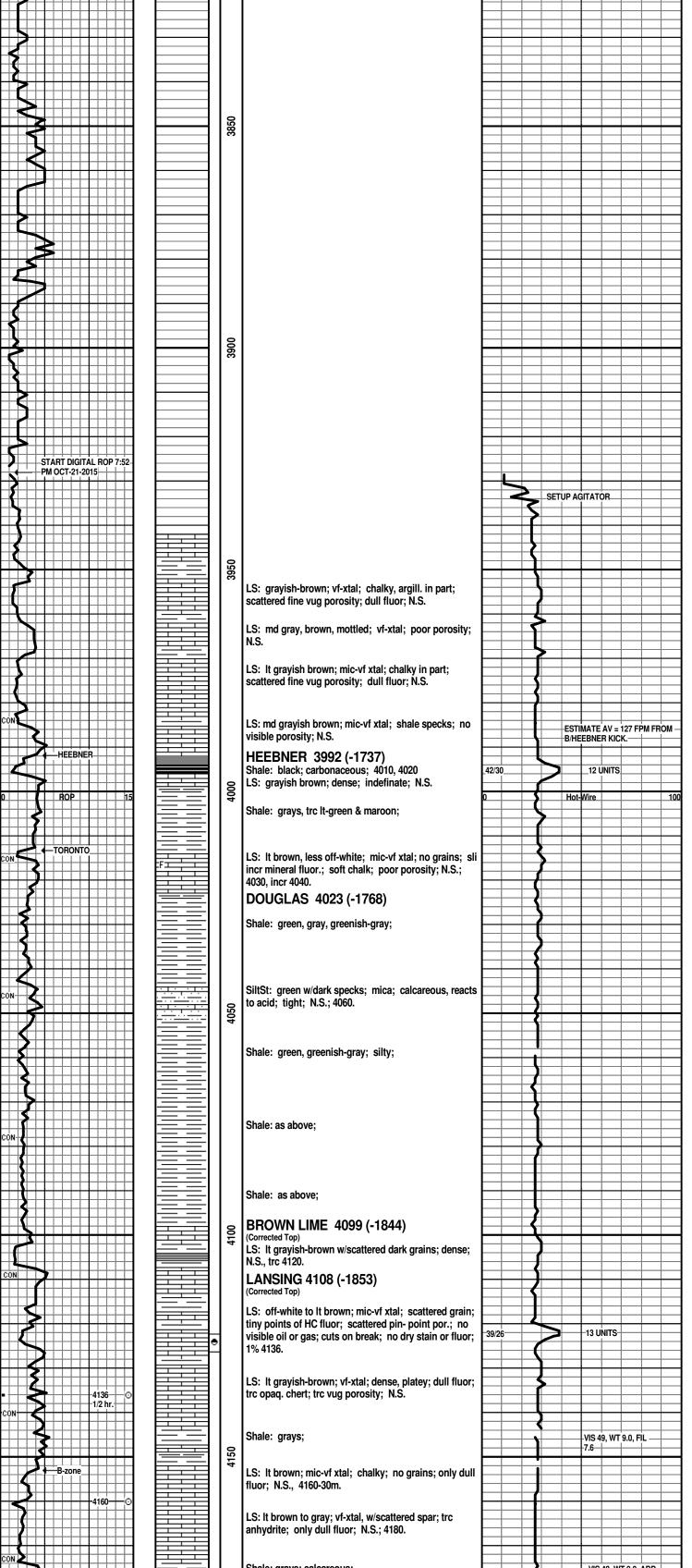


|   |  | DST | Litho | Porosity a | Dept |     |          |          |                    |          |                |          |             |          |          |
|---|--|-----|-------|------------|------|-----|----------|----------|--------------------|----------|----------------|----------|-------------|----------|----------|
| 0 | ROP 1  | 5   |       |            |      | 0   |          |          |                    | Hot-     | Wire           |          |             |          | 10       |
| ⊢ | +++++++++++++++++++++++++++++++++++++++          | -   |       |            |      | _   |          |          |                    | <u> </u> |                | <u> </u> | $\vdash$    | <u> </u> | <u> </u> |
| F |  |     |       |            |      |     | <u> </u> | <u> </u> |                    |          |                |          |             |          |          |
|   |  | 1   |       |            | 3800 |     |          |          |                    |          |                |          |             |          |          |
| L | ┼┼╋┼╂┼┼┼┼┼┼┼                                     | -   |       |            | 38   | REF | EREN     | ĊE WI    | <u>.</u><br>ELL: K | İRSTI    | NG-W           | ILLIA    | MS #1-      | ·1. —    | L        |
| ⊢ | <b>L</b>   | -   |       |            |      |     | is-21w   |          |                    | -        |                | <u> </u> | <u> </u>    | ⊢́—      |          |
| F |  |     |       |            |      |     | <u> </u> |          |                    |          | $ \rightarrow$ |          |             |          | -        |
|   |  |     |       |            |      |     |          |          |                    |          |                |          |             |          |          |
| ┝ | - <b>S</b> - I - I - I - I - I - I - I - I - I - | -   |       |            |      |     |          |          | E REQ              | UEST     | ED BY          | STAT     | L<br>LE SUF | RVEY     | AND      |
| F |  |     |       |            |      | SUE | MITTE    | D.       |                    |          |                |          |             |          |          |
|   |  |     |       |            |      |     |          |          |                    |          |                |          |             |          |          |
|   |  |     |       |            |      |     | 1        |          |                    |          | 1 1            |          |             | 1        | 1        |



|                   | <b>'</b> |          |  |  |   |   | 7        |   |   | PRE  | MIX_   | ,  |   | _   |
|-------------------|----------|----------|--|--|---|---|----------|---|---|--|--|--|---|-----|
| 2                 |          |          |  | LS: It brown to gray; vf-xtal; sli fos-frag; dense; v-tight; N.S.  |   |   | _27      |   |   |  |  |  |   |     |
| 3                 |          |          |  | LS: as above;  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | 