test 37-1, will show asphalt in layers at 2', 3' thick and continues for 4', at 8 to 10' apart.
Sample #37-7. Located 105' south of test #37-1 will show asphalt in layers at 2', 2 to 3 inches apart and continues for 3'.
Sample #37-8. Located 180' south of test 37-1 will show asphalt at 2' and continues for 4'. Then striking a blue shale for 1' and again striking asphalt and continuing for 6'.
Jan. 29, 1938

Mr. P. G. Woods,
Project Director,
Oklahoma Geological Survey,
Oklahoma, Oklahoma.

Dear Mr. Woods:

I went with the boys this morning to complete our asphalt test on the military reservation. A most profitable day was spent.

On test hole number 2 we went to a depth of eleven feet, going through three feet of soil then two feet of poor grade asphalt which ran into a five foot pure asphalt before we struck a blue shale. We continued for one foot through this blue shale striking no more asphalt.

On test hole number one we went to a depth of thirteen feet striking asphalt and soil in layers all the way down, with an overburden of about two feet striking the asphalt and continuing for three feet of rock asphalt and one foot of poor grade asphalt of the sandstone texture. Then we struck a very thin grade of pillow asphalt with sand content which continued in this pure asphalt for six feet; at the bottom of which we struck a pure liquid formation which flowed to the top of our small auger hole. This liquid content seems to be about one foot in thickness. We again struck a solid base which we believe to be asphaltic but due to the liquid flow of all it made it impossible for us to continue with the test because the liquid content was filling the entire pit making it impossible to determine or secure a sample from the bottom.

We brought Major Williams out to see the results and he was very enthusiastic and highly pleased. He requested that we keep the test hole open until Mr. Backstrom returned. Major Williams suggested that he would like to secure a well drill and try to go down through this formation and see how much further it goes.

Tomorrow, being Saturday, we are not officially working, however, several of my men and myself will be very busy completing our new office arrangement and making
charts and maps.

I spent Monday afternoon and part of Tuesday looking over some prospective formations in the foothills of the Wichita Mountains. All of the remaining time the boys and myself spent in cleaning up, painting and arranging our office quarters. I now have a telephone listed under the title of State Mineral Survey, Oklahoma Geological Survey. The number being 1468, in case you ever need to call me.

I enjoyed and received a great deal of benefit from Mr. Beekstrom’s visit Wednesday.

Although we regret losing Mr. Ingram we are all very highly pleased with our new district supervisor. I feel quite confident that he is the man for the place and will be of great assistance to this district. I feel that all the boys, as well as the county supervisors, will enjoy and feel it a pleasure to cooperate with him.

Thanking you for any suggestions. I remain,

Very sincerely yours,

M. A. Mansur,
Comanche County Supervisor,
STATEWIDE MINERAL SURVEY.

cc/R. C. Beekstrom
ASPHALT

CRAIG COUNTY - W. S. Derrick, County Supv., Vinita, Okla.

Location: NE NW NW, Section 16, T 24 N - R 19 E.

Quantity: 7 inches.

Accessibility: Overburden of 12' 5''.

Laboratory test:

Field sheet not found on such deposit - 11-23-39 - 90B.
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>FIELD SHEET</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garvin</td>
<td>36 T1N R3W</td>
<td>1400cu.yds</td>
<td></td>
<td></td>
<td>3.86 medium</td>
<td>25% Qtz</td>
<td>Asphalt Quartz</td>
<td>Road topping purposes</td>
</tr>
</tbody>
</table>
Garvin County Field Sheet No. 30-1 sample

Location.............SW SE NW, Sec. 36, T1N, R3W

Quantity.............1,400 cu. yds.

Accessibility........No overburden

Laboratory tests.

Sample No. 30-1

Bitumen 3.86
Penetration test medium
Residue. Quarta sand 96.0
Excellent material for road topping purposes
by the addition of the proper amount of
asphalt of a high penetration test.
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>FIELD</th>
<th>BITU-</th>
<th>PENETRA</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garvin</td>
<td>T1N R3W</td>
<td>1400cu. yds 30-1</td>
<td>3.86</td>
<td>medium</td>
<td>98.0 Qtz</td>
<td>Asphalt Sand Quartz</td>
<td>Road topping purposes</td>
<td></td>
</tr>
</tbody>
</table>
Garvin County Field Sheet No. 30-1 sample

Location..............SW SE NW, Sec. 36, T1N, R3W

Quantity................1,400 cu. yds.

Accessibility........No overburden

Laboratory tests.

Sample No. 30-1

Bitumen 3.36  
Penetration test medium  
Residue. Quarta sand 96.0  
Minerals identified. Asphalt, Quartz.  
Excellent material for road topping purposes by the addition of the proper amount of asphalt of a high penetration test.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE 1/4 Sec. 15, T4S-R4W</td>
<td>?</td>
<td>1-1</td>
<td>5.97</td>
<td>Low</td>
<td>98% Qtz. sand</td>
<td>Quartz sand Asphalt</td>
<td>1. Needs blending with about an even amount of cut back refinery asphalt or other asphaltic material &amp; perhaps other aggregate to make excellent road material.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>1-3</td>
<td>4.696% Medium</td>
<td>99% Qtz. sand</td>
<td>Asphalt</td>
<td>Ditto Ditto Quartz</td>
<td>1. Excellent for road topping if properly &amp; sufficiently blended with low pen. asphalt.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>1-4</td>
<td>9.62% Medium</td>
<td>Ditto</td>
<td>Ditto Ditto</td>
<td>Ditto Ditto</td>
<td>1. Excellent material for road topping if properly &amp; sufficiently mixed with a like amount of asphalt of the same grade.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>1-5</td>
<td>5.74% Low</td>
<td>98% Qtz. sand</td>
<td>Ditto Ditto</td>
<td>Ditto Ditto</td>
<td>1. Excellent for road topping if properly &amp; sufficiently blended with asphalt of low penetration</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>1-6</td>
<td>11.70% Medium</td>
<td>Ditto</td>
<td>Ditto Ditto</td>
<td>Ditto Ditto</td>
<td>1. The asphalt content in this sample is too low for commercial purpose.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>1-7</td>
<td>0.10%</td>
<td>Ditto</td>
<td>Asphalt Quartz sand</td>
<td>Ditto Ditto</td>
<td>1. Good for road topping if blended with high pen. asphalt. 2. Floor sweep base, as is.</td>
</tr>
<tr>
<td>?</td>
<td>1-reprun</td>
<td>11.6%</td>
<td>High</td>
<td>Quartz sand</td>
<td>Oil Asphalt Quartz</td>
<td>Ditto</td>
<td>1. Fair road topping material. 2. Excellent floor sweep base.</td>
</tr>
</tbody>
</table>

| Sec. 20 & 30 T5S-R4W | ? | 6-1 | | | | | |
| Sec. 25 & 24 T5S-R4W | ? | 13-1 | 9.93% | High | Quartz sand | Oil Asphalt Quartz | |
## JEFFERSON COUNTY ASPHALT

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE&lt;sup&gt;1/4&lt;/sup&gt; SE&lt;sup&gt;1/4&lt;/sup&gt; Sec. 25 T3S-R5W</td>
<td>...</td>
<td>13-2</td>
<td>4.22</td>
<td>Low</td>
<td>Quartz sand</td>
<td>Quartz asphalt</td>
<td>Good for road topping.</td>
</tr>
<tr>
<td>23 3S 5W</td>
<td>?</td>
<td>13-1</td>
<td>10.7%</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Oil asphalt</td>
<td>Good road topping material if mixed with a small amount of low pen. test asphalt.</td>
</tr>
<tr>
<td>NW&lt;sup&gt;1/4&lt;/sup&gt; SE&lt;sup&gt;1/4&lt;/sup&gt; Sec. 11 T4S-R4W</td>
<td>?</td>
<td>14-1</td>
<td>3.31</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Oil asphalt</td>
<td>Good road topping material if built up with additional asphalt of proper pen. test.</td>
</tr>
<tr>
<td>SW&lt;sup&gt;1/4&lt;/sup&gt; SW&lt;sup&gt;1/4&lt;/sup&gt; Sec. 11 T4S-R4W</td>
<td>?</td>
<td>14-2</td>
<td>1.20</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Oil asphalt</td>
<td>Bitumen content too low for industrial purposes at this time.</td>
</tr>
<tr>
<td>SE&lt;sup&gt;1/4&lt;/sup&gt; NE&lt;sup&gt;1/4&lt;/sup&gt; Sec. 34 T3S-R4W</td>
<td>?</td>
<td>15-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bitumen content entirely too low for any commercial value.</td>
</tr>
<tr>
<td>NE&lt;sup&gt;1/4&lt;/sup&gt; SW&lt;sup&gt;1/4&lt;/sup&gt; Sec. 25 T3S-R5W</td>
<td>large</td>
<td>4-1</td>
<td>0.05</td>
<td>Medium</td>
<td>Quartz sand</td>
<td></td>
<td>Ditto</td>
</tr>
<tr>
<td>Ditto</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Excellent material for road topping if blended with sufficient quantity of high pen. test asphalt. Base material for floor sweep.</td>
</tr>
<tr>
<td>SE&lt;sup&gt;1/4&lt;/sup&gt; NW&lt;sup&gt;1/4&lt;/sup&gt; Sec. 25 T3S-R5W</td>
<td>4-4</td>
<td>10.2%</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Oil</td>
<td></td>
<td>Ditto</td>
</tr>
<tr>
<td>Ditto</td>
<td>4-5</td>
<td>3.03%</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Asphalt</td>
<td></td>
<td>1. Road topping.</td>
</tr>
</tbody>
</table>

On next page...
<table>
<thead>
<tr>
<th>location</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE² SW²</td>
<td>large quantity</td>
<td>4-3</td>
<td>2.44</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Good road topping material if built up with additional asphalt of the proper penetration test.</td>
</tr>
<tr>
<td>Sec. 25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Quartz Oil Asphalt</td>
<td></td>
</tr>
<tr>
<td>T3S-R5W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Jefferson County - Field Sheet No. 1 - 6 Samples

Location: NE^1 Sec. 15, T4S, R4W, Owner:

Quantity: This asphalt does not outcrop anywhere in this vicinity. It is overlain with soil, and extends in a northwest-southeast direction over about 400'. The width is about 25'. Not a continuous deposit.

Accessibility: Deposit is 3 miles due north of the town of Ringling. The country road goes by this section on the east. On rainy days road is slippery and impassable. This section is 4 miles north of U.S. Highway 70, running east to Ardmore and West to Waurika. This highway is a gravel road, and during wet days it is in poor condition.

Laboratory test

Sample No. 1-1
Bitumen 5.97%
Penetration test - low
Residue - quartz sand 98%
Minerals identified: Quartz sand, Asphalt

Recommendations: This material needs to be blended with about an even amount of cut back refinery asphalt or other asphalitic material and, perhaps other aggregate, to make an excellent road material.

Sample No. 1-3
Asphalt 4.696%
Pen. test - medium
Physical Characteristics - Quartz sand 99%
Minerals identified: Asphalt, Oil, Quartz.

Recommendations: Excellent material for road topping if properly and sufficiently blended with low penetration asphalt.

Sample No. 1-4
Asphalt 9.62%
Pen. test - Medium
Physical characteristics - Quartz 99%
Minerals identified: Asphalt, Oil, Quartz.

Recommendations: Excellent material for road topping if properly and sufficiently blended with low penetration asphalt.

Sample No. 1-5
Asphalt 5.74%
Pen. test - low
Physical characteristics - Quartz sand 98%
Minerals identified: Asphalt, Oil, Quartz.

Recommendations: Excellent material for road topping if properly and sufficiently blended with a like amount of asphalt of the same grade.

Sample No. 1-6
Asphalt 11.70%
Pen. test - Medium
ASPHALT

JEFFERSON COUNTY - Field Sheet No. 1 (continued)

Laboratory test:

Sample No. 1-re-sample

Bitumen: 11.6%
Penetration test: High
Mineral residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz.

Recommendations: Good material for road topping purposes
if blended with high penetration test asphalt. Excellent base material, as is,
for floor sweep compounds.

JEFFERSON COUNTY - Field Sheet No. 13-1 (continued) From where?

Laboratory test:

Sample No. 13-1 (re-run)

Bitumen: 10.7%
Penetration test: Medium
Mineral residue: Essentially quartz sand
Minerals identified: Oil, Quartz, Asphalt.

Recommendations: Good road topping material if mixed with
a small amount of low penetration test asphalt.

JEFFERSON COUNTY - Field Sheet No. 1 (continued)

Laboratory test:

Sample No. 1-7
Bitumen: 0.10%
Penetration test: ?
Residue: 98.00% Quartz sand.
Minerals identified: Asphalt, Quartz sand
Recommendations: The asphalt content in this sample is too
low for any commercial purpose.
Physical characteristics - 98% quartz sand
Minerals identified - Asphalt, Oil, Quartz.
Recommendations: Excellent material for road topping
if properly and sufficiently blended
with asphalt of low penetration.

Sample No. 1-7
Bitumen 0.10
Penetration test -
Residue - 98% Quartz sand
Minerals identified - Asphalt, Quartz sand.
Recommendations: The asphalt content in this sample
is too low for any commercial purpose.

Jefferson County - Field Sheet No. 6 - No value Test in Circular No. 19.

Location: ------ Section 20 and 30 T3S, R4W

Jefferson County - Field Sheet No. 13 - 2 samples

Location: ------ Sections 23 and 24, T3S, R5W. Owner:

Sample No. 13-1 (See page 1-a for re-run of 13-1)

Location - NW¼SW¼ Sec. 24, T3S, R5W.

Quantity - The asphalt outcrops in an old creek bed, and
extends toward the sides of the creek and
there it is overlain by sandstone locally known
as Asphaltum. The subsurface extent could not
be determined.

Accessibility -

Laboratory test-
Sample No. 13-1
Bitumen 9.93%
Penetration test - High
Residue - Quartz sand
Minerals identified: Oil, Asphalt, Quartz
Recommendations: Fair material for: 1. Road topping,
Excellent material for: 1. Base for floor sweep.

Sample No. 13-2

Location - NE¼SE¼ Sec. 23, T3S, R5W.

Quantity - This asphalt or asphalt sand outcrops from
the side of a small hill. It is about 23' in extent, when it outcrops in sec. 23.
Outcrop is overlain by a sand stone, locally known as Asphaltum. The extent of deposit
was not determined because of inadequate equipment.

Accessibility -

Laboratory test-
Sample No. 13-2
Minerals identified: Quartz
Bitumen 4.22  Asphalt
Penetration test - Low Recommendations: Good
Residue - Essentially Quartz sand
Jefferson County - Field Sheet No. 14 - 2 samples—Too deep to be profitably developed. About 15' deep.)

Sample No. 14-1

Location———NW1/4 SE1/4 Sec. 11, T4S, R4W. Owner:

Quantity———Sample was obtained from test pit about 4'. The thickness of the asphalt deposit was not obtained. Only 1½ ft. of it was penetrated.

Accessibility—Road leading to Ringling, Oklahoma is well graded, but not in very good condition in rainy weather. Deposit is ½ mile from Co. H.W. that leads to Ringling, which is 3½ mi. from intersection.

Laboratory test—

Bitumen: 3.31
Penetration test: Medium
Mineral residue: Quartz sand
Minerals identified: Oil, Quartz, Asphalt.

Recommendations:

Good road topping material if built up with additional asphalt of the proper penetration test.

Sample No. 14-2

Location———SW1/4 SW1/4 Sec. 11, T4S, R4W. Owner:

Quantity———Sample No. 2 was obtained from a small outcrop. Asphalt was evident in a water, located in SWSWSE Sec. 11. A covering of this is reported on top of the water. Thickness of stratum is 10".

Accessibility—Deposit is about three miles from Ringling, located about 1/8 mi. off County Highway. Road to Ringling is in very good condition except in rainy weather.

Laboratory test—Bitumen: 1.20%
Penetration test: Medium
Mineral residue: Quartz sand
Minerals identified: Oil, Asphalt, Quartz.

