In connection with the "Introduction to the Bituminous Coal Fields of Pennsylvania" now being prepared for publication by the Pennsylvania Geological Survey, coal reserves of the bituminous fields have been compiled. In order to render this information available at once without waiting for the uncertain date of printing the report, an abstract of figures for Jefferson County is given herewith. All of the information readily available at this time has been used in the computation, which followed the methods used by the Land Classification Board of the United States Geological Survey in its valuation of the public coal lands. The results are given by beds for each township. For some beds and for some areas the data are abundant and the results entirely reliable. For other beds and areas the data are meager and the results subject to revision as additional data are obtained. All the data used and the computation sheets are permanently filed so that modifications of the original figures can be made readily when required by additional information.

The figures presented are preliminary and subject to correction for any area when that area shall be studied in detail. In the meantime critical examination of the figures is invited in order that the results may be made as accurate as possible. To that end the Survey will welcome every bit of information not now in its possession. Records of drilling and other data will be kept strictly confidential if so desired, although the Survey naturally prefers to be able to use data freely.

George H. Ashley.
Introduction.

Jefferson County lies in the western part of Pennsylvania, and is bounded on the north by Forest and Elk counties, on the east by Clearfield County, on the south by Indiana County, and on the west by Armstrong and Clarion counties.

This county has long been the center of mining in the northern part of the main bituminous coal field. The Reynoldsville basin has produced coal for many years, and the Freeport coals in the vicinity of Punxsutawney have been exploited with much success for at least twenty years.

The principal mining areas are along the main lines of the Pittsburgh and Shawmut; Buffalo, Rochester and Pittsburgh; New York Central; and Erie railroads. Most of the coal already mined out came from the Freeport beds. The Kittanning coals are under cover in practically all the southern part of the county and shafting is necessary to reach them. The future production from Jefferson County will be from these beds now practically undeveloped.

Coal Beds.

There are eleven coal beds in Jefferson County, some of which are only a few inches thick; two are of great importance, and five others are locally mineable. The Lower Freeport is the most important and the Lower Kittanning is second. The Brookville, Clarion, Middle and Upper Kittanning, and Upper Freeport are locally mineable.

The Mercer coal, which is geologically the lowest coal in the county, may have some future value. It is not being mined at the present time.

The Brookville coal, lying at the base of the Allegheny formation, is most important in the vicinity of Brookville, its type locality. In the vicinity of Summerville it ranges from 2 feet 8 inches to 5 feet 6 inches. At other localities in this area it ranges from 2 to 6 feet thick but is never entirely clean. The lower part of the bed is usually very high in sulphur. The Brookville is also thick in the eastern part of the county but has not been extensively mined. In the vicinity of Reynolds ville it is locally 3 feet thick, and at Falls Creek it has a maximum thickness of 4 feet including 1 to 2 inches of shale near the middle. The Brookville coal is deep under cover in most of the southern part of the county and drill hole records show that it is rarely too thin to be mined although locally it contains several bone and shale partings.

The Lower Kittanning coal is important in most localities in Jefferson County. In the eastern part of the county it averages less than 3 feet thick. In the vicinity of Pine Creek in the southwestern part of the county it locally averages 3 feet thick and is extensively mined.
The Middle Kittanning coal is mined and used exclusively for domestic fuel. Its thickness and quality are extremely variable. It is thickest and best in Union township, where it averages 2 feet 6 inches thick, with a maximum thickness of 3 feet 6 inches. The Middle Kittanning is locally 2 to 4 feet thick in Warsaw and Washington townships. The coal is clean, without partings, and has excellent quality.

The Upper Kittanning coal is generally thin and unimportant in Jefferson County. Locally it is thick enough to be mined profitably. On Pine Creek the coal has a maximum thickness of 2 feet 9 inches. In Union township, near Corsica, it ranges from 2 feet 6 inches to 3 feet thick, and is mined for local fuel. The bed is thin and unimportant in the northeastern part of the county, and is deep under cover in the eastern and southeastern townships where little is known of its value and quality.

The Lower Freeport is the most important coal in the county. More coal has been mined from this bed than all the rest of the beds put together. This production came from twelve townships, Winslow and Henderson being the principal producers. It was the first bed mined in Jefferson County and is now approaching exhaustion in the Reynoldsville basin, the first large-producing area.

The Lower Freeport is of mineable thickness in every township in Jefferson County where it has not been eroded. Its greatest thickness is in Henderson township between Big Run and Desire. Here the bed is locally over 13 feet thick including 2 feet of shale near the top of the bed. The usual thickness of the bed is approximately 4 feet, and it has no partings or binders in most localities. An exception to this rule is in McCalmont township where a bony parting, averaging 2 inches thick, is present practically everywhere 2 feet above the bottom.

The Upper Freeport is very irregular in thickness and variable in quality. It is locally a fine bed of good coal. It is mined at several places on Pine Creek and in the southeastern townships of the county, where it ranges from 2 feet 8 inches to 4 feet 6 inches thick. In Henderson, McCalmont, Oliver, and Ringgold townships the Upper Freeport coal ranges from 12 inches to 5 feet thick, averaging less than 2 feet. The Upper Freeport coal is now being mined extensively in Washington and Snyder townships in the Coal Glen, Brockwayville, and Crenshaw districts. The Lower Freeport has been practically worked out in these districts and the Upper Freeport has taken its place as a producer. It averages about 2 feet 6 inches thick, is fairly clean, but is high in sulphur.

Method of Computing Reserves.

A base map for each coal bed was made by tracing its outcrop from the geological map of the county made by the Pennsylvania Second Geological Survey, with township boundaries and outcrop lines corrected according to latest maps available. All available measurements of a coal bed, gathered from Federal and State reports, mine

- 3 -
maps, core drill records and personal inspections, were plotted on
the map of that coal bed at the locality represented. By studying
the distribution of the figures, areas of equal thickness were plotted;
and by means of a planimeter, an instrument for measuring plane areas,
the area of each coal bed in each township was measured. The unit
used for calculating the quantity of coal originally present was
97,000 short tons per inch of bed per square mile of area.

Worked-out areas were determined from mine maps and plotted
to scale on the base maps. The same method as above was used for com-
puting the quantity of coal extracted.

For some localities, no information is available as to the
mined-out areas of the various beds computed herein. For these places,
an estimate of probable depletion has been made, based on age and size
of operation, or on the difference between original areas and state-
ments of acreages remaining unmined.

The quantity of coal mined out and lost is determined in the
following manner: The total production tonnage of the county was
obtained from reports of the United States Geological Survey; to this
quantity of coal was added another quantity representing the amount
of coal lost while mining. The total of these two figures repre-
sents the total quantity of coal mined out and lost. This quantity of coal
was distributed among the townships according to the extent of mining
in each township.

The quantity of coal mined out and lost was subtracted from
the quantity of coal originally present. The result of this sub-
traction represents the quantity of coal remaining. To obtain the
quantity of recoverable coal the quantity remaining was multiplied by
a certain percentage of recovery, which was different in every bed and
in each township. This percentage of recovery was determined by the
writer in making a close study of coal waste and mining methods for
the United States Coal Commission.

Coal Reserves.

The following tables give the estimated quantity of coal in
the original deposit, quantity of coal mined out and lost, and quan-
tity recoverable in each township. The tables also give the workable
area of each coal bed in each township. Another table summarizes the
coal resources by beds in Jefferson County.

The data on some of the beds in certain townships are very
meager, and the writer was necessarily forced to generalize the
figures somewhat. As more data are collected the estimates may be
changed. However, the total quantity of coal recoverable in each
township is very reliable.

Winslow township has the largest quantity of recoverable
c coal, Snyder is second, and Bell is third.
The largest quantity of recoverable coal is in the Brookville bed, the Lower Kittanning is second, and the Lower Freeport is third. The largest workable area of coal is in the Lower Kittanning, Brookville is second, and the Lower Freeport is third.

**SUMMARY OF COAL RESOURCES IN JEFFERSON COUNTY, IN SHORT TONS**

<table>
<thead>
<tr>
<th>Bed</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Workable area (sq.mi.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>1,002,300,000</td>
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<td>700,700,000</td>
<td>299</td>
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<td>268,000,000</td>
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<td>Upper Kittanning</td>
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</tr>
<tr>
<td>Lower Freeport</td>
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</tr>
<tr>
<td>Upper Freeport</td>
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<td>217,600,000</td>
<td>112.5</td>
<td></td>
</tr>
</tbody>
</table>