Recommendations: Bitumen content too low for industrial purpose at this time.

Jefferson County- Field Sheet No. 15 - 1 sample In circular No.19

Location:———SE1/4 NE1/4 sec. 34, T3S, R4W. Owner:
Jefferson County (Continued)

Quantity:--This sample was obtained from an outcrop in the road. Test pit dug 100' from where it outcrops and similar sand asphalt was encountered. No other mineral substance was found within this section. Poor saturation. Depth of overburden 10' Thickness of stratum, 5'.

Accessibility---Deposit easily accessible as it is on Co. Highway about 5½ miles from Ringling, Oklahoma.

Laboratory test-
Sample No. 18-1
Bitumen: ?

Recommendations: Bitumen content entirely too low for any commercial value.

Jefferson County-Field Sheet No. 4 - 5 samples

Location:------Samples 1,2, & 3 in NE¼SW¼ sec. 25, T3S, R5W,
Samples 4, 5 are in SE¼NW¼ sec 25, T3S, R5W,
Owner:

Quantity:------Difficult to determine the extent of the deposit, as it is necessary to go down more than 10' to reach the asphalt. At point "A" the test hole was set down to 14 ft. The water level was above this depth. At "B" is a water well; the static head is about 18'; asphalt seems to rise to the top of well and seal up the top. The layer, however, is thin and can be easily broken. Thickness of stratum is as follows: Sample 1, 4'. Sample 2, 5'. Sample 3-4'. Thickness of Samples Nos. 3 and 4 not determined.

Accessibility---Overburden as follows: Sample 1 -2', Sample 2-3½', Sample 3-6', Sample 4-1½', Sample 5-1½'.
Road leads from Waurika, Oklahoma to old asphalt mine across Sec. 25, T3S, R5W. It is a dirt road with numerous small bridges, and is passable in fair weather.

Laboratory test-
Sample No. 4-1
Bitumen: 0.05
Penetration test: Medium
Residue: Quartz sand

Recommendations: Bitumen content entirely too low for any commercial purpose whatsoever.
Jefferson County — Field Sheet No. 4  Continued.

Sample No. 4-5
Bitumen——3.03
Penetration test—Medium
Residue—Practically all quartz
Minerals identified: Asphalt, Quartz sand

Recommendations: Fair material for: 1. Road topping.

Sample No. 4-2
Bitumen——18.5
Penetration test: High
Residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz

Recommendations: Excellent material for road topping if blended with sufficient quantity of high penetration asphalt. (2) Base material for preparation of floor sweep.

Sample No. 4-4
Bitumen——10.2
Penetration test: Medium
Residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz

Recommendations: Excellent material for: (1) Road topping purposes if blended with higher penetration test asphalt. (2) Base for floor sweep compound as is.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW\½ NW\½ Sec. 1 T4S-R4E</td>
<td>?</td>
<td>S-1</td>
<td>4.34</td>
<td>Low</td>
<td>70% CaCO₃ 21% Qtz. sand</td>
<td>Asphalt Quartz Calcite Oil</td>
</tr>
<tr>
<td>Sec. 6 T4S-R5E</td>
<td>Scattered</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>Sec. 19 T4S-R5E Southern</td>
<td>?</td>
<td>7</td>
<td></td>
<td></td>
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<tr>
<td>SW\½ NE\½ Sec. 1 T4S-R4E</td>
<td>?</td>
<td>4-1</td>
<td>11.89</td>
<td>Low</td>
<td>Clay 95% Quartz 5%</td>
<td>Asphalt Oil Quartz Calcite</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>4-2</td>
<td>7.92%</td>
<td>Medium</td>
<td>90% Clay L.S. 10% Qtz.</td>
<td>Asphalt Oil Quartz Calcite</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>4-3</td>
<td>8.38%</td>
<td>Low</td>
<td>Limestone</td>
<td>Asphaltic clay 70% Quartz sand 30% Clay minerals</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>4-4</td>
<td>8.02%</td>
<td>Medium</td>
<td>Limestone</td>
<td>Calcite Clay minerals</td>
</tr>
<tr>
<td>NW\½ SW\½ SW\½ Sec. 2 T4S-R4E</td>
<td></td>
<td>5-1</td>
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### JOHNSTON COUNTY ASPHALT

<table>
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<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
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<tbody>
<tr>
<td>Sec. 20 T4S-R6E</td>
<td>26-1</td>
<td>14-1</td>
<td>6.54</td>
<td>High</td>
<td>Asphaltic sand 98%</td>
<td>Asphalt</td>
<td>Good road topping when properly blended with asphalt.</td>
</tr>
<tr>
<td>Ditto</td>
<td>14-2</td>
<td>8.40%</td>
<td>Medium</td>
<td>Asphaltic sand 98% Qtz.</td>
<td>Asphalt</td>
<td>Ditto</td>
<td></td>
</tr>
<tr>
<td>Sec. 29 T4S-R6E</td>
<td>26-1</td>
<td>.58%</td>
<td>Low</td>
<td>Quartz sand 100%</td>
<td>Asphalt</td>
<td>Ditto</td>
<td></td>
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<tr>
<td>Ditto</td>
<td>26-2</td>
<td>4.91%</td>
<td>High</td>
<td>Quartz sand 100% Qtz. sand 99%</td>
<td>Ditto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>26-3</td>
<td>5.64</td>
<td>High</td>
<td>Quartz sand 100%</td>
<td>Ditto</td>
<td></td>
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<tr>
<td>Ditto</td>
<td>26-4</td>
<td>1.82</td>
<td>Medium</td>
<td>Quartz sand 100%</td>
<td>Ditto</td>
<td></td>
<td></td>
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<tr>
<td>Ditto</td>
<td>26-5</td>
<td>5.78</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Ditto</td>
<td></td>
<td></td>
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<tr>
<td>Ditto</td>
<td>26-6</td>
<td>3.400%</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Ditto</td>
<td></td>
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<tr>
<td>Ditto</td>
<td>26-7</td>
<td>0.680%</td>
<td>Low</td>
<td>Quartz sand</td>
<td>Ditto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>26-8</td>
<td>5.36%</td>
<td>Low</td>
<td>Quartz sand</td>
<td>Ditto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secs. 19, 20, 29, 30 T4S-R6E</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Excellent base for road topping material.</td>
<td>Details on Field Sheet 26.</td>
</tr>
<tr>
<td>LOCATION</td>
<td>AMOUNT</td>
<td>F.S.#</td>
<td>BITUMEN PENETRATION TEST</td>
<td>RESIDUE</td>
<td>MINERALS IDENTIFIED</td>
<td>USED FOR:</td>
<td></td>
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<tr>
<td>-----------</td>
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<td>--------------------------</td>
<td>---------</td>
<td>---------------------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| SW \(\frac{1}{4}\)  
Sec. 21 
T1S-R7E | ?      | 66-1 | 4.20% Very low          | 96% qtz. sand     | Quartz Asphalt             | High grade road topping, needs blending with proper amount of limestone aggregate & medium pen. test cut back refinery asphalt or other asphaltic material. |
| Ditto     | ?      | 66-2 | 4.20% Very low          | 95% qtz. sand     | Ditto                        | Ditto, Excellent road topping material but is somewhat low in Bitumens.  |
| Ditto     | ?      | 66-3 | 10.06% Very low         | 95% qtz. sand     | Ditto                        | Ditto                                                                   |
| Ditto     | ?      | 66-4 | 5.93% Very low          | 95% qtz. sand     | Ditto                        | Ditto                                                                   |
| NE \(\frac{1}{4}\)SE \(\frac{1}{4}\)SW \(\frac{1}{4}\)  
Sec. 27  
T1S-R7E  
Sec. 33  
T5S-R7E  
\(\frac{1}{4}\)  
| ?      | 67-1 | 0.73% High              | Quartz sand       | Ditto                        | Too low in Bitumen content for commercial purposes.                      |
| Ditto     | ?      | 67-2 | 0.75% High              | Quartz sand       | Ditto                        | Ditto                                                                   |
| NE \(\frac{1}{2}\) NE \(\frac{1}{2}\)  
Sec. 4  
T5S-R7E  
Ditto Ditto | 60,000 cu. yds. 92-1 | Ditto Ditto 92-2 | Ditto Ditto 92-3 | Ditto Ditto 93-1 | Ditto Ditto 93-2 |
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITU-</th>
<th>PENETRATION</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 1/2</td>
<td>165,000 cu. yds.</td>
<td>93-3</td>
<td>2.6%</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Asphalt Quartz</td>
<td>Fair material for: Road material.</td>
</tr>
<tr>
<td>Sec. 24</td>
<td>T38-R5E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW 1/2 of SE 1/4</td>
<td>100,000 cu. yds.</td>
<td>89-1</td>
<td>2.6%</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Oil</td>
<td>1. Road topping.</td>
</tr>
<tr>
<td>Sec. 27</td>
<td>T4S-R6E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Asphalt Quartz</td>
<td>2. Base for floor sweep.</td>
</tr>
<tr>
<td>Ditto Ditto 89-2</td>
<td>9.28% Very high</td>
<td>Quartz sand</td>
<td>Oil</td>
<td>1. Road topping, but must be mixed with asphalt of high pen. test.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 89-3</td>
<td>8.82% High</td>
<td>Quartz sand</td>
<td>Oil</td>
<td>1. Road topping, but must be mixed with asphalt of high pen. test.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 94-1</td>
<td>2.94% High</td>
<td>90% Qtz. sand</td>
<td>Oil</td>
<td>Rather low in Bitumen, but will make good road topping if mixed with sufficient quantity of high pen. test asphalt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E 1/2 of NE 1/4</td>
<td>10,000 cu. yds.</td>
<td>94-1</td>
<td>2.94% High</td>
<td>90% Qtz. sand</td>
<td>Oil</td>
<td>Rather low in Bitumen, but will make good road topping if mixed with sufficient quantity of high pen. test asphalt.</td>
<td></td>
</tr>
<tr>
<td>Sec. 14</td>
<td>T4S-R5E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 94-2</td>
<td>3.55% High</td>
<td>96% Qtz. sand</td>
<td>Oil</td>
<td>Good material for road topping but must be mixed with the proper amount of low pen. test asphalt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 94-3</td>
<td>8.82% High</td>
<td>90% Qtz. sand</td>
<td>Oil</td>
<td>Good material for road topping but must be mixed with the proper amount of low pen. test asphalt.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Johnston County-Field Sheet No. 1 - 1 sample

Location--------SW1/4 NW1/4 Sec. 1, T4S, R4E. Owner:

Quantity--------Asphalt Deposits found in an old mine on the east slope of a limestone ridge, drainage toward Mill Creek.

Accessibility--

Laboratory test-

Sample No. 1-1
Bitumen 4.34%
Penetration test - low
Physical characteristics - Residue 79% CaCO₃
Quartz sand 21%

Minerals identified: Asphalt, Quartz, Calcite, Oil.
Recommendations: Excellent road material when properly and sufficiently blended.

Johnston County-Field Sheet No. 3 - No samples- Negative Also Field Sheet 3!

Location:--------Scattered over Sec. 6, T4S, R5E.
Old mine of rock asphalt and refers to F.S. No. 1 and No. 4.

Quantity--------Investigation made but no samples taken. With the exception of the extreme SW corner of sec. the area is underlain with bocck carbonaceous shales with thin ferrigenous layers, interbedded with the shales. In the Sw Corner you find a white calcareous Limestone.

Johnston County-Field Sheet No. 7 - 5 samples Owner:

Location:--------Southern Part of Sec. 19, T4S, R5E. Negative

Quantity:--------Deposit is quite extensive- Outcropping occurs in Ravines. Has thickness of 50-300'.This sand outcrops under this escarpment of Goodland limestone, around to where the Silica plant is located, Sec. 23, in T4S, R5E, near the old town of Randolph, then west for quite a distance. De

Accessibility----This deposit is not more than 3/4 miles to a good road. Four miles to Tishomingo, Oklahoma. Not more than 1 1/2 miles north to C.R.I.P. R.R. The valley and ravines is covered with a heavy growth of timber.

Laboratory test- Tested for Asphalt and found to be a good grade of Glass sand.

Sample 7-1

Johnston County-Field Sheet No. 4 - 4 samples

Location--------SW1/4 NE1/4 Sec. 1, T4S, R4E. Owner:

Quantity--------Found in old mine on the east slope of a limestone Ridge, drainage toward Mill Creek. This L.S. escarpment
is known as Trinity formation. The asphalt is found in a S, S, & Congl known as Trinity S.S. To north older Paleozoic rocks - sec. 36 T3S, R4E, Asphalt mine worked in 1904-1905.

Accessibility--Topography of country around is rough with timber covered hills. At present very in accessible but road can be build to mine.

Laboratory test-

Sample No. 4-1
Asphalt 11.89
Penetration test - low
Physical characteristics - Asphal tic limestone & clay 95%
Quartz 5%
Minerals identified: Asphalt, Oil, Quartz, Calcite.
Recommendations: Very excellent material for road topping purposes, as is.

Sample No. 4-2
Asphalt 7.82%
Penetration test - Medium
Physical characteristics - Asphal tic sand, limestone & clay 90%
Quartz 10%
Minerals identified: Asphalt, Calcite, Oil, Quartz.
Recommendations: Good road material for topping purposes when properly and adequately blended.

Sample No. 4-3
Asphalt 8.38%
Penetration test - low
Physical characteristics - Asphal tic clay 70%, Quartz sand 30%
Minerals identified: Asphalt, Oil, Quartz, Clay minerals
Recommendations: Very excellent material for road topping when properly blended.

Sample No. 4-4
Asphalt 8.02%
Penetration test - medium
Physical characteristics - Limy clay 100%
Materials identified: Calcite, Clay minerals
Recommendations: Excellent material for floor-sweep base.

Johnston County-Field Sheet No. 5 - 2 Samples.

Location:---------NW¼SW¼ SW¼ Sec. 2, T4S, R4E.  Owner:

Quantity:--------These tests were about 20 ft. in Diameter, and about a half filled up with trees growing inside. Evidence shows they had been mined some time. No evidence in ravine near by of coal outcropping.

Accessibility---Hills around covered with heavy growth of timber, and are very inaccessible.

Laboratory test-
Sample No. 5-1
Johnston County-Field Sheet No. 14 - 2 samples.

Location: SW1/4 SW1/4 Sec. 20, T4S, R6E. Owner:

Quantity: Deposit covers an area of about 5 acres. The strata is from 2 to 4 ft. thick. Overburden from 1 to 5 ft.

Accessibility: On the east slope of Teller Mountain. Old Road that runs by mine is impassable, but there is a road about a quarter of a mile to the east.

Laboratory test:

Sample No. 14-1
Asphalt 6.54%
Pen. Test. - High
Physical Characteristics: Asphaltic Quartz sand, 98%
Minerals identified: Asphalt, Oil, Quartz.
Recommendations: Good road topping when properly blended with asphalt.

Sample No. 14-2
Asphalt 8.40%
Pen. Test. - Medium
Physical Characteristics: Asphaltic sand, 98% - Quartz 2%
Minerals identified: Asphalt, Oil, Quartz.
Recommendations: Good road topping material when properly blended with asphalt.

Johnston County-Field Sheet No. 26 - 8 samples

Location: SW1/4 NE1/4 Sec. 29, T4S, R6E. Owner:

Quantity: This deposit was found in bed of ravine, with exposure of approx. 200 ft. up ravine. It is in a matrix of sand, overlain by a brownish grey limestone. Deposit looks as though it is quite extensive.

Accessibility: Along creek banks is heavy timber. Road runs S. W. from deposit and intersects a poor road about 1/16 mile from County Highway which leads to Highway No. 22.

Laboratory test:

Sample No. 26-1
Asphalt .58%
Penetration test - low
Physical Characteristics: Residue, Quartz sand 100%
Minerals identified: Asphalt, Oil, Quartz.
Recommendation: Too low in asphaltic content to be of any
commercial value.

Sample No. 26-2
Asphalt 8.81%
Penetration test - High
Residue - Quartz sand 100%
Minerals identified - Asphalt, Oil, Quartz.
Recommendations: This asphalt sand would make a good base for
floor sweep.