3,334,900,000  279,400,000  2,123,400,000  1132.5

- 5 -
<table>
<thead>
<tr>
<th>Township</th>
<th>Brookville</th>
<th>L.Kittanning</th>
<th>M.Kittanning</th>
<th>C.Kittanning</th>
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<tr>
<td>Bell</td>
<td>8,400,000</td>
<td>34,600,000</td>
<td>14,600,000</td>
<td>15,300,000</td>
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<tr>
<td>Clover</td>
<td>30,500,000</td>
<td>3,700,000</td>
<td>2,000,000</td>
<td></td>
</tr>
<tr>
<td>Eldred</td>
<td>50,100,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gaskill</td>
<td>8,600,000</td>
<td>30,400,000</td>
<td>9,300,000</td>
<td>4,600,000</td>
</tr>
<tr>
<td>Henderson</td>
<td></td>
<td>22,700,000</td>
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<td></td>
</tr>
<tr>
<td>Knox</td>
<td>44,000,000</td>
<td>16,600,000</td>
<td>16,100,000</td>
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</tr>
<tr>
<td>McCallum</td>
<td></td>
<td>33,200,000</td>
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</tr>
<tr>
<td>Oliver</td>
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<td>29,200,000</td>
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</tr>
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<td>Perry</td>
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<td>28,300,000</td>
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<tr>
<td>Pine Creek</td>
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<td>4,900,000</td>
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<td>Polk</td>
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<td>Porter</td>
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<tr>
<td>Rose</td>
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<td></td>
</tr>
<tr>
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<td>29,500,000</td>
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</tr>
<tr>
<td>Union</td>
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<td>16,000,000</td>
<td>11,000,000</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Warsaw</td>
<td>61,000,000</td>
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</tr>
<tr>
<td>Washington</td>
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<td>18,100,000</td>
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<tr>
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<td>126,200,000</td>
<td>57,500,000</td>
<td>33,400,000</td>
<td>42,400,000</td>
</tr>
<tr>
<td>Young</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>700,700,000</strong></td>
<td><strong>443,100,000</strong></td>
<td><strong>268,000,000</strong></td>
<td><strong>172,600,000</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Township</th>
<th>L. Freeport</th>
<th>U. Freeport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bell</td>
<td>29,300,000</td>
<td>25,100,000</td>
</tr>
<tr>
<td>Clover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eldred</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gaskill</td>
<td>9,700,000</td>
<td>10,600,000</td>
</tr>
<tr>
<td>Henderson</td>
<td>4,700,000</td>
<td>30,500,000</td>
</tr>
<tr>
<td>Knox</td>
<td>21,900,000</td>
<td>15,600,000</td>
</tr>
<tr>
<td>McCallum</td>
<td>53,800,000</td>
<td>14,800,000</td>
</tr>
<tr>
<td>Oliver</td>
<td>9,400,000</td>
<td></td>
</tr>
<tr>
<td>Perry</td>
<td>26,200,000</td>
<td>25,900,000</td>
</tr>
<tr>
<td>Pine Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polk</td>
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</tr>
<tr>
<td>Porter</td>
<td>34,700,000</td>
<td>9,500,000</td>
</tr>
<tr>
<td>Ringgold</td>
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</tr>
<tr>
<td>Rose</td>
<td></td>
<td>29,900,000</td>
</tr>
<tr>
<td>Snyder</td>
<td>9,500,000</td>
<td>9,500,000</td>
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<tr>
<td>Union</td>
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<td>50,500,000</td>
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<td>Warsaw</td>
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<tr>
<td>Washington</td>
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<td>10,200,000</td>
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<tr>
<td>Winslow</td>
<td>43,800,000</td>
<td>40,000,000</td>
</tr>
<tr>
<td>Young</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>321,400,000</strong></td>
<td><strong>217,600,000</strong></td>
</tr>
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</table>

- 6 -
## COAL RESOURCES BY TOWNSHIPS, IN SHORT TONS

### BEAVER TOWNSHIP

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable Area (sq.mi.)</th>
<th>Avg. Thick. (inches)</th>
<th>Original Deposit</th>
<th>Mined Out and Lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>14</td>
<td>48</td>
<td>65,200,000</td>
<td>8,000,000</td>
<td>40,000,000</td>
<td>70</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
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<td></td>
<td><strong>71,000,000</strong></td>
<td><strong>8,500,000</strong></td>
<td><strong>43,700,000</strong></td>
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### BELL TOWNSHIP

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable Area (sq.mi.)</th>
<th>Avg. Thick. (inches)</th>
<th>Original Deposit</th>
<th>Mined Out and Lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>8</td>
<td>18</td>
<td>14,000,000</td>
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<td>8,400,000</td>
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<tr>
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<td>---</td>
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<td>75</td>
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<tr>
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<tr>
<td><strong>Total</strong></td>
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<td></td>
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<td><strong>127,300,000</strong></td>
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### CLOVER TOWNSHIP

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable Area (sq.mi.)</th>
<th>Avg. Thick. (inches)</th>
<th>Original Deposit</th>
<th>Mined Out and Lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>10</td>
<td>48</td>
<td>46,600,000</td>
<td>5,000,000</td>
<td>30,800,000</td>
<td>75</td>
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<tr>
<td>L. Kittng.</td>
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<td>30</td>
<td>5,800,000</td>
<td>500,000</td>
<td>3,700,000</td>
<td>70</td>
</tr>
<tr>
<td>M. Kittng.</td>
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<td>30</td>
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<td>---</td>
<td>2,000,000</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td></td>
<td><strong>55,300,000</strong></td>
<td><strong>5,500,000</strong></td>
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### ELDRED TOWNSHIP

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<thead>
<tr>
<th>Bed</th>
<th>Workable Area (sq.mi.)</th>
<th>Avg. Thick. (inches)</th>
<th>Original Deposit</th>
<th>Mined Out and Lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
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<td>Bed</td>
<td>Workable area (sq.mi.)</td>
<td>Average thickness inches</td>
<td>Original mined out deposit and lost</td>
<td>Recoverable</td>
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<td>--------------</td>
<td>------------------------</td>
<td>--------------------------</td>
<td>-------------------------------------</td>
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</tr>
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<td>M. Kittng.</td>
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<td>20</td>
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<td>9,300,000</td>
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<tr>
<td>U. Kittng.</td>
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<td><strong>Total</strong></td>
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<thead>
<tr>
<th>Henderson Township</th>
<th>Area 20.48 square miles</th>
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<tr>
<td>L. Kittng.</td>
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<tr>
<td>L. Freeport</td>
<td>19</td>
</tr>
<tr>
<td>U. Freeport</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>54</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Knox Township</th>
<th>Area 31 square miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brockville</td>
<td>20</td>
</tr>
<tr>
<td>L. Kittng.</td>
<td>16</td>
</tr>
<tr>
<td>M. Kittng.</td>
<td>12</td>
</tr>
<tr>
<td>L. Freeport</td>
<td>6</td>
</tr>
<tr>
<td>U. Freeport</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>57</strong></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>McCalmont Township</th>
<th>Area 25.8 square miles</th>
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</thead>
<tbody>
<tr>
<td>L. Kittng.</td>
<td>22</td>
</tr>
<tr>
<td>M. Kittng.</td>
<td>20</td>
</tr>
<tr>
<td>U. Kittng.</td>
<td>18</td>
</tr>
<tr>
<td>L. Freeport</td>
<td>14</td>
</tr>
<tr>
<td>U. Freeport</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>84</strong></td>
</tr>
<tr>
<td>Township</td>
<td>Area</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>OLIVER TOWNSHIP</td>
<td>29.68</td>
</tr>
<tr>
<td>Brookville</td>
<td>139,700</td>
</tr>
<tr>
<td>L.Kittng.</td>
<td>500,000</td>
</tr>
<tr>
<td>M.Kittng.</td>
<td>9,400,000</td>
</tr>
<tr>
<td>L.Freeport</td>
<td>57</td>
</tr>
<tr>
<td>PERRY TOWNSHIP</td>
<td>28.88</td>
</tr>
<tr>
<td>L.Kittng.</td>
<td>71</td>
</tr>
<tr>
<td>U.Kittng.</td>
<td>155,900</td>
</tr>
<tr>
<td>L.Freeport</td>
<td>25</td>
</tr>
<tr>
<td>U.Freeport</td>
<td>175,900</td>
</tr>
<tr>
<td>PINE CREEK TOWNSHIP</td>
<td>29.2</td>
</tr>
<tr>
<td>Total</td>
<td>88,400</td>
</tr>
<tr>
<td></td>
<td>1,000,000</td>
</tr>
<tr>
<td></td>
<td>57,100</td>
</tr>
<tr>
<td>POLK TOWNSHIP</td>
<td>35.2</td>
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<tr>
<td>PORTER TOWNSHIP</td>
<td>19.68</td>
</tr>
<tr>
<td></td>
<td>169,500</td>
</tr>
<tr>
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<td></td>
<td>34,700,000</td>
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<tr>
<td></td>
<td>9,500,000</td>
</tr>
<tr>
<td></td>
<td>109,700</td>
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</tbody>
</table>
### RINGGOLD TOWNSHIP