Sample No. 26-3
Asphalt 2.64%
Pen. test - High
Residue - Quartz sand 100%
Minerals identified - Asphalt, Oil, Quartz.
Recommendations: Quantity of Asphalt is low, but is of good
quality for road material.

Sample No. 26-4
Asphalt 1.43%
Pen. Test. - medium
Residue - Quartz sand 100%
Minerals identified: Asphalt, Oil, Quartz.
Recommendations: Quantity of Asphalt is low, but is of good
quality for road material.

Sample No. 26-5
Asphalt 5.78%
Pen. test - Medium
Residue - essentially quartz sand.
Minerals identified: Asphalt, Oil, Quartz.
Recommendations: Good road topping when properly blended.

Sample No. 26-6
Asphalt 3.40%
Pen. test - Medium
Residue - Quartz sand, 100%
Minerals identified: Asphalt, Oil Quartz.
Recommendations: This asphalt will make good road topping when
properly blended.

Sample No. 26-7
Asphalt 0.680%
Pen. test - low
Physical characteristics: Asphalt, Oil, Quartz.
Minerals identified: Asphalt, Oil, Quartz.
Recommendation: The percentage is too low for road topping,
but would make a good base for floor sweep.

Sample No. 26-8
Asphalt 5.36%
Pen. test - low
Residue - Quartz sand, 100%
Minerals identified - Asphalt, Quartz.

Johnston County - Field Sheet No. 38 - 6 Samples - Details on Field Sheet No. 26

Location---------Secs. 10, 20, 29, 30 T4S, R6E.

Johnston County - Field Sheet No. - Negative - None Found.

Location---------Secs. 13, 14, 23, 24, T4S, R5E.
Johnston County (Continued)

Johnston County—Field Sheet No. 66 = 4 samples

Location——-SW ¼ Sec. 21, T15S, R7E——Owner:

Accessibility——This deposit is located 3½ miles east of Connerville. The nearest railway is Bromide, Okla. which is served by the M.O. and G. R. R. It is a distance of 8 miles. The road that leads to S.W. corner of the SW ¼ of this section is a county road, partly gravel, could be put in good condition. The valleys and hills are partly covered with shrubs oak and heavily timbered.

Quantity——-The thickness of deposit is some where around 10 or 12 feet. Extent of deposit is very hard to determine, but there appears to be a large amount of Asphalt.

Laboratory test—

Sample No. 66-1
Bitumen 4.20%
Penetration test — very low
Residue — quartz sand 98%
Minerals identified: Quartz, Asphalt.

Recommendations: This is a very high grade material for road topping purposes, and needs only to be blended with the proper amount of limestone aggregate and the proper amount of medium Penetration test cut back refinery asphalt or other asphaltic material.

Sample No. 66-2
Bitumen 4.20%
Penetration test — very low
Residue — quartz sand 95%
Minerals identified: Quartz, Asphalt.

Recommendations: This is very excellent road topping material but is somewhat low in Bitumens. This material needs only to be blended with the proper amount of limestone aggregate and the proper amount of cut back refinery asphalt or other asphaltic material.

Sample No. 66-3
Bitumen 10.06%
Penetration test — very low
Residue — quartz sand 95%
Minerals identified: Quartz, Asphalt

Recommendations: This is a very excellent road topping material but is somewhat low in Bitumens. This material needs only to be blended with the Proper amount of limestone aggregate and the proper amount of cut back refinery asphalt or other asphaltic material.

Sample No. 66-4
Bitumen 5.95%
Pen. test — very low
Residue — quartz sand 95%
Minerals identified: Quartz, asphalt.

Recommendations: This is a very high grade road topping material but is somewhat low in Bitumens. It can be blended, however, with a limestone aggregate and the proper amount of cut back
refinery asphalt or other asphaltic material to make an ideal road topping material.

Johnston County-Field Sheet No. 67 - 2 Samples

Sample No. 67-1

Location: NE1/4 SE1/4 Sec. 27, T5S, R7E. Owner: Loan Company

Quantity: Width of exposure 50 ft. Dug 3½ ft. in sand deposit.

Accessibility: Road close to deposit. Better road which former intersects, is located about 3/4 mile from deposit on west.

Laboratory test: Bitumen: 0.73
Pen. test: High
Residue: Essentially quartz sand

Recommendations: Too low in Bitumen content for commercial purposes of any kind at this time.

Sample No. 67-2

Location: NE1/4 NE1/4 Sec. 33, T5S, R7E. Owner: Joe Cole

Quantity: It has an exposure of approximately 300 yds long, and forms a face or bluff, 15' or 20 ft. high.

Accessibility: A Road about 1/4 mile both East and West from deposit.

Laboratory test: Bitumen: 0.73.75
Pen. test: High
Residue: Essentially quartz sand

Recommendations: Too low in Bitumen content for commercial purposes of any kind at this time.

Johnston County-Field Sheet No. 92 - 3 samples

Location: NE NE1/4 Sec. 4, T5S, R7E. Owner:

Quantity: Outcrop is about 400 yds. long and averages 4½ ft. thick. Deposit estimated at 60,000 cu. yds.

Accessibility: Near Gravel State Road. Overburden of limestone from 1 ft. to 10 ft. deep.

Laboratory test:
Sample 92-1
Johnston County—Field Sheet No. 93—3 samples

Location——-SW¼ Sec. 23, T3S, R5E. Owner:

Quantity——-Covers the area of about 9 acres. At test No. 1
the exposure is 34 ft. thick. Overburden of deposit
will average about 3 ft.

Accessibility—This deposit can be worked by building about ½ mile
of road from south east corner of this section to
deposit.

Laboratory test—

Sample No. 93-1
JOHNSTON COUNTY - Field Sheet No. 89 - 3 Samples

Location: SW ¼ of SE ¼ - Sec. 27, T 4 S - R 8 E.

Quantity: Outcrop shows along side of hill and is 250 yds. long and 105 yds. wide.

Accessibility: Located 3½ miles east of state highway No. 22. Found in Trinity sandstone overlain by limestone. Dotted area.

Laboratory test:
Sample No. 89-1
Bitumen: 2.6%
Penetration test: Medium
Residue: Quartz sand
Minerals identified: Asphalt, Quartz

Recommendations: Fair material for: 1. Road topping.

Sample No. 89-2
Bitumen: 9.28%
Penetration test: Very high
Residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz.

Recommendations: Fair material for: 1. Road topping.
Excellent material for: 1. Base for floor sweep compounds.

Sample No. 89-3
Bitumen: 8.82%
Penetration test: High
Mineral residue: Essentially quartz sand.
Minerals identified: Oil, Asphalt, Silica.

Recommendations: Excellent for:
1. Road topping, but must be mixed with asphalt of high penetration test.

JOHNSTON COUNTY - Field Sheet No. 94 - 2 Samples

Location: E ½ of NE ¼ of Sec. 14, T 4 S - R 5 E.

Quantity: Deposit estimated to contain 10,000 cu. yds. Average thickness of deposit 4 ft.

Accessibility: Deposit is 2 miles south of Ravia. Outcrops in small ravine near Washita River. Overburden 5' 4". Formed in sedimentary sand deposit. Topography: Gently rolling to level bottom land with some timber along drainage.
ASPHALT

JOHNSTON COUNTY - Field Sheet No. 94 (continued)

Laboratory test:

Sample No. 94-1

Bitumen: 2.94%
Penetration test: High
Mineral residue: 90% quartz sand
10% limestone
Minerals identified: Oil, Asphalt, Limestone, Quartz.

Recommendations:
This is rather low in Bitumen content but will make good road topping if mixed with sufficient quantity of high penetration test asphalt.

Sample No. 94-2

Bitumen: 3.65%
Penetration test: High
Mineral residue: 96% quartz sand
4% limestone
Minerals identified: Oil, Asphalt, Quartz sand, Limestone.

Recommendations: Good material for road topping but must be mixed with the proper amount of low penetration test asphalt.

JOHNSTON COUNTY - Field Sheet 127

Location: NE SE SW Sec. 28, T 4 S - R 6 E.

Quantity: 9,000. 150 yds. long, 60 yds. wide, 3 ft. thick.

Accessibility: Located ½ west of State Highway #48. Poor dirt road to #48, 100 yds. north of deposit. Topography: Very broken sand hills with heavy growth of scrub to timber.

Laboratory test:
KIOWA COUNTY - Field Sheet No. 174

Location:  (A) CNW 1/4 SW 1/4, Sec. 14, T2N, R16W.
           (B) CNW 1/4 NE 1/4, Sec. 14, T2N, R16W.

Quantity:  (A) 45,000 cu. yd. Area, 200 yd x 75 yd x
            9 feet deep.
           (B) 2,000 cu. yd. Area, 50 yd x 60 yd x 2 ft.
                deep.

Accessibility:  Depth of overburden 2 ft. (A)
                Depth of overburden 0 ft. (B)

Laboratory test:  C

[Handwritten note:  Sheet 3428, 3429  No message sheet 11/63]
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sec. 25</td>
<td></td>
<td>Special Lab. No. 744</td>
<td>0.14% High</td>
<td>Quartz sand</td>
<td>Too low in Bitumen content for any commercial value at this time.</td>
<td></td>
</tr>
</tbody>
</table>
ASPHALT

Le Flore County - Special Sheet. 1 Sample

Location: Sec. 24, & 25, T 3 N - R 26 E.

Quantity: 20 to 25 ft thick for a mile long.

Accessibility: It is readily accessible, and would be a gravity haul to the railroad as well as to the highway.

Laboratory test: Sample Le Flore Special No. 1.

Le Flore County Field Sheet SPECIAL Lab. No 744

Sample No. LeFlore Special No. 1
Bitumen 0.14
Penetration test-high
Residue---Quartz sand

Recommendations: Too low in Bitumen content for any commercial value at this time.

Leflore County - Field Sheet No. 53.

Location: NW NW NW Sec. 21, T 3 N - R 25 E. Blacksmiths in the vicinity of Stapp use it for fuel.

Quantity: The vein is 12 feet thick.

Accessibility: One mile from a county road down a very steep hill. It is doubtful if it can ever be developed commercially because of its inaccessibility. Uncovered entirely across its face. Situated in gully on a hillside with quantities of talus resting above. Mining would be somewhat difficult on this account.

Laboratory test:
Sample No. 53
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 1/2 Sec. 36</td>
<td>?</td>
<td>132-2</td>
<td>11.12%</td>
<td>Very low</td>
<td>Quartz</td>
<td>Asphalt Quartz</td>
<td>1. Road topping.</td>
</tr>
<tr>
<td>T7S-R3E E2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sand</td>
<td></td>
<td>2. Extracted matter for asphalt paint.</td>
</tr>
<tr>
<td></td>
<td>Ditto</td>
<td>32-3</td>
<td>11.99%</td>
<td>Very low</td>
<td>Quartz</td>
<td>Asphalt Quartz</td>
<td>3. Roofing material.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>32-5</td>
<td>7.20%</td>
<td>Very low</td>
<td>Quartz</td>
<td>Asphalt Quartz</td>
<td>2. Extracted matter for asphalt paint.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>32-6</td>
<td>3.48%</td>
<td>Very low</td>
<td>Quartz</td>
<td>Asphalt Quartz</td>
<td>3. Roofing material.</td>
</tr>
<tr>
<td>SW &amp; SE 1/4 of SW 1/4 Sec. 27</td>
<td>S-1 a</td>
<td>8.17%</td>
<td>Low</td>
<td>98.97%</td>
<td>Asphalt</td>
<td>Excellent for road topping when properly and sufficiently blended.</td>
<td></td>
</tr>
<tr>
<td>T6S-R2E</td>
<td></td>
<td></td>
<td></td>
<td>Qtz. sand</td>
<td>Oil</td>
<td>Quartz</td>
<td>Ditto</td>
</tr>
<tr>
<td>Ditto</td>
<td>S-1 b</td>
<td>5.75%</td>
<td>Low</td>
<td>94.84%</td>
<td>Asphalt</td>
<td>Ditto</td>
<td></td>
</tr>
</tbody>
</table>
Location-------Samples Nos. 32-1, 32-2, 33-3, 32-6 are found in
SE of Sec. 36, T72, R6E.
Samples No. 32-5 found in NE 1/4 Sec. 1, T83, R2E.
Samples 32-4 does not appear to be of sufficient
quantity to be of any commercial value.

Quantity------Samples 32-1, 2, 3, 5, 6, are intermittent outcrops of about
12 inches in thickness and all appear to be of the
same stratum. They are located about half way down
on hills that are about 150 ft. high. On account
of the large amount of overburden of rock and soil
we are unable to estimate the amount of Asphalt. It
would be impracticable to try to remove this over-
burden with the tools we have. Thickness of stratum
is about one foot, and Depth of Overburden Thirty Feet.

Accessibility--A road maintained by the county goes within a mile and
a half of deposits. An old road across fields runs from
the county to these deposits but would have to be re-
paired before it could be used by loaded trucks. The
G.C. & S.F. R. R. is three miles west.

Laboratory test-

Sample No. 32-2
Bitumen 21.12%
Pen. test - very low
Residue - essentially quartz sand
Minerals identified: Asphalt, Quartz

Recommendations: This is good industrial material for: 1. Road
topping. 2. Extracted matter for asphalt
paint. 3. Roofing material.

Sample No. 32-3
Bitumen 11.99%
Pen. test - very low
Residue - essentially quartz sand-Minerals identified: Quartz
Minerals identified: Asphalt

Recommendations: This is good industrial material for: 1. Road
topping. 2. Extracted matter for asphalt
paint. 3. Roofing material.

Sample No. 32-4
Bitumen 30.37%
Pen. test - very low
Residue - Essentially quartz sand - Minerals Identified: Quartz

Recommendations: This is either a natural or pyrogenous asphalt &
and is excellent material for: 1. Road tope-
ping. 2. Extracted matter for asphalt paint.
3. Roofing material.

Sample No. 32-5
Bitumen 7.20%
Pen. test - very low
Residue - Essentially quartz sand - Minerals Identified: Quartz

Recommendations: This is good material for 1. Road topping.

Sample No. 32-6
Bitumen 5.48%
Pen. test - very low
Residue - essentially quartz sand.
Minerals Identified: Asphalt, Quartz.
LOVE COUNTY - F.S. No. 32, (continued)

Laboratory test:
Sample No. 32-6

Recommendations: This material fair for road topping.

LOVE COUNTY - Field Sheet No. 59

Location: Section 27, T 6 S - R 2 E. SW\(\frac{1}{4}\) & SE\(\frac{1}{2}\) of SW\(\frac{1}{4}\) of Section.
Was operated about 20 years ago.

Quantity: The thickness of the bed is from 3 to 5 feet to 10 to 12 feet. Covers probably from 10 to 50 acres.

Accessibility: In some places the overburden is nil and some places it is as thick as 12 or 15 feet.
From the Highway 77 there is a gravel road to \(\frac{1}{2}\) of a mile to the pit, Pit is 2 miles from Santa Fe Railroad and 2\(\frac{1}{2}\) miles to U.S. Highway 77.

Laboratory test:
Sample No. (3-la) Sec. 27 - 6S - 2E
Asphalt: 8.17%
Pen. test: Low
Asphal tic sand:
Quartz sand: 89.97%

Minerals identified: Asphalt, Oil, Quartz

Recommendations: Excellent for road topping when properly and sufficiently blended.