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable area (sq. mi.)</th>
<th>Average thickness (inches)</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>L. Kittng.</td>
<td>16</td>
<td>30</td>
<td>46,600,000</td>
<td>5,000,000</td>
<td>27,000,000</td>
<td>65</td>
</tr>
<tr>
<td>M. Kittng.</td>
<td>13</td>
<td>24</td>
<td>30,300,000</td>
<td>---</td>
<td>19,700,000</td>
<td>65</td>
</tr>
<tr>
<td>U. Kittng.</td>
<td>10</td>
<td>24</td>
<td>23,300,000</td>
<td>---</td>
<td>15,100,000</td>
<td>65</td>
</tr>
<tr>
<td>L. Freeport</td>
<td>8</td>
<td>36</td>
<td>28,000,000</td>
<td>200,000</td>
<td>19,500,000</td>
<td>70</td>
</tr>
<tr>
<td>U. Freeport</td>
<td>6</td>
<td>30</td>
<td>17,500,000</td>
<td>7,000,000</td>
<td>7,400,000</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>53</strong></td>
<td></td>
<td><strong>145,700,000</strong></td>
<td><strong>12,200,000</strong></td>
<td><strong>88,700,000</strong></td>
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</tbody>
</table>

### ROSE TOWNSHIP

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable area (sq. mi.)</th>
<th>Average thickness (inches)</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>12</td>
<td>30</td>
<td>34,900,000</td>
<td>1,000,000</td>
<td>23,700,000</td>
<td>70</td>
</tr>
<tr>
<td>L. Kittng.</td>
<td>3</td>
<td>24</td>
<td>7,000,000</td>
<td>500,000</td>
<td>4,200,000</td>
<td>65</td>
</tr>
<tr>
<td>M. Kittng.</td>
<td>1</td>
<td>36</td>
<td>3,500,000</td>
<td>700,000</td>
<td>2,000,000</td>
<td>70</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td></td>
<td><strong>45,400,000</strong></td>
<td><strong>2,200,000</strong></td>
<td><strong>29,900,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

### SNYDER TOWNSHIP

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable area (sq. mi.)</th>
<th>Average thickness (inches)</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>20</td>
<td>36</td>
<td>69,800,000</td>
<td>1,000,000</td>
<td>47,800,000</td>
<td>70</td>
</tr>
<tr>
<td>L. Kittng.</td>
<td>16</td>
<td>24</td>
<td>37,200,000</td>
<td>1,500,000</td>
<td>23,200,000</td>
<td>65</td>
</tr>
<tr>
<td>M. Kittng.</td>
<td>14</td>
<td>24</td>
<td>42,100,000</td>
<td>---</td>
<td>29,500,000</td>
<td>70</td>
</tr>
<tr>
<td>U. Kittng.</td>
<td>12</td>
<td>24</td>
<td>27,900,000</td>
<td>---</td>
<td>16,700,000</td>
<td>60</td>
</tr>
<tr>
<td>L. Freeport</td>
<td>8</td>
<td>42</td>
<td>32,600,000</td>
<td>20,000,000</td>
<td>9,500,000</td>
<td>75</td>
</tr>
<tr>
<td>U. Freeport</td>
<td>6</td>
<td>30</td>
<td>17,500,000</td>
<td>4,000,000</td>
<td>9,500,000</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>76</strong></td>
<td></td>
<td><strong>227,100,000</strong></td>
<td><strong>26,500,000</strong></td>
<td><strong>135,600,000</strong></td>
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### UNION TOWNSHIP

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable area (sq. mi.)</th>
<th>Average thickness (inches)</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>12</td>
<td>24</td>
<td>27,900,000</td>
<td>1,000,000</td>
<td>17,500,000</td>
<td>65</td>
</tr>
<tr>
<td>L. Kittng.</td>
<td>8</td>
<td>30</td>
<td>23,300,000</td>
<td>500,000</td>
<td>16,000,000</td>
<td>70</td>
</tr>
<tr>
<td>M. Kittng.</td>
<td>5</td>
<td>20</td>
<td>14,500,000</td>
<td>---</td>
<td>11,000,000</td>
<td>70</td>
</tr>
<tr>
<td>U. Kittng.</td>
<td>3</td>
<td>30</td>
<td>8,700,000</td>
<td>---</td>
<td>6,000,000</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
<td></td>
<td><strong>74,400,000</strong></td>
<td><strong>1,500,000</strong></td>
<td><strong>50,500,000</strong></td>
<td></td>
</tr>
</tbody>
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### WARSAW TOWNSHIP