Sample No. (3-lb) Sec. 27, 6S - 2E.
Asphalt: 5.75%
Pen. test: Low
Asphaltic sand, 94.24% Quartz
Minerals Identified: Asphalt, Oil, Quartz

Recommendations: Excellent for road topping when properly and sufficiently blended.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITU- NUM</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>3w ½ Sec. 32, T4S-R5E cTops</td>
<td>25,000</td>
<td>1-1</td>
<td>2.38%</td>
<td>Low</td>
<td>98% qtz.</td>
<td>Asphalt content low, but excellent in quality for blending purposes, to be used as road topping.</td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>Ditto</td>
<td>1-2</td>
<td>3.80</td>
<td>Very low</td>
<td>98% qtz.</td>
<td>Asphalt</td>
<td>Excellent material for road topping when properly blended.</td>
</tr>
<tr>
<td>Center No 1,000 Sec. 29 T5S, R5E.</td>
<td>2-1</td>
<td>1.96%</td>
<td>Medium</td>
<td>Asphaltic sand 98% oil</td>
<td>Quartz 2%</td>
<td>Oil</td>
<td>1. Floor sweep base.</td>
</tr>
<tr>
<td>S. line 1000 Tons</td>
<td>3-1</td>
<td>4.32%</td>
<td>Very low</td>
<td>Asphaltic sand 98% oil</td>
<td>Quartz 2%</td>
<td>Asphalt</td>
<td>Excellent material for road topping when properly blended.</td>
</tr>
<tr>
<td>Ditto 1000 Tons</td>
<td>5-1</td>
<td>1.97%</td>
<td>High</td>
<td>95% qtz. sand 5% L.S.</td>
<td>Calcite</td>
<td>Oil</td>
<td>Of no commercial value.</td>
</tr>
<tr>
<td>Ditto 5-2</td>
<td>1.97%</td>
<td>High</td>
<td>95% qtz. sand 5% L.S.</td>
<td>Calcite</td>
<td>Oil</td>
<td>Has no commercial value.</td>
<td></td>
</tr>
<tr>
<td>SW ½ Sec. 17 T5S-R5E</td>
<td>2000 Tons</td>
<td>4-1</td>
<td>4.32%</td>
<td>Very low</td>
<td>98% qtz. 2% L.S.</td>
<td>Asphalt</td>
<td>Excellent material for road topping, when properly mixed.</td>
</tr>
<tr>
<td>Ditto 3000 Tons</td>
<td>6-1</td>
<td>1.48%</td>
<td>Low</td>
<td>66% qtz. sand 33% L.S.</td>
<td>Ditto</td>
<td>Has no commercial value.</td>
<td></td>
</tr>
<tr>
<td>LOCATION</td>
<td>AMOUNT</td>
<td>F.S.#</td>
<td>BITUMEN</td>
<td>PENETRATION TEST</td>
<td>RESIDUE</td>
<td>MINERALS IDENTIFIED</td>
<td>USED FOR:</td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>-------</td>
<td>---------</td>
<td>------------------</td>
<td>---------</td>
<td>---------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>SW¼, Sec. 34</td>
<td>1000</td>
<td>7-1</td>
<td>2.06%</td>
<td>High</td>
<td>98% qtz. sand</td>
<td>Asphalt, Calcite</td>
<td>Has no commercial value.</td>
</tr>
<tr>
<td>T5S-R5E</td>
<td>Cul yds.</td>
<td></td>
<td></td>
<td></td>
<td>2% L.S. sand</td>
<td>Oil</td>
<td></td>
</tr>
<tr>
<td>SW¼ NE¼, Sec. 3</td>
<td>500 tons</td>
<td>8-1</td>
<td>5.23%</td>
<td>Low</td>
<td>Quartz sand</td>
<td>Asphalt, Oil</td>
<td>Very good for road topping when properly and sufficiently blended.</td>
</tr>
<tr>
<td>T5E-R5E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Quartz</td>
<td>Ditto</td>
</tr>
<tr>
<td>SE¼ of NE¼, Sec. 26</td>
<td>100 tons</td>
<td>9-1</td>
<td>5.65%</td>
<td>Low</td>
<td>Quartz sand</td>
<td>Asphalt, Oil</td>
<td>Ditto</td>
</tr>
<tr>
<td>T7S-R5E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Feldspar</td>
<td>Ditto</td>
</tr>
<tr>
<td>SW¼ SW¼, Sec. 16</td>
<td>?</td>
<td>55-1</td>
<td></td>
<td></td>
<td></td>
<td>Quartz sand</td>
<td>1. Sub wool rock.</td>
</tr>
<tr>
<td>T6S-R4E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Calcite, Hemitite</td>
<td>2. Concrete aggregate</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>55-1</td>
<td>10.26</td>
<td>Very low</td>
<td>Quartz sand</td>
<td>Asphalt, Quartz</td>
<td>1. Road topping, as is.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Quartz</td>
<td>2. If mixed with lighter grade oil and sawdust, good floor sweep.</td>
</tr>
</tbody>
</table>


Marshall County-Field Sheet No. 1 - 2 samples

Location-------SW\(\frac{1}{2}\) Sec. 32, T4S, R5E. Owner:

Quantity-----The exposure is along the east side and west side of an outlier of the Goodland in Sec. 32, T4S, R5E. The best outcrops are in the NW-NE-SW and SE-NE-SW of the section. The asphalt is probably continuous beneath the limestone.

Accessibility--U. S. Highway, paved, is within about a half mile of outcrop. A rough road from the highway to the deposit would have to be improved for heavy hauling. Two small bridges would have to be built.

Laboratory test-

Sample No. 1-1
Asphalt 3.88%
Pen. test -- low
Physical characteristics: Asphallic sand, 98%, Quartz, 2%
Minerals identified: Asphalt, Oil, Quartz.
Recommendations: Asphalt content low, but excellent in quality for blending purposes, to be used as good road topping.

Sample No. 1-2
Asphalt 3.60%
Pen. test -- very low
Physical characteristics: Asphalt, Quartz, Oil
Minerals identified: Asphalt, Quartz, Oil
Recommendations: Excellent material for road topping when properly blended.

Marshall County-Field Sheet No. 2 - 1 sample

Location-------Center of N\(\frac{1}{2}\) of Sec. 29, T5S, R5E. Owner:

Quantity-----Asphalt occurs irregularly in an area of about 100\(\prime\) by 70\(\prime\). The deposit has a thickness of about 3\(\prime\); is rather hard and not rich in asphalt.

Accessibility--The overburden varies considerably from 0\(\prime\) to about 20\(\prime\), and could be stripped easily. A road runs through the deposit. Transportation facilities excel:

Laboratory test-

Sample No. 2-1
Asphalt 1.96%
Pen. test -- medium
Physical characteristics: Asphallic sand, 98%, Quartz, 2%
Minerals identified: Asphalt, Oil, Quartz.
Recommendations: Asphalt content too low for road topping, but can be used to good advantage as base material for floor sweep.

Marshall County-Field Sheet No. 3 - 1 sample

Location-------South line of SE\(\frac{1}{4}\) Sec. 7, T5S, R5E. Owner:

To this same bed. -- NW17
Marshall County—(Continued)

Quantity-----This deposit is about 400 yds. long and varies
in thickness from 0" to 12" being 6" thick at the
samples location.

Accessibility-----It is difficult to get to this deposit. The last 1 1/2 mile
is over an unimproved road which is impassable in wet
weather. U.S. Highway No. 70 is 2 1/2 miles to the East.

Laboratory test-

Sample No. 3-1
Asphalt 4.32%
Pen. test — very low
Physical characteristics — Asphallic sand, 96% quartz;
Limestone 4%

Minerals identified: Quartz, Oil, Asphalt, Calcite

Recommendations: Excellent material for topping when properly blended.

Marshall County—Field Sheet No. 5 — 2 samples

Location———Center of east Half, or test holes in Owner:
SW 1/4  SE 1/4 Sec. 22, T5S, R5E.

Quantity———Sample 5-2 is from an irregular body of asphalt on the
west side of the creek in NE 1/4 SE 1/4 Sec. 22, T5S, R5E.
The material is in the Trinity sand about 20' below the
top of the Goodland L.S. The face of the Asphalt is
about 18' x 150', extending underneath the overburden of
clay and L.S.

Accessibility—Deposits are 1/2 mile north of highway 43 and can be
reached by an old road, which would have to be improved for
heavy hauling.

Laboratory test-

Sample No. 5-1
Asphalt .360%
Pen. test — medium
Physical characteristics — 662/3% quartz; 331/3% Limestone.
Minerals identified — Asphalt, Quartz, Calcite.

Recommendations: Of no commercial value.

Sample No. 5-2
Asphalt 1.97%
Pen. test — high
Physical characteristics — Quartz sand, 95%; Limestone 5%
Minerals identified: Asphalt, Calcite, Oil, Quartz.

Recommendations: Has no commercial value

Marshall County—Field Sheet No. 4 — 1 sample

Location———SW 1/4 sec. 17, T5S, R5E. Owner:

Quantity———Asphalt is probably continuous between two ravines
125' apart
Accessibility:--Deposit is near unimproved road. It is about ½ mile N.E. of the S.L. & S.F. R.R.

Laboratory test-

Sample No. 4-1
Asphalt 4.52%
Pen. test - very low
Physical characteristics - Asphalitic sand, 28% quartz; Limestone 2%

Minerals identified: Asphalt, Oil, Quartz.
Recommendations: Excellent material for road topping, when properly blended.

Marshall County - Field Sheet No. 6 - 1 sample

Location------NW¼SW¼ Sec. 23, T5S, R5E. Owner:

Quantity-------The asphalt is exposed in the road bed for a distance of some 200 yds. and is also found in the field to the west of the road. The deposit is lenticular in shape, reaching a maximum thickness of about 6'.

Accessibility--The deposit is located about 3/8 mile north of Highway 45 along an old unimproved road; the asphalt can be removed by truck if this road is improved.

Laboratory test-

Sample No. 6-1
Asphalt 1.48%
Pen. test - low
Physical characteristics - 66 2/3% Quartz sand; 33 1/3% limestone.

Minerals identified: - Asphalt, Quartz, Calcite, Oil.
Recommendation: Has no commercial value

Marshall County - Field Sheet No. 7 - 1 sample - No commercial value

Location------SW¼ Sec. 34, T5S, R5E. Owner:

Laboratory test-

Sample No. 7-1
Asphalt 2.06
Pen. test - high
Physical characteristics - Quartz sand 96%, Limestone, 2%
Minerals identified: Asphalt, Calcite, Quartz, Oil.
Recommendations: has no commercial value.

Marshall County - Field Sheet No. 8 - 1 sample

Location------SW½ NE¼ Sec. 3, T5S, R5E. - Owner:

Quantity-------Small deposit about 2' thick and is exposed for some 200' along the left bank of a tributary of Oil Creek. It is overlain by about 25' of Goodland Fm.
Accessibility--The deposit is easily accessible to the S.L. & S. F. R.R. and 3/8 mile from an improved road.

Laboratory test-

Sample No. 8-1
Asphalt 5.83%
Pen. test - low
Physical characteristics - Quartz sand residue.
Minerals identified: Asphalt, Oil, Quartz.
Recommendations: Very good for road topping when properly and sufficiently blended.

Marshall County-Field Sheet No. 9 - 1 sample

Location------SE1/4 of NE1/4 Sec. 26, T7S, R5E. Owner---

Quantity------Outcrops for about 150 ft. long. Thickness of Stratum 4'

Accessibility:--Outcrops on south bank of Sand Creek. There is no road from the County Road to this deposit. Apparently to small to be of commercial value.

Laboratory test:

Sample No. 9-1
Asphalt 5.64%
Pen. test - low
Physical characteristics: Essentially quartz, Feldspar sand.
Minerals identified: Asphalt, Quartz, Oil.
Recommendations: Very good for road topping when properly and sufficiently blended.

Marshall County- Field Sheet No. 55 - 2 samples

Location------SW1/4SW1/4 Sec. 16, T6S, R6E. Owner---

Quantity--2----Samples taken from outcrop of the Trinity in a deep gulley. This sand is 10' thick here and overlies the clays.

Accessibility--Near Country road.

Laboratory test-

Sample No. 55-1 - Also tested for asphalt.
Bitumen 10.26%
Penetration test - Very low
Residue-Essentially quartz sand.
Minerals identified: Asphalt, Quartz.
Recommendations: Excellent material for: 1. Road topping as is. 2. If mixed with lighter grade oil and sawdust, good floor sweep.

Sample No. 55-1---This sample tested for sub-wool rock.

Sample No. 55-2
MARSHALL COUNTY Field Sheet No. 99

Location———SE NE NW Sec. 26, T 5 S — R 5 E.

Quantity———Estimated 10,000 plus, cu. yd.
Outerop 4 ft. thick, 12 ft. long.

Accessibility——About 10 ft. overburden consisting of
Goodland Limestone. Is 1/2 mile from a
good road and can be reached by foot only;
a car can be driven within 100 yds. of
deposit by following a trail.

Laboratory test:
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S. #</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE1 Sec. 50</td>
<td>49,000 cu. yds</td>
<td>1-1-2</td>
<td>5.71%</td>
<td>Very low</td>
<td>98% qtz sand</td>
<td>Quartz, Asphalt</td>
<td>Excellent road topping material, needs only to be blended with the proper amount of lime stones or gravel aggregate, and medium pen. test cut back refinery asphalt or other asphaltic material to make an excellent road topping.</td>
</tr>
<tr>
<td>NE1 Sec. 25</td>
<td>40 acres</td>
<td>2-1</td>
<td>6.99%</td>
<td>Low</td>
<td>Quartz sand</td>
<td>Asphalt, Quartz</td>
<td>Road topping material</td>
</tr>
<tr>
<td>NE1 Sec. 25</td>
<td>Ditto</td>
<td>2-2</td>
<td>7.39%</td>
<td>Very low</td>
<td>98% qtz sand</td>
<td>Quartz</td>
<td>(Same as F.S. 1, above)</td>
</tr>
<tr>
<td>NE1 Sec. 25</td>
<td>Ditto</td>
<td>2-4</td>
<td>3.23%</td>
<td>Very low</td>
<td>98% qtz sand</td>
<td>Quartz</td>
<td>Good material for road topping, but is somewhat low in Bitumen. Could be built up with proper amount of L.S. or gravel aggregate &amp; the proper amount of medium pen. test cut back refinery asphalt or other asphaltic material.</td>
</tr>
</tbody>
</table>
ASPHALT

McCurtain County - Field Sheets No. 1

Location: NE\textsubscript{2} Sec. 20, T 7 S - R 24E. In Circular No. 19

Quantity: Possibly 40 acres, blanketed with 2\frac{1}{2} to 3 ft. of asphaltic sand.

Accessibility: Overburden of 25 ft. and the limited extend and quality, it would seem infeasable to be commercially exploited.

Laboratory test:
Sample No. 1 -
Bitumen: 5.71%
Penetration test: very low
Mineral residue: 98% qtz. sand.
Minerals identified: Quartz and Asphalt.

Recommendations:
This is a very excellent material for road topping purposes and needs only to be blended with the proper amount of limestone or gravel aggregate and the proper amount of medium penetration test cut back refinery asphalt or other asphaltic material.

McCurtain County - Field Sheet No. 2-----3 Samples

Location: NE\textsubscript{2} Sec. 22, T 6 S - R 21 E.

Quantity: Possibly 40 acres blanketed with 9 ft. section of asphalt in three layers.

Accessibility: Overburden 6 ft. This overburden has been stripped for a distance of 20 ft. in the process of working this deposit several years ago when small quantities of this material had been removed.

Deposit is located .95 miles northeast of Valliant, .1 of a mile northwest of the Valliant-Wright City Highway and .3 mile southeast of the T.O. & E.R.R.

Laboratory test:
Sample No. 1
Bitumen: 6.89%
Penetration test: Low
Mineral residue: Essentially quartz sand.
Minerals identified: Quartz and Asphalt.

Recommendations: This is good industrial material for:
(1) Road topping material.
Laboratory test:
Sample No. 3
Bitumen: 7.39%
Penetration test: Very low
Residue: 90% quartz sand
Minerals identified: Quartz and Asphalt

Recommendations: This is a very excellent material for road purposes but needs to be built up with the proper amount of limestone or gravel aggregate and the proper amount of medium penetration cut back refinery asphalt or other asphaltic material to make an ideal road topping material.

Sample No. 4
Bitumen: 3.23%
Penetration test: Very low
Residue: 90% quartz sand
Minerals identified: Quartz and Asphalt

Recommendations: This is a very excellent material for road topping purposes and needs only to be blended with the proper amount of limestone or gravel aggregate, and the proper amount of medium penetration test cut back refinery asphalt or other asphaltic material to make an excellent road topping.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE 1/4 OF SW 1/4 Sec. 11 T1S-R3E</td>
<td>Limited</td>
<td>21-2</td>
<td>11.4%</td>
<td>High</td>
<td>Quartz sand</td>
<td>Oil Asphalt Quartz</td>
<td>Fair material for: 1. Road topping. Excellent material for: 2. Base for floor sweep.</td>
</tr>
<tr>
<td>SW 1/8 Sec. 16 T1S-R3E</td>
<td>?</td>
<td>28-1</td>
<td>9.38%</td>
<td>High</td>
<td>Quartz sand</td>
<td>Oil Asphalt Quartz</td>
<td>Excellent material for: 1. Base for floor sweep. Fair material for: 2. Road topping material.</td>
</tr>
<tr>
<td>SW 1/4 Sec. 17 T1S-R3E</td>
<td>?</td>
<td>30-1</td>
<td>2.53%</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Ditto</td>
<td>1. Road topping purposes. 2. Floor sweep base.</td>
</tr>
<tr>
<td>NW 1/4 NW 1/4 NE 1/4 Sec. 20 T1S-R3E</td>
<td>?</td>
<td>31-1</td>
<td>9.96%</td>
<td>Low</td>
<td>96% qtz. sand 4% L.S.</td>
<td>Asphalt Quartz Calcite</td>
<td>Excellent material for: Road topping purposes.</td>
</tr>
<tr>
<td>NW 1/4 SE 1/4 NE 1/4 Sec. 22 T1S-R3E</td>
<td>?</td>
<td>8-1</td>
<td>3.08%</td>
<td>Low</td>
<td>95% qtz. 5% clay</td>
<td>Asphalt Clay Quartz</td>
<td>Excellent road material if properly blended with the same grade of Asphalt.</td>
</tr>
<tr>
<td>N 1/4 SE 1/4 NE 1/4 Sec. 22 T1S-R3E</td>
<td>?</td>
<td>8-2</td>
<td>7.09%</td>
<td>Very low</td>
<td>20% L.S. insoluble clay 80% qtz.</td>
<td>Asphalt Clay Quartz Clay</td>
<td>Most excellent road topping material, needs to be supplemented with small amt. of the same grade of asphalt.</td>
</tr>
<tr>
<td>SE 1/4 NW 1/4 NW 1/4 Sec. 22 T1S-R3E</td>
<td>?</td>
<td>8-3</td>
<td>9.65%</td>
<td>High</td>
<td>Limestone Quartz 20% Insoluble clay 80%</td>
<td>Asphalt Clay Insoluble coalite Oil</td>
<td>Oil content too high for road topping. The asphalt would make excellent base for floor sweep.</td>
</tr>
<tr>
<td>NE 1/4 NW 1/4 NW 1/4 Sec. 22 T1S-R3E</td>
<td>?</td>
<td>8-4</td>
<td>6.06%</td>
<td>Low</td>
<td>L.S. 20% quartz Insoluble clay 80%</td>
<td>Asphalt Clay Calcite Quartz</td>
<td>Most excellent material for road topping, but should be supplemented with the same grade of asphalt.</td>
</tr>
<tr>
<td>LOCATION</td>
<td>AMOUNT</td>
<td>F.S.#</td>
<td>BITU-</td>
<td>PENETRATION TEST</td>
<td>RESIDUE</td>
<td>MINERALS IDENTIFIED</td>
<td>USED FOR:</td>
</tr>
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<td>-----------</td>
</tr>
<tr>
<td>SE 1/4 SW 1/4 SW 1/4</td>
<td>?</td>
<td>9-1</td>
<td>8.48%</td>
<td>Medium</td>
<td>98% qtz. sand</td>
<td>Quartz</td>
<td>Good material needs blending with small amt. of cut back refinery asphalt or other asphaltic material to be first class material for this purpose.</td>
</tr>
<tr>
<td>Sec. 15 T1S-R3E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Asphalt</td>
<td>Ditto</td>
</tr>
<tr>
<td>SE 1/4 SW 1/4 SE 1/4</td>
<td>?</td>
<td>9-2</td>
<td>9.52%</td>
<td>Low</td>
<td>Ditto</td>
<td>Qtz. sand</td>
<td>Ditto</td>
</tr>
<tr>
<td>Sec. 15 T1S-R3E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Asphalt</td>
<td></td>
</tr>
<tr>
<td>NE 1/4 SW 1/4</td>
<td>?</td>
<td>23-1</td>
<td>3.41%</td>
<td>Medium</td>
<td>Qtz. sand</td>
<td>Asphalt</td>
<td>Good material for:</td>
</tr>
<tr>
<td>Sec. 30 T1S-R3E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Quartz</td>
<td>1. Road topping,</td>
</tr>
<tr>
<td>NW NW NE NW 2 Bbl. daily</td>
<td></td>
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<tr>
<td>Sec. 4 T1S-R3E</td>
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<tr>
<td>SE 1/4 exposed R.H.</td>
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<td></td>
<td>Excellent material for road topping purposes as is.</td>
</tr>
<tr>
<td>Sec. 23 T1S-R3E 1/2 mile Dott thickness Special 20'</td>
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<tr>
<td>FIELD SHEET NO.</td>
<td>NW NW NE NE</td>
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<tr>
<td>LOCATION:</td>
<td>Sec. 4 TLS-R3E.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>AMOUNT:</td>
<td>2 Bbl. daily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPECIFIC GRAV.</td>
<td>13.61° A.P.I.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS REC'D.:</td>
<td>@ 60° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>DRY:</td>
<td>14.35° A.P.I.</td>
<td></td>
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</tr>
<tr>
<td>MOISTURE:</td>
<td>12.53</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1st DROP OVER:</td>
<td>658.4° F.</td>
<td></td>
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</tr>
<tr>
<td>10% ° °</td>
<td>698.0° F.</td>
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</tr>
<tr>
<td>20% ° °</td>
<td>748.4° F.</td>
<td></td>
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</tr>
<tr>
<td>30% ° °</td>
<td>761.0° F.</td>
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<tr>
<td>40% ° °</td>
<td>788.0° F.</td>
<td></td>
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<tr>
<td>50% ° °</td>
<td>788.0° F.</td>
<td></td>
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</tr>
<tr>
<td>60% ° °</td>
<td></td>
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</tr>
<tr>
<td>70% ° °</td>
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<tr>
<td>80% ° °</td>
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</tr>
<tr>
<td>90% ° °</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95% ° °</td>
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<tr>
<td>RES: ° °</td>
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</tr>
<tr>
<td>INITIAL BOILING POINT:</td>
<td>658.4° F.</td>
<td></td>
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</tr>
<tr>
<td>END POINT:</td>
<td>788.0° F.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CRACKING POINT:</td>
<td>761.0° F.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>OCTANE RATING:</td>
<td>N. D.</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>DISTILATE:</td>
<td>49.10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESIDUE:</td>
<td>50.90%</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENETRATION TEST:</td>
<td>Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Murray County - Field Sheet No. 47 1 Sample

Location: NW¼ of NE¼ of NE¼-sec 4, T1 S - R 3 E.
In well which belongs to Fohn Pitts.
Quantity: About 240' deep. 307 to 324 Asphalt-Pumps about 2 bbls. per. clay at present.

Accessibility: Well is on a beam.

Laboratory test:
Sample No. 21-

Recommendations:

Murray County - Field Sheet No. 21 1 Sample

Location: NE¼ of SW¼ of SW¼-sec. 11, T1 S - R 3 E.

Quantity: Deposit covers several acres but varies in thickness.
There is unlimited supply but not enough for commercial use. There is a possible chance of a thicker bed of asphalt lying below this bed.

Accessibility: More testing for this would have been done but due to water no more holes were put down where the overburden should be the least.

Laboratory test:
Sample No. 21-2
Bitumen: 11.4%
Penetration test: High
Mineral residue: Essentially Quartz sand.
Recommendations: Fair material for:
(1) Road topping.
Excellent material for:
(2) Base for floor sweep.

Minerals Identified: Oil, Asphalt, Quartz.
Murray County - Field Sheet No. 28 1 Sample

**Location:** SW¼ of SW¼-Sec. 16, T 1 S - R 3 E.

**Quantity:** This outcrop is 40 ft. showing from 1 to 8 ft. Stratum.

**Accessibility:** Overburden 1 to 25 ft.

**Laboratory test:** Sample No. 28-1
- Bitumen: 9.36%
- Pen. test: High
- Residue: Essentially quartz sand.
- Minerals identified: Oil, Asphalt, Quartz.

---

Murray County - Field Sheet No. 30 1 Sample

**Location:** SE¼ of SE¼-Sec. 17, T 1 S - R 3 E

**Quantity:** This outcrop is along Rock Creek. Length 225 ft. in bluff. Stratum 30 ft.

**Accessibility:** Overburden 5 to 35 ft.

**Laboratory test:** Sample No. 30-1
- Bitumen: 2.53%
- Penetration test: Medium
- Mineral residue: Essentially quartz sand
- Minerals identified: Quartz, Asphalt, Oil.
- Recommendations: Fair material for: 1. Road topping purposes. 2. Base for material for preparation of floor sweep compounds.

---

Murray County - Field Sheet No. 31 1 Sample

**Location:** NE¼ of NE¼ of NW¼ of Sec. 20, T 1 S - R 3 E.

**Quantity:** This outcrop is very small and on a slope of a rocky hill.

**Accessibility:**

**Laboratory test:** Bitumen: 9.96%
- Penetration test: low.
- Mineral residue: 96% qtz. sand, 4% L.S.
- Recommendations: Excellent material as is for road topping. Minerals identified: Asphalt, Quartz, Calcite
Murray County - Field Sheet No. 8 - 4 Samples

Location: Southern Rock Asphalt Co. owns two deposits in NW\(^1\) of Section 22, T 1 S - R 3 E. One is now abandoned. NE\(^1\), SE\(^1\), NW\(^1\) Sec. 22, T 1 S - R 3 E, an old Rock Asphalt mine operated about 40 years ago. NE\(^1\), SE\(^1\), NW\(^1\), same section, there is a sand asphalt outcrop.

Quantity: Vein in NE\(^1\), SE\(^1\), NW\(^1\), is 10' thick.

Accessibility: There are two shafts to the old Rock Asphalt mine, the one on west is said to be about 100' deep but is full of water at present.

Laboratory test:
Sample No. 8-1
Asphalt: 3.06
Pen. test; Low
Minerals identified: Asphalt, Clay, Quartz
Recommendations: Excellent road material if properly blended with the same grade of Asphalt.

Sample No. 8-2
Asphalt: 7.09
Pen. test; Very low
Physical characteristics: Limestone: 20%
Insoluble clay;
Quartz 80%
Minerals Identified: Asphalt, Clay, Quartz,
Recommendations: Most excellent road topping material, needs to be supplemented with small amount of the same grade of asphalt.

Sample No. 8-3
Asphalt: 9.65
Pen. test; High
Physical Characteristics: Limestone, quartz, 20%
Insoluble clay--- 80%
Minerals identified: Asphalt, Clay, Calcite, Oil.
Recommendations: Oil content is too high for road topping. This asphalt would make an excellent base for floor sweep.

Sample No. 8-4
Asphalt: 6.06
Pen. test: Low
Physical Characteristics: Limestone 20%
Quartz, insoluble clay 80%
Minerals identified: Asphalt, clay, Calcite, Quartz
Recommendations: This asphalt is a most excellent material for road topping, but should be supplemented with the same grade of asphalt.
ASPHALT

Murray County - Field Sheet No. 9 - 2 Samples

Location: SE $$\frac{1}{4}$$ SW $$\frac{1}{4}$$ SE $$\frac{1}{4}$$ of Section 15, T 1 S - R 3 E and SW $$\frac{1}{4}$$ SW $$\frac{1}{4}$$ SE: of same. Both owned by the Southern Rock Asphalt Co.

Accessibility: Is practically on a good graded road and is 3/4 mile from power line, and about 3/4 mile from O. G. & E. sub-station and an Oklahoma pipe-line booster station. 1 3/4 mile from a State highway. The depth of overburden in the first test area varied from 3' to 16' and in the second area from 4' to 32'.

Laboratory test:
Sample No. 9-1
Bitumen: 8.48
Penetration test: Medium
Residue: 98.00% quartz sand.
Minerals identified: Quartz, Asphalt.
Recommendations: This is good road material and needs only to be blended with a small amount of cut back refinery asphalt or other asphaltic material to be first class material for this purpose.

Sample No. 9-2
Bitumen: 9.52
Penetration test: Low
Residue: 98.00% quartz sand.
Minerals identified: Quartz sand, Asphalt
Recommendations: This is a very high grade road topping material, and if blended with a small amount of higher penetration test asphalt and other road materials, should make an excellent road topping.

Murray County - Field Sheet No. 22 - 1 Sample

Location: NE-NE-NW, Section 29, T 1 S - R 3 E. Owned and operated by Southern Rock Asphalt Co.

Accessibility: Graded road leads up to it. Power line within a mile of it. Depth of overburden is 20 ft.

Laboratory test:
Sample No. 22-1

Recommendations:
ASPHALT

Murray County - Field Sheet No. 23 - 2 Samples

Location: NE-SW-SW, Sec. 30, T 1 S - R 3 E, location of Sample 23-1. It is operated by the Southern Rock Asphalt Co.

SW-NW-SE, Sec. 30, T 1 S - R 3 E, location of Sample 23-2. This sample came from the bed of Big Sandy Creek.

Quantity: There is an unlimited supply of material, from which Sample No. 23-2 came, all across Sec. 30. There is an unlimited amount of both materials; the extent cannot be determined due to the lack of tools for such work.

Accessibility: Sample 23-1 is about \( \frac{1}{8} \) mile from both a power line and graded road, while sample 23-2 is crossed by a graded road, and is \( \frac{1}{4} \) mile from power-line. There is no overburden.

Laboratory test:

Sample No. 23-1
- Bitumen: 3.41%
- Penetration test: Medium
- Residue: Essentially quartz sand.
- Minerals identified: Asphalt, Quartz.

Recommendations: Good material for road topping.

Sample No. 23-2
- Bitumen:
- Penetration test:
- Residue:
- Minerals identified:

Recommendations:
ASPHALT

MURRAY COUNTY - Field Sheet: R. H. Dott, Special.

Location: SE_1/4 Sec. 23, T 1 S - R 3 E. Abandoned asphalt mine.

Quantity: Exposed for ½ mile, Thickness: 20'.

Accessibility: Near State Highway No. 18.

Laboratory test:
Sample: Dott special.

Bitumen: 11.67%
Penetration test: Very low
Mineral residue: 50% limestone
50% quartz sand
Minerals identified: Asphalt, Calcite, Quartz.

Recommendations: Excellent material for road topping purposes as is.
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<tr>
<th>Location</th>
<th>Amount</th>
<th>F. S.#</th>
<th>Bitumen Penetration Test</th>
<th>Residue</th>
<th>Minerals Identified</th>
<th>Used For:</th>
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<td>178-1</td>
<td>179-2</td>
<td>183-1</td>
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<td>NE 1/4 SW 1/4</td>
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<td>698.0° F.</td>
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<td>698.0° F.</td>
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<td>751.0° F.</td>
<td>770.0° F.</td>
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<td>95% &quot; &quot;&quot;</td>
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<td>RES. % &quot; &quot;&quot;</td>
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<td>52.50%</td>
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<td>PENETRATION TEST: Low</td>
<td>Low</td>
<td>Low</td>
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</tbody>
</table>
ASPHALT

OTTOWA COUNTY - Field Sheet No. 177 - 1 Sample

Location: NE\(\frac{1}{4}\) NE\(\frac{1}{4}\) Sec. 17, T 29 N - R 23 E. Owner: Eagle-
Pitcher Lead and Zinc Co.

Quantity: Drippings in mines. Tar found below shale on top of
and sometimes under limestone and flint beds. The
Crawfish Mine has a quantity of tar in the upper level.

Accessibility: Of course the mines have railroad connections
and good highways already established.