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable area (sq. mi.)</th>
<th>Average thickness (inches)</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>25</td>
<td>36</td>
<td>87,300,000</td>
<td>200,000</td>
<td>61,000,000</td>
<td>70</td>
</tr>
<tr>
<td>L. Kittng.</td>
<td>20</td>
<td>24</td>
<td>46,600,000</td>
<td>300,000</td>
<td>27,800,000</td>
<td>60</td>
</tr>
<tr>
<td>M. Kittng.</td>
<td>5</td>
<td>36</td>
<td>17,500,000</td>
<td>300,000</td>
<td>12,000,000</td>
<td>70</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>151,400,000</strong></td>
<td><strong>800,000</strong></td>
<td><strong>100,800,000</strong></td>
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</tr>
</tbody>
</table>
### Washington Township

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable area (sq.mi)</th>
<th>Avge. thickness inches</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
<td>35</td>
<td>36</td>
<td>122,200,000</td>
<td>1,000,000</td>
<td>90,900,000</td>
<td>75</td>
</tr>
<tr>
<td>L.Kittng.</td>
<td>28</td>
<td>24</td>
<td>65,200,000</td>
<td>-----</td>
<td>42,400,000</td>
<td>65</td>
</tr>
<tr>
<td>M.Kittng.</td>
<td>24</td>
<td>30</td>
<td>69,800,000</td>
<td>-----</td>
<td>52,300,000</td>
<td>75</td>
</tr>
<tr>
<td>U.Kittng.</td>
<td>16</td>
<td>18</td>
<td>27,900,000</td>
<td>-----</td>
<td>18,100,000</td>
<td>65</td>
</tr>
<tr>
<td>L.Freeport</td>
<td>10</td>
<td>48</td>
<td>46,600,000</td>
<td>15,000,000</td>
<td>25,300,000</td>
<td>80</td>
</tr>
<tr>
<td>U.Freeport</td>
<td>5</td>
<td>36</td>
<td>17,500,000</td>
<td>3,000,000</td>
<td>10,200,000</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td></td>
<td><strong>349,200,000</strong></td>
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<td><strong>239,200,000</strong></td>
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### Winslow Township

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable area (sq.mi)</th>
<th>Avge. thickness inches</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookville</td>
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<td>30</td>
<td>138,000,000</td>
<td>500,000</td>
<td>126,200,000</td>
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</tr>
<tr>
<td>L.Kittng.</td>
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<td>24</td>
<td>88,500,000</td>
<td>-----</td>
<td>57,500,000</td>
<td>65</td>
</tr>
<tr>
<td>M.Kittng.</td>
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<td>18</td>
<td>55,900,000</td>
<td>300,000</td>
<td>33,400,000</td>
<td>50</td>
</tr>
<tr>
<td>U.Kittng.</td>
<td>28</td>
<td>24</td>
<td>65,200,000</td>
<td>-----</td>
<td>42,400,000</td>
<td>65</td>
</tr>
<tr>
<td>L.Freeport</td>
<td>24</td>
<td>60</td>
<td>139,700,000</td>
<td>85,000,000</td>
<td>43,800,000</td>
<td>80</td>
</tr>
<tr>
<td>U.Freeport</td>
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<td>30</td>
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<td>40,000,000</td>
<td>70</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>545,500,000</strong></td>
<td><strong>86,800,000</strong></td>
<td><strong>343,300,000</strong></td>
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</tr>
</tbody>
</table>

### Young Township

<table>
<thead>
<tr>
<th>Bed</th>
<th>Workable area (sq.mi)</th>
<th>Avge. thickness inches</th>
<th>Original deposit</th>
<th>Mined out and lost</th>
<th>Recoverable</th>
<th>Per cent recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.Kittng.</td>
<td>15</td>
<td>24</td>
<td>34,900,000</td>
<td>-----</td>
<td>20,900,000</td>
<td>60</td>
</tr>
<tr>
<td>L.Freeport</td>
<td>12</td>
<td>54</td>
<td>62,900,000</td>
<td>20,000,000</td>
<td>34,200,000</td>
<td>80</td>
</tr>
<tr>
<td>U.Freeport</td>
<td>8</td>
<td>36</td>
<td>27,800,000</td>
<td>500,000</td>
<td>20,500,000</td>
<td>75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>75,600,000</strong></td>
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