Laboratory test:

OTTAWA COUNTY - Field Sheet No. 179 - 2 Samples.

Location: NE\(\frac{1}{4}\) SW\(\frac{1}{4}\) Sec. 20, T 29 N - R 23 E. Owner: The
Eagle-Pitcher lead and Zinc Co. and Evans-
Wallower Lease Owners.

Quantity: Tar found below shale on top of and sometimes
in underlying limestone.

Accessibility:
ASPHALT

OTTAWA COUNTY - Field Sheet No. 179 - 2 Samples.

Location: South Half of Section 20, T 29 N - R 23 E.
All Lease owned by the Magle-Pitcher Lead
and Zinc Company and Evans-Wallower.

Quantity:

Accessibility: In mines.

Laboratory test:
  Sample No. 179-1


OTTAWA COUNTY - Field Sheet No. 183 - 1 Sample (Liquid Asphalt)

Location: NE\(\frac{1}{4}\) and SW\(\frac{1}{4}\) Sec. 19, T 29 N, R 23 E. (Anna Beaver
Lease) Owned by the Commerce Mining & Royalty Co.

Quantity:

Accessibility: In mine district.

Laboratory test:
  Sample No. 183-1.
ASPHALT

OTTOWA COUNTY - Field Sheet No. 171 -----

Location: NW\(\frac{1}{4}\) Sec. 19, T 29 N - R 23 E.
Eagle-Pitcher Lead and Zinc Co. owners.

Quantity: Drill Hole No. 37. Tar found between 135 & 150:

- No. T F L. " " 70 & 75
- No. 28. " " 120 & 130
- No. 33. " " 140 & 145

SW\(\frac{1}{4}\)-NE\(\frac{1}{4}\) Sec. 19, T 29 N - R 23 E
Commerce Mining & Royalty Co. (Anna Beaver lease owner)

Drill Hole No. W366. Tar found between 115 and 125:

- No. W202. " " 120 and 125

Accessibility: Tar found below Shale on top of and sometime in the underlying limestone. Served by the same facilities that serve the Eagle-Pitcher Lead and Zinc Co. mines.

OTTOWA COUNTY - Field Sheet No. 173 -----

Location: SW\(\frac{1}{4}\) of Sec. 19, T 29 N - R 23 E. Velie Lion, owner.

Quantity: Drill Hole No. 37. Tar found between 150 & 165:

- No. 55. " " 215 & 225
- No. 59. " " 155 & 165
- No. 65. " " 145 & 200
- No. 92. " " 135 & 140
- No. 95. " " 125 & 145
- No. 137. " " 140 & 150
- No. 142. " " 215 & 225
- No. 291. " " 110 & 120

NW\(\frac{1}{4}\)-SW\(\frac{1}{4}\) Sec. 19, T 29 N - R 23 E
Drill Hole No. 166. Tar found between 130 & 145:

- No. 167. " " 165 & 175
- No. 171. " " 165 & 170
- No. 174. " " 170 & 180
- No. 300. " " 175 & 195
- No. 339. " " 135 & 140
- No. 354. " " 140 & 165

NW\(\frac{1}{4}\)-SW\(\frac{1}{4}\) Sec. 19, T 29 N - R 23 E
Drill Hole No. 501. Tar found between 150 & 165:

- No. 601. " " 160 & 170
- No. 731. " " 140 & 160
- No. 781. " " 140 & 150
- No. 267. " " 160 & 170
- No. 269. " " 165 & 170
- No. 369. " " 170 & 180
- No. 400. " " 160 & 165
- No. 401. " " 140 & 160

Accessibility: Tar found below Shale and top of and sometime in the underlying Limestone. Served by the same facilities that serve the Velie Lion mines.
ASPHALT

OTTOWA COUNTY - Field Sheet No. 175 ----

Location: SE 1/4 Section 19, T 29 N - R 23 E.
Commerce Mining and Royalty Co., John Beaver lease owner.

Quantity: SW 1/4-SE 1/4 Section 19, T 29 N - R 23 E
Drill Hole No. 8. Tar found between 125 & 135'.

" " No. 126. " " " 170 & 175'
" " No. 116. " " " 150 & 160'
" " No. 115. " " " 95 & 135'
" " No. 111. " " " 130 & 145'
" " No. 117. " " " 155 & 175'

Accessibility: Tar found below Shale and on top of and sometime in the underlying Limestone. Served by the same facilities that serve the Commerce Mining and Royalty Co. mines.

OTTOWA COUNTY - Field Sheet No. 181 ----

Location: Section 18, T 29 N - R 23 E.
Federal-Gordon lease owners. Not being operated at the present time.

Quantity: NW 1/4-SE 1/4 Section 18, T 29 N - R 23 E.
N 40A Drill Hole No. F106. Tar found between 84 & 110'.

" " " No. F166. " " " 110 & 135'
" " " No. F108. " " " 75 & 140'
" " " No. F109. " " " 90 & 130'
" " " No. F60. " " " 85 & 170'
" " " No. F19. " " " 45 & 75'
" " " No. F58. " " " 100 & 110'
" " " No. F176. " " " 95 & 105'
" " " No. F119. " " " 100 & 135'
" " " No. F81. " " " 95 & 115'

SE 1/4-SE 1/4 Section 18, T 29 N - R 23 E.
SE 40A Drill Hole No. F61 Tar Found between 120 & 145'.

" " " No. F165. " " " 160 & 165'
" " " No. F150. " " " 115 & 155'
" " " No. 152. " " " 145 & 155'
" " " No. B 10. " " " 182 & 188'

SW 1/4-SE 1/4 Section 19, T 29 N - R 23 E.
SW 40A Drill Hole No. F 90 Tar found between 90 & 140'.

" " " No. F 80. " " " 100 & 140'
" " " No. F 82. " " " 70 & 100'
" " " No. F 85. " " " 205 & 310'
" " " No. F101. " " " 85 & 165'
" " " No. F100. " " " 170 & 145'
" " " No. F167. " " " 100 & 120'
" " " No. F 41. " " " 95 & 125'
ASPHALT

OTTOWA COUNTY - Field Sheet No. 188

Location: Section 16, T 29 N - R 23 E.
Lease owned by Cortex-King Brand Mines Co.

Quantity: Section 16; T 29 N - R 23 E.
Drill Hole No. F 13. Tar found between 150' & 155'.
  "  "  No. F 45. "  "  "  105' & 130'.
  "  "  No. F 57 "  "  "  100' & 125'.
  "  "  No. F 61 "  "  "  135' & 140'.
  "  "  No. F 62 "  "  "  125' & 145'.
  "  "  No. F 64 "  "  "  125' & 140'.
  "  "  No. F 65 "  "  "  105' & 115'.
  "  "  No. F 66 "  "  "  125' & 145'.
  "  "  No. F 68 "  "  "  115' & 125'.
  "  "  No. F 104 "  "  "  125' & 130'.

Accessibility: Tar found below Shale and on top of and sometimes in underlying Limestone.
Served by the same facilities that serve the Cortex-King Brand Mines Co.

OTTOWA COUNTY - Field Sheet No. 190

Location: Section 24, T 29 N - R 22 E.
Lease owner, Eagle-Picher Mining Co.

Quantity: North Drill Hole--No. 10 Tar found 95'-145'.
South  "  "  No. 80  "  "  110'-120'.

Accessibility: Tar found below shale on top of and sometimes in underlying limestone.

OTTOWA COUNTY - Field Sheet No. 192

Location: Section 23, T 29 N - R 22 E.
Eagle-Picher--Lease Owners.

Quantity: Kawier Mine--Drill Hole No. 607 Tar found 316'-320'.
  "  "  "  "  No. 600 "  "  310'-315'.
Adams Mine-- "  "  No. 82 "  "  320'-325'.
Mudd Mine  "  "  No. 120  "  "  305'-310'.

Accessibility: Tar is below shale on top of and sometimes in the underlying Limestone and Chert beds.
Served by same facilities that serve the Eagle-Picher mines.
ASPHALT

OTTAWA COUNTY - Field Sheet No. 194

Leasation: Section 13, T 29 N - R 21 E.
Lease owned by Boston Mining & Royalty Co.

Quantity: SE$\frac{1}{4}$-NE$\frac{1}{4}$ Section 13, T 29 N - R 21 E.
Drill Hole No. 2. Tar found between 230'-240'
" " No. 14. " " " 295'-210'

SW$\frac{1}{4}$-NE$\frac{1}{2}$
Drill Hole No. 5. Tar found between 220'-235'
" " No. 108. " " " 220'-235'
" " No. 13. " " " 235'-265'
" " No. 14. " " " 230'-225'
" " No. 15. " " " 210'-240'
" " No. 20. " " " 230'-255'
" " No. 25. " " " 235'-255'
" " No. C-37. " " " 165'-205'
" " No. C-5 " " " 225'-235'
" " No. C-9 " " " 185'-205'

NW$\frac{1}{2}$-NE$\frac{1}{2}$
Drill Hole No. C-17 Tar found between 197'-230'
" " No. C-19 " " " 277'-295'
" " No. C-20 " " " 195'-225'
" " No. C-27 " " " 225'-240'
" " No. C-31 " " " 215'-245'
" " No. C-32 " " " 205'-230'
" " No. C-33 " " " 270'-205'

NE$\frac{1}{4}$-NW$\frac{1}{4}$
Drill Hole No. C-44 Tar found between 205'-215'
" " No. C-43 " " " 220'-250'
" " No. C-38 " " " 185'-220'
" " No. C-50 " " " 190'-230'

Accessibility: Tar found below shale, on top of and sometimes in the underlying Limestone.
ASPHALT

OTTAWA COUNTY
Field Sheet No. 293 Sec F.S. Nos. 169, 171, 173, 175, 181, 183.

Location: Sections 16, 17, 18, 19, 20 T 29 N, R 23 E.

Quantity:

<table>
<thead>
<tr>
<th>Lease / Description</th>
<th>Holes</th>
<th>Acres</th>
<th>cu. yds.</th>
<th>Sec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velie Lion Lease</td>
<td>6</td>
<td>1.5</td>
<td>44,000</td>
<td>19-29N-23E</td>
</tr>
<tr>
<td>Eagle-Picher-Tri-State Lease</td>
<td>1</td>
<td>0.3</td>
<td>2,000</td>
<td>NW NW</td>
</tr>
<tr>
<td>Commerce Mining &amp; Royalty</td>
<td></td>
<td></td>
<td></td>
<td>19-29N-23E</td>
</tr>
<tr>
<td>John Beaver Lease</td>
<td>1</td>
<td>0.5</td>
<td>4,000</td>
<td>SE</td>
</tr>
<tr>
<td>Eagle-Picher Goodwin Lease</td>
<td>2</td>
<td>0.8</td>
<td>24,000</td>
<td>SWNESE</td>
</tr>
<tr>
<td>Eagle-Picher Foch Lease</td>
<td>1</td>
<td>0.6</td>
<td>6,000</td>
<td>NE NE</td>
</tr>
<tr>
<td>Eagle-Picher Alexander Lease</td>
<td>2</td>
<td>1</td>
<td>6,000</td>
<td>SW NW</td>
</tr>
<tr>
<td>Commerce Mining &amp; Royalty</td>
<td>2</td>
<td></td>
<td></td>
<td>19-29N-23E</td>
</tr>
<tr>
<td>Anna Beaver Lease</td>
<td>2</td>
<td>0.5</td>
<td>6,000</td>
<td>SE NW</td>
</tr>
<tr>
<td>Eagle-Picher-La Salle Lease</td>
<td>2</td>
<td>0.8</td>
<td>29,000</td>
<td>SWNESE</td>
</tr>
<tr>
<td>Eagle-Picher-Crawfish Lease</td>
<td>1</td>
<td>0.6</td>
<td>2,000</td>
<td>NESESE</td>
</tr>
<tr>
<td>Eagle-Picher-Howe Lease</td>
<td>1</td>
<td>0.5</td>
<td>2,000</td>
<td>SESESEW</td>
</tr>
<tr>
<td>Evans-Wilower No. 8 Lease</td>
<td>1</td>
<td>0.2</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Eagle-Picher-OKO Lease</td>
<td>2</td>
<td>0.5</td>
<td>15,000</td>
<td>SESESE</td>
</tr>
<tr>
<td>Federal-Gordon Lease</td>
<td>3</td>
<td>1</td>
<td>26,000</td>
<td></td>
</tr>
<tr>
<td>Commerce Mining &amp; Royalty</td>
<td></td>
<td></td>
<td></td>
<td>19-29N-23E</td>
</tr>
<tr>
<td>Anna Beaver Lease</td>
<td>9</td>
<td>1.5</td>
<td>70,000</td>
<td>19-29N-23E</td>
</tr>
<tr>
<td>Cortez-King Brand-Cortez Lease</td>
<td>4</td>
<td>0.6</td>
<td>22,000</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL 3,461,000 cu. yds.

Scattered Hole Avg. 17 feet---9½ acres.
ASPHALT

(Cont) OTTAWA COUNTY - Field Sheet No. 293

Accessibility: Of course the mines have railroad connections and good highways already established.

Laboratory test:

OTTAWA COUNTY - Field Sheet No. 294 Sec. R.S. Nos 186, 190, 192

Location: Sections 23 & 24 T 29 N - R 22 E

Quantity: Scattered Holes -- Av. 13 Feet -- 1½ acres.

<table>
<thead>
<tr>
<th>Company</th>
<th>Lease Description</th>
<th>Section</th>
<th>25-29N-23E</th>
<th>Holes</th>
<th>Cu. Yds.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eagle-Picher</td>
<td>Kitty Lease</td>
<td>24-29N-23E</td>
<td>2</td>
<td>22,000</td>
<td></td>
</tr>
<tr>
<td>Eagle-Picher</td>
<td>Xauier Lease</td>
<td>25-29N-23E</td>
<td>2</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>Eagle-Picher</td>
<td>Adams Lease</td>
<td>26-29N-23E</td>
<td>1</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Eagle-Picher</td>
<td>Mudd Lease</td>
<td>27-29N-23E</td>
<td>1</td>
<td>2,000</td>
<td></td>
</tr>
</tbody>
</table>

Total: 30,000 cu. yds.

Accessibility: Of course the mines have railroads connections and good highways already established.

Laboratory test:
ASPHALT

OTTAWA COUNTY - Field Sheet No 295

Location: Sec. 15 T 29 N - R 21 E

Quantity: Area A Boston Mining & Royalty 200,000 cu. yds.
Area B Boston Mining & Royalty 555,000 cu. yds.
Area A-Av. 27 Feet-5 Acres TOTAL
Area B-Av. 19 Feet-20 Acres TOTAL
Boston Mining & Royalty 2 Holes 26,000 cu. yds.
GRAND TOTAL 786,000 cu. yds.

Accessibility: Of course the mines have railroad connections and good highways already established.

Laboratory test:

OTTAWA COUNTY - Field Sheet No. 366

Location: S\(^2\) Sec. 17 and SE SE Sec. 18, T 29 N - R 25 E.
Operated by Eagle-Fisher Mining & Smelting lease.
That in Sec. 18, by Federal Mining & Smelting Co.

Quantity: Depth of overburden and thickness of stratum are unknown.

Accessibility: Served by the same facilities which are used in mining the shafts.

Laboratory test:
OTTAWA COUNTY - Field Sheet No. 367

Location: NE^4 Sec. 24, T 29 N - R 22 E. Commerce Mining & Royalty Co.

Quantity: Depth of overburden and thickness of stratum unknown. Asphalt flows easily.

Accessibility: Served by the same facilities that serve the Commerce Mining & Royalty Co.

Laboratory test:
ASPHALT FROM LEAD-ZINC MINE

Asphalt sample in pail was received from Henry Hess, Picher Roofing Company, Picher, Oklahoma. The asphalt is obtained from the Gordon Lease, SW. 40 mine. Mr. Hess states that he uses from 35 to 50 barrels of this asphalt per month for roofing purposes. He also stated that he gets some asphalt from other mines than the Gordon.

The rate[.] of accumulation of the tar on the SW. 40 acres of the Gordon Lease is estimated by Mr. Johnson and Mr. George of the Federal Mining and Smelting Company as about five to six barrels per week. The tar drips down from the roof of the abandoned stopes from a roof area of about one-half acre. The tar is collected from small pools on the floor of the stopes, the total area of the pools being about 20 by 100 feet. The tar is dipped up and put into barrels and the barrels hoisted out the mining shaft, known as the Tar Shaft of the Dordon Mine.

Sept. 1929. S. Weidman.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 1/4 NE 1/4 Sec. 31 T4N-R6E</td>
<td>20' thick 20-1</td>
<td>3.76%</td>
<td>Medium</td>
<td>Asphaltic sand mixture.</td>
<td>Asphalt sand, calcite, quartz</td>
<td>Excellent base for floor sweep.</td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>20-2</td>
<td>2.44%</td>
<td>Low</td>
<td>Asphaltic sand</td>
<td>% of Asphalt low, but excellent quality; good road topping material when properly blended.</td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>20-3</td>
<td>3.34%</td>
<td>Medium</td>
<td>90% Qtz.</td>
<td>Good road topping if properly and sufficiently blended.</td>
<td></td>
</tr>
<tr>
<td>NW Sec. 31 T4N-R6E</td>
<td>36-1</td>
<td>1.06%</td>
<td>High</td>
<td>35% L.S. 66% Qtz.</td>
<td>Asphalt sand, calcite</td>
<td>Too low to be of any commercial value.</td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>36-2</td>
<td>3.52%</td>
<td>Low</td>
<td>10% L.S. 90% Qtz. &amp; clay</td>
<td>Asphalt sand, calcite</td>
<td>Good for road topping if properly and sufficiently blended.</td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>36-3</td>
<td>3.42%</td>
<td>Low</td>
<td>25% L.S. 75% Qtz. &amp; clay</td>
<td>Asphalt sand, calcite</td>
<td>Ditto</td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>36-4</td>
<td>3.88%</td>
<td>Low</td>
<td>10% L.S. 90% Qtz. &amp; clay</td>
<td>Asphalt sand, calcite</td>
<td>Ditto</td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>36-5</td>
<td>11.20%</td>
<td>Medium</td>
<td>Qtz. 95% Clay 5%</td>
<td>Asphalt sand, calcite</td>
<td>Needs blending with heavy asphalt for good topping. Enough bitumen but pen. is too high.</td>
<td></td>
</tr>
</tbody>
</table>
## PONTOTOC COUNTY ASPHALT

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.</th>
<th>BITU-</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW Sec. 31</td>
<td>?</td>
<td>38-6</td>
<td>5.58%</td>
<td>Medium</td>
<td>20% L.S. Insoluble clay, &lt;tz, HCl 80%</td>
<td>Asphalt Oil Clay Quartz Calcite</td>
<td>Good for road topping if properly and sufficiently blended with a low penetration asphalt.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>38-7</td>
<td>5.94%</td>
<td>Low</td>
<td>20% L.S. Insoluble clay, Quartz, 80% Calcite</td>
<td>Asphalt Oil Clay Quartz Calcite</td>
<td>Excellent road topping material if supplemented &amp; adequately blended with similar asphalt.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>38-8</td>
<td>3.28%</td>
<td>Medium</td>
<td>20% L.S. Quartz, Insoluble clay, 80% Calcite</td>
<td>Asphalt Oil Clay Quartz Calcite</td>
<td>Good road topping if adequately and properly blended with low penetration asphalt.</td>
</tr>
<tr>
<td>NE NE SW Sec. 12 T3N-R5E</td>
<td>600' long</td>
<td>41-1</td>
<td>2.6%</td>
<td>Low</td>
<td>Quartz sand</td>
<td></td>
<td>Road topping, but must be built up with an additional quantity of low or medium penetration test asphalt.</td>
</tr>
<tr>
<td>SW¹ NW¹ Sec. 28 T2N-R6E</td>
<td>?</td>
<td>48-6</td>
<td>12.2%</td>
<td>Very low</td>
<td>Small L.S Large qts. sand</td>
<td>Calcite Quartz</td>
<td>Road topping. Should be blended with asphalt of medium pen. (May 1, 1936)</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>48-1</td>
<td>6.87%</td>
<td>Low</td>
<td>90% qts. sand 10% L.S.</td>
<td>Asphalt Quartz Limestone</td>
<td>Excellent material as is for Road topping. (May 2)</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>48-2</td>
<td>3.41%</td>
<td>High</td>
<td>90% qts. sand 10% L.S.</td>
<td>Oil Asphalt Quartz Calcite</td>
<td>Fair material for 1. Road topping. 2. Floor sweep base.</td>
</tr>
<tr>
<td>LOCATION</td>
<td>AMOUNT</td>
<td>F.S. #</td>
<td>BITUMEN</td>
<td>PENETRATION TEST</td>
<td>RESIDUE</td>
<td>MINERALS IDENTIFIED</td>
<td>USED FOR:</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
<td>--------</td>
<td>---------</td>
<td>------------------</td>
<td>----------</td>
<td>---------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SW1 NW1 Sec. 28 T2N R2W</td>
<td>?</td>
<td>48-4</td>
<td>7.73%</td>
<td>Low</td>
<td>80% qtz. sand</td>
<td>Asphalt Quartz Calcite</td>
<td>Excellent material as is for: 1. Road Topping.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>48-6</td>
<td>12.04%</td>
<td>Medium</td>
<td>Quartz sand</td>
<td>Quartz</td>
<td>Excellent material as is for: 1. Road topping purposes. 2. Floor sweep base.</td>
</tr>
<tr>
<td>Ditto</td>
<td>?</td>
<td>48-5</td>
<td>18.87</td>
<td>High</td>
<td>Equal quantities of L.S. &amp; Qtz. sand</td>
<td>Oil Asphalt Calcite Quartz</td>
<td>Excellent material for: 1. Base for floor sweep. 2. Road topping if blended with the proper amount of high penetration test asphalt.</td>
</tr>
</tbody>
</table>
ASPHALT

PONTOTOC COUNTY - Field Sheet No. 20 - 3 Samples

Location: SW\(\frac{1}{4}\) NW\(\frac{1}{4}\) Sec. 31, T 4 N - R 6 E. The land is owned by Mrs. Carney of Ada, Oklahoma, but at the present time is in court due to a suit against the lease holder by the owner of the equipment.

Quantity: About 20 acres. Thickness of stratum: 20'

Accessibility: Fair road from deposit to Highway No. 19. One-fourth mile north of section line.

Laboratory test:
Sample 20-1
Asphalt: 5.76%
Penetration test: Medium
Asphaltic sand mixture, Calcite 25% Quartz 25%
Minerals identified: Asphalt, Oil, Calcite, Quartz
Recommendations: Excellent base for floor sweep.

Sample 20-2
Asphalt: 2.44%
Penetration test: Low
Physical Characteristics: Asphaltic Sand 90% Limestone 2% Quartz.
Minerals identified: Asphalt Oil Calcite Quartz
Recommendations: Percent of asphalt low, but excellent quality; good road topping material when properly blended.

Sample 20-3
Asphalt: 3.34%
Penetration test: Medium
Physical Characteristics: Quartz 90% Limestone 10%
Minerals identified: Asphalt Oil Quartz Calcite
Recommendations: Good road topping if properly and sufficiently blended.

PONTOTOC COUNTY - Field Sheet No. 36 - 8 Samples

Location: NW\(\frac{1}{4}\) NW\(\frac{1}{4}\) Sec. 61, T 4 N - R 6 E. Owner: Mrs. Carney

Circular No.19 this deposit described as SW\(\frac{1}{4}\) NW\(\frac{1}{4}\) SE\(\frac{1}{4}\).

Quantity: Area not given (This may be the same area covered by Field Sheet No. 20)

Accessibility: Pit 20' deep.
ASPHALT

PONTOTOC COUNTY - Field Sheet No. 36 (continued)

Laboratory test:
Sample 36-1
  Asphalt 1.06
  Penetration test: High
  Physical Characteristics: Limestone 33%, Quartz and Clay 66%
  Minerals identified: Asphalt, Oil, Calcite, Quartz.
  Recommendations: Too low to be of any commercial value.

Sample 36-2
  Asphalt 3.52
  Pen. test: Low
  Physical Characteristics: Limestone 10%, Quartz and clay 90%
  Minerals identified: Asphalt, Quartz, Calcite, Clay.
  Recommendations: Good for road topping if properly and sufficiently blended.

Sample 36-3
  Asphalt: 3.42%
  Pen. test: Low
  Physical Characteristics: Limestone 25%, Quartz and clay 75%
  Minerals identified: Asphalt, Calcite, Quartz
  Recommendations: Good material for road topping if properly and sufficiently blended.

Sample 36-4
  Asphalt 3.88%
  Pen. test: Low
  Physical Characteristics: Limestone 10%, Quartz and clays 90%
  Minerals identified: Asphalt, Quartz, Calcite, Clay.
  Recommendations: Good for road topping if properly and sufficiently blended.

Sample 36-5
  Asphalt 11.80%
  Pen. test: Medium
  Physical Characteristics: Quartz 95%; Clay 5%
  Minerals identified: Asphalt, Oil, Quartz, Clay.
  Recommendations: This material must be blended with heavy asphalt for good road topping. It has sufficient bitumen, but the penetration is too high.
ASPHALT

PONTOTOC COUNTY - Field Sheet No. 36 (continued)

Laboratory test:
Sample No. 36-6
Asphalt 3.58%  
Pen. test: Medium  
Physical Characteristics: Limestone 20%  
Insoluble clay, quartz HCl 90%  
Minerals identified: Asphalt, Oil, Clay, Quartz, Calcite.  
Recommendations: Good for road topping if properly and sufficiently blended with a low penetration asphalt.

Sample No. 36-7
Asphalt: 5.94%  
Pen. test: Low  
Physical Characteristics: Limestone 20%  
Insoluble clay, quartz 80%  
Minerals identified: Asphalt, Calcite, Clay, Quartz.  
Recommendations: Excellent road topping material if supplemented and adequately blended with similar asphalt.

Sample No. 36-8
Asphalt: 3.28%  
Pen. test: Medium  
Physical Characteristics: Limestone 20%  
Quartz, Insoluble clay 80%  
Minerals identified: Asphalt, Oil, Clay, Calcite, Quartz.  
Recommendations: Good road topping if adequately and properly blended with low penetration asphalt.

PONTOTOC COUNTY - Field Sheet No. 41 - 1 Sample

Location: N\textsuperscript{\circ}4\textdegree 30'h N E\textsuperscript{\circ}4 W E\textsuperscript{\circ}4 Sec. 12, T 3 N - R 5 E. C.F. Armstrong, Owner.

Quantity: A three foot ledge of asphalt outcrops along creek bank for 600 ft. Dip 4 or 5 degrees to NW. Extent not ascertained.

Accessibility: Overburden 6' at the outcrop, and increased to NW. There is a good road leading up within an eighth of a mile. A good road could be constructed down to the outcrop very easily. There is a railroad running through the north half of the section and the State Highway No. 12 is only three-fourths mile east.

Laboratory test:
Sample 41-1
Bitumen: 2.6  
Pen. test: Low  
Residue: Essentially quartz sand  
Minerals Identified: Quartz, Asphalt  
Recommendations: Excellent material for road topping purposes, but must be built up with an additional quantity of low or medium penetration test asphalt.
ASPHALT

PONTOTOC COUNTY - Field Sheet No. 48 - 5 Samples

Location: SW ¼ NW ¼ Sec. 28, T 2 N - R 6 E. Owner: Quite a bit removed.

Quantity: Unlimited. Width of outcrop 100'. Thickness of stratum 10' to 40'.

Accessibility: Oil trail road that once was used to haul the material out that lead to the northwest corner of Section 28 where there is a fair section line road. Proposed Boff and Pittstown highway will run on the North side of the section when completed. Overburden 2' to 8'.

Laboratory test:

Sample No. 48-1 (May 2, 1936)
Bitumen: 6.97%
Penetration test: Low
Mineral residue: 95% quartz sand
10% limestone

Minerals identified: Asphalt, Quartz, Limestone.

Recommendations: Excellent material as is, for:
(1) Road topping.

Sample No. 48-2
Bitumen: 3.41%
Penetration test: High
Mineral residue: 90% quartz sand
10% limestone

Minerals identified: Oil, Asphalt, Quartz, Calcite.

Recommendations: Fair material for: (1) Road topping.
(2) Base forloor sweep compounds.

Sample No. 48-4 (May 2, 1936)
Bitumen: 7.73%
Penetration test: Low
Mineral residue: 80% quartz sand
20% limestone

Minerals identified: Asphalt, Quartz, Calcite.

Recommendations: Excellent material as is, for:
(1) Road topping.

Sample No. 48-2 (May 2, 1936) 48-3
Bitumen: 12.2%
Penetration test: Very low.
Mineral residue: Small amt. limestone, large amount quartz sand.

Minerals identified: Calcite, Quartz, Asphalt.

Recommendations: Very excellent material for: 1. Road topping purposes. Should be blended with asphalt of medium penetration.
ASPHALT

PONTOTOC COUNTY - Field Sheet No. 48 (continued)

Laboratory test:

Sample No. 48-5
Bitumen: 12.04%
Penetration test: Medium
Mineral residue: Essentially quartz sand.
Minerals identified: Quartz

Recommendations: Excellent material as is for:
1. Road topping purpose.
2. Base for floor sweep.

Sample No. 48-5 (re-sampled)
Bitumen: 18.87
Penetration test: High
Mineral residue: Equal quantities of Limestone
and quartz sand.
Minerals identified: Oil, Asphalt, Calcite, Quartz.
Recommendations: Excellent material for:
1. Base for floor sweep.
2. Road topping if blended with the proper
   amount of high penetration test asphalt.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.#</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE 1/4 NW 1/4</td>
<td></td>
<td>16-1</td>
<td>2.38%</td>
<td>Very low</td>
<td>75% qtz. sand</td>
<td>Quartz Clay minerals</td>
<td>Bitumen low, but quality good. Good for road topping. Needs building with sufficient cut back refinery asphalt or other asphaltic material to make first class material</td>
</tr>
<tr>
<td>Sec. 28, T13-R15E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25% clay minerals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto</td>
<td>16-2</td>
<td>12.82%</td>
<td>Very high</td>
<td>69% qtz. sand</td>
<td>Oil Quartz sand</td>
<td></td>
<td>Excellent material as is for floor sweep.</td>
</tr>
</tbody>
</table>
PUSHMATAHA COUNTY - R. M. Holland, County Supv., Antlers, Okla.

Location: SE Corner SE\frac{1}{4} SE\frac{1}{4}, Sec. 16, T 1 S - R 16 E.

Quantity:

Accessibility: In bottom of water well, which is 35' deep and has a Static Head of 33'. The Asphalt is in the nature of an Aquifer. No more information given.

Laboratory test:
ASPHALT

PUSHMATAHA COUNTY - Field Sheet No. 16 - 2 Samples

Location: NE\(\frac{1}{4}\) NW\(\frac{3}{4}\) Sec. 28, T 1 S - R 15 E. Owner:
Just adjacent to the town of JUMBO, OKLA. Information may be had from A.W. Thompson, Mining Engineer of Tulsa.

Quantity: Grahamite was mined intermittently for a number of years, beginning 1891 and continuing until 1910, when an explosion of gas killed several men, injuring several others, and operations were discontinued. It was re-opened again and discontinued indefinitely in 1916, and is at present apparently abandoned.

Thickness of asphalt: 2' to 8', possibly thicker. 150' to 300' in length.
Three shafts were dug. No. 3 to a depth of 280'. No true vein sample taken. Samples from pits/shafts.

Accessibility: The deposit is adjacent to the town of Jumbo, OKLA, but the nearest railroad is at Cubanks or Stringtown.

Laboratory test:
Sample No. 16-1 Grahamite from the shafts and pits.

- Bitumen: 2.38%
- Penetration test: Very low
- Residue: Quartz sand: 75%
- Clay minerals: 25%
- Minerals identified: Quartz, Clay minerals.

Recommendations: While the bitumen ingredients are very low, the quality is very good; the aggregate is also very good for road topping material. It needs, however, to be built up with a sufficient cut back refinery asphalt or other asphaltic material to the proper extent to make first class road material.

Sample No. 16-2 is a sandstone saturated with asphalt.

- Bitumen: 12.82%
- Penetration test: Very low
- Residue: Quartz sand 99%
- Minerals identified: Oil, Quartz sand.

Recommendations: This material is of no value for road topping purposes. It is, however, excellent material as is, for the preparation of commercial floor sweeps. It would need only to be barreled up and the product would be ready for sale.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AMOUNT</th>
<th>F.S.</th>
<th>BITUMEN</th>
<th>PENETRATION TEST</th>
<th>RESIDUE</th>
<th>MINERALS IDENTIFIED</th>
<th>USED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW SW SW SE Sec. 51 T2S-R4W</td>
<td>30 cu. ft.</td>
<td>11-1</td>
<td>0.20%</td>
<td>qtz. sand</td>
<td>Asphalt Quartz</td>
<td>The asphalt content is too low for any commercial purpose.</td>
<td></td>
</tr>
<tr>
<td>NE SW NW Sec. 14 T2S-R4W</td>
<td>6 cu.yds</td>
<td>12-1</td>
<td>4.76%</td>
<td>High 98% qtz. sand</td>
<td>Quartz</td>
<td>Material needs blending with lower pen. test asphalt on account of the asphalt material contained herein is too high in oily matter.</td>
<td></td>
</tr>
<tr>
<td>3½ NE 1¼ Sec. 6 T2S-R4W</td>
<td>?</td>
<td>14-1</td>
<td>1.56%</td>
<td>Very high 95% qtz. sand</td>
<td>Quartz Small amt. calcite Oil</td>
<td>This material contains too small amount of bitumenous matter for any commercial value, which is quite sufficient and oily.</td>
<td></td>
</tr>
<tr>
<td>3½ SE NE Sec. 27 T1S-R5W</td>
<td>4444 cu. yds.</td>
<td>96-A</td>
<td>6.00%</td>
<td>Very low qtz. sand</td>
<td>Asphalt Quartz</td>
<td>For: Road topping.</td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 96-B</td>
<td>14.05%</td>
<td>Very low qtz. sand</td>
<td>Asphalt Quartz</td>
<td></td>
<td>1. Road topping. Might be used for extraction &amp; manufacture of roofing material &amp; asphalt paints.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 96-C</td>
<td>13.2%</td>
<td>High qtz. sand</td>
<td>Oil Asphalt Quartz</td>
<td></td>
<td>Excellent material for base for floor sweep. Fair for road topping but should be mixed with high pen. test.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 96-D</td>
<td>15.3%</td>
<td>High qtz. sand</td>
<td>Ditto</td>
<td></td>
<td>Ditto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 96-D</td>
<td>29.5%</td>
<td>Medium qtz. sand</td>
<td>Ditto</td>
<td></td>
<td>1. Road topping if blended with proper amt. low pen. test asphalt.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 96-D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2. Extraction for asphalt paints &amp; roofing material.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto Ditto 96-D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3. Floor sweep base.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Stephens County Asphalt

<table>
<thead>
<tr>
<th>Location</th>
<th>Amount</th>
<th>F.S. #</th>
<th>Bitumen Penetration Test</th>
<th>Residue</th>
<th>Minerals Identified</th>
<th>Used For:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW 1/2 SE 1/4&lt;br&gt;Sec. 22&lt;br&gt;T1S-R5W</td>
<td>5866 cu. yds.</td>
<td>125-A&lt;br&gt;4.25%&lt;br&gt;High</td>
<td>Quartz sand</td>
<td>Asphalt&lt;br&gt;Quartz</td>
<td>1. Road topping.&lt;br&gt;2. Base for floor sweep.</td>
<td></td>
</tr>
<tr>
<td>Ditto&lt;br&gt;Ditto</td>
<td>125-B&lt;br&gt;4.56%&lt;br&gt;Very low</td>
<td>Ditto</td>
<td>Asphalt&lt;br&gt;Quartz sand</td>
<td>Ditto</td>
<td>1. Road topping.</td>
<td></td>
</tr>
<tr>
<td>Ditto&lt;br&gt;Ditto</td>
<td>125-1&lt;br&gt;5.0%&lt;br&gt;High</td>
<td>Ditto</td>
<td>Oil&lt;br&gt;Asphalt&lt;br&gt;Quartz</td>
<td>Ditto</td>
<td>Fair road topping material if blended with asphalt of low penetration test.</td>
<td></td>
</tr>
<tr>
<td>Ditto&lt;br&gt;Ditto</td>
<td>125-B&lt;br&gt;1.6%&lt;br&gt;High</td>
<td>Ditto</td>
<td>Ditto</td>
<td>Ditto</td>
<td>Bitumen content entirely too low to be of any commercial value.</td>
<td></td>
</tr>
<tr>
<td>NW SW SE&lt;br&gt;Sec. 27&lt;br&gt;T2S-R5W</td>
<td>?</td>
<td>123</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW NE NE&lt;br&gt;Sec. 10&lt;br&gt;T3S-R5W</td>
<td>6 Bbls.&lt;br&gt;per day</td>
<td>220</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW SW SE&lt;br&gt;Sec. 27&lt;br&gt;T2S-R5W</td>
<td>?</td>
<td>123</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE SW NW&lt;br&gt;Sec. 14&lt;br&gt;T2S-N-R4W</td>
<td></td>
<td>317</td>
<td></td>
<td></td>
<td>Not considered commercial.</td>
<td></td>
</tr>
<tr>
<td>SW SW SW&lt;br&gt;Sec. 31&lt;br&gt;T2S-R4W</td>
<td></td>
<td>316</td>
<td></td>
<td></td>
<td>Not commercial.</td>
<td></td>
</tr>
<tr>
<td>SE 1/4 NW 1/4&lt;br&gt;Sec. 6&lt;br&gt;T2S-R5W</td>
<td>218&lt;br&gt;Culture sheet showing asphalt deposit</td>
<td></td>
<td></td>
<td></td>
<td>in East line of the NW 1/4 of Sec. 6, T2S-R5W</td>
<td></td>
</tr>
<tr>
<td>LOCATION</td>
<td>AMOUNT</td>
<td>F.S.#</td>
<td>BITUMEN</td>
<td>PENETRATION TEST</td>
<td>RESIDUE</td>
<td>MINERALS IDENTIFIED</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
<td>-------</td>
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<td>------------------</td>
<td>---------</td>
<td>---------------------</td>
</tr>
<tr>
<td>NE ¼ SE ¼ Sec. 22 T19-R52</td>
<td>5866 cu. yds.</td>
<td>125-A</td>
<td>5.50%</td>
<td>High</td>
<td>Quartz sand</td>
<td>Oil Asphalt Quartz</td>
</tr>
<tr>
<td>Ditto</td>
<td>Ditto</td>
<td>125-B</td>
<td>Less than 1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Sheet No. 1</td>
<td></td>
<td>Stephens County - Liquid Asphalt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
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<td>---------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>68 NE NE 68</td>
<td>Sec. 27 T62-24-NE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount</td>
<td>3.8 bbls daily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Grav. AB</td>
<td>12.76° API</td>
<td>@ 60° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Grav. DRY</td>
<td>12.89° API</td>
<td>@ 60° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>5.13%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Drop Over</td>
<td>546.0° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td>522.49° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20%</td>
<td>527.69° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>762.00° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40%</td>
<td>772.40° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>788.00° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90%</td>
<td>798.00° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95%</td>
<td>799.00° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.E.; 3 Drop Over</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Boiling:</td>
<td>546.0° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Point:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Point:</td>
<td>799.00° F.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cracking Point:</td>
<td>798.00° F.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Octane Rating:</td>
<td>R. R.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distillate:</td>
<td>47.10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residue:</td>
<td>52.90%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration Test:</td>
<td>High</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
ASPHALT

STEPHENS COUNTY - Field Sheet No. 11 - 1 Sample

Location: SW Corner of the SW 1/4 of Sec.31, T 2 S - R 4 W.
Owner--
Tested and asphalt content found to be too low for commercial use.

STEPHENS COUNTY - Field Sheet No. 12 - 1 Sample.

Location: SW 1/4 NW 1/4 Sec. 14, T 2 S - R 4 W. Owner--

Quantity: 8' wide, 25' long, 4" thick at outcrop.
Possibly not of commercial quantity. Estimated 6 tons.

Accessibility: Not easily accessible. Overburden on side of creek, ten to twelve feet.

Laboratory test:
Sample No. 12-1
Bitumen----4.76%
Penetration test: High
Residue--Quartz sand 98%
Materials identified: Quartz, Asphalt.

Recommendations: This material needs to be blended with asphalt material of lower penetration test on account of the asphalt material contained herein is too high in oily matter.

STEPHENS COUNTY - Field Sheet No. 14----1 Sample
(Grahamite)

Location: NE 1/4 Sec. 6, T 2 S - R 4 W. Owner--E.B.Cox, Ardmore, Okla.

Quantity: Area estimated at 2 acres. There are six of these abandoned shafts.

Accessibility: Overburden 27 ft. Thickness of vein 6' then 40' to next vein. Some of these shafts 158' deep.
Apparently a great amount of Grahamite. The government demanded that the mine be modernized, but instead of it being modernized, it was abandoned. With investment, could be operated profitably as there is a large amount of Grahamite.

Sandstone stratum in the mine, 7' to 10' speckled with asphalt, very hard.

Pigment for paints--Red.

Laboratory tests:
Sample 14-1
Bitumen----1.54%
Penetration test: Very high
Residue -- Quartz sand--95%
Minerals identified: Quartz, small amount of Calcite, Oil.
ASPHALT

STEPHENS COUNTY & Field Sheet No. 14 (continued)

Recommendations: This material contains too small amount of bituminous matter for any commercial value, which is quite sufficient and oily.

STEPHENS COUNTY - Field Sheet No. 123 - 1 Sample

Location: 36 1/4 36 1/2 Sec. 27, T 2 S - R 5 W. Owner:

Quantity: Thickness of stratum 13'. Area unknown. Sample taken from a dug well 40' deep.

Accessibility: Overburden 10'.

Laboratory test: By error it is typed as 125-1 on page following.

Bitumen: 5.0% 

STEPHENS COUNTY - Field Sheet No. 96 - 5 Samples

Location: 36 1/4 36 1/2 Sec. 27, T 1 S - R 5 W. Owner - information from G.D. Harmon, who resides on the next place.

Quantity: 4444 cu. yds. estimated. Probably much more, 3/4 mile. Depth of asphalt not found at 10' plus.

Accessibility: Overburden 2' of soil. Outcrop in bed of creek, with overlying strata of rock on either side. Quantity so extensive that it would appear that this deposit is well worth development. County commissioners have information of this deposit.

Laboratory test:
Sample No. 96-A

Bitumen--6.00
Penetration test - Very low
Residue: Essentially quartz sand
Minerals identified: Asphalt, Quartz

Recommendations: Good material for: Road topping.

Sample 96-B

Bitumen: 14.00%
Penetration test: Very low
Residue: Essentially quartz sand
Minerals identified: Asphalt, Quartz.

Recommendations: This mineral excellent for: (1). Road topping. (2). Might be used for extraction and manufacture of roofing material & asphalt paints.
LABORATORY TESTS

**Sample No. 96-A (Retest)**

- **Bitumen:** 15.3%
- **Penetration test:** High
- **Mineral residue:** Essentially quartz sand.
- **Minerals identified:** Oil, Asphalt, Quartz.

**Recommendations:**

Excellent material for:

1. Base for floor sweep compound. Fair material for road topping but should be mixed with asphalt with high penetration test.

**Sample No. 96-B (Retest)**

- **Bitumen:** 13.8%
- **Penetration test:** High
- **Mineral residue:** Essentially quartz sand.
- **Minerals identified:** Oil, Asphalt, Quartz.

**Recommendations:**

Excellent material for base for floor sweep compound. Fair material for road topping but should be mixed with asphalt of high penetration test.

**Sample No. 125-A**

- **Laboratory test:** Bitumen: 5.50
- **Penetration test:** High
- **Mineral residue:** Principally quartz sand
- **Minerals identified:** Oil, Asphalt, Quartz.

**Recommendations:** Fair road material if mixed with high penetration test asphalt. Good material for floor sweep, as is.

**Sample No. 125-B:** Bitumen: Less than 1%.

**Recommendations:** Too low for any commercial value at this time.
ASPHALT

STEPHENS COUNTY - Field Sheet No. 125 - 6 Samples.

Location: NW\(^2\)-SE\(^1\) Sec. 22, T 1 S - R 5 W. Owner:

Quantity: 5566 cu. yds or more. Deposit along a creek for a 1/4 mile. Thickness of stratum 3'.

Accessibility: Extends along creek bed for 1/4 mile. Another sample taken from a dug well about 1/4 mile away.

Overburden on Sample 125-A: 0 On sample 125-A: 5'

Laboratory test:
Sample 125-A

Bitumen: 5.23
Penetration test: High
Residue: Essentially Quartz sand.
Minerals identified: Asphalt, Quartz.

Recommendations: Good material for: (1) Road topping.
(2) Base for floor sweep.

Sample 125-B from the well in NW corner of SW\(^1\) of Sec. 22.

Bitumen: 4.55%
Penetration test: Very low
Residue: Essentially quartz sand.
Mineral identified: Asphalt, Quartz sand.

STEPHENS COUNTY - Field Sheet No. 218--Culture sheet showing asphalt deposit in East line of the NW\(^2\) of SEC. 6, T 2 S - R 5 W.

STEPHENS COUNTY - Field Sheet No. 225--Culture sheet showing asphalt oil well 300' from water well. This oil-asphalt well is 1020 ft. deep, 16' of sand at 600'. There was 10' of heavy liquid asphalt. Specific Gravity EQ = 22.

STEPHENS COUNTY - Field Sheet No. 229 - 1 sample. Also shown on field sheet No. 225.

Location: NW\(^2\) NE\(^1\) Sec.10, T39, R5W Owner, see simple is J.C Taylor, Duncan, Okla. He also owns production.

Quantity: This sample of Asphalt base oil, with an approximate gravity of 22, comes from a well 1020' deep, and which has been producing 6 bbls daily since 1914. 70 acres. About 1500 bbls in storage and ready for sale (4/9/36)

Mr. Taylor is very anxious to make contact for outlet for his present and future production. Estimated daily production could be 168 bbls. Ten feet of very heavy asphalt at 600'.

Accessibility:

Laboratory test:
ASPHALT

STEPHENS COUNTY - Field Sheet No. 125-6 Samples (continued)

Laboratory test:
Sample No. 125-6
Bitumen: 5.0%
Penetration test: High
Mineral residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz

Recommendations: Fair road topping material if blended with asphalt of low penetration test.

Sample No. 125-B (Re-sampled)
Bitumen: 1.6%
Penetration test: High
Mineral residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz

Recommendations: Bitumen content entirely too low to be of any commercial value.

STEPHENS COUNTY - Field Sheet No. 38 (Asphalt)
Location:

Laboratory test:
Sample No. 38
Same land designation as 125-6
Bitumen: 29.5%
Penetration test: Medium
Mineral residue: Essentially quartz sand
Minerals identified: Oil, Asphalt, Quartz

Recommendations: Excellent material for: 1. Road topping purposes if blended with the proper amount of low penetration test asphalt. 2. For extraction purposes to be used in the manufacture of asphalt paints and roofing material. 3. Base for floor sweep compounds.
Location: SW SW SW Section 31, T 2 S - R 4 W. North east of Loco.

Quantity: Large quantity but poor quality.

Accessibility: Overburden from two to ten feet.

Remarks: Not commercial.

Location: NE SW NW Section 14, T 2 S - R 4 W.

Quantity: 4 inches thick, 8 feet wide, 25 feet long.

Accessibility: Deposit in bed of creek; not easily accessible. Overburden on south of creek from 10 to 12 feet.

Remarks: Not considered commercial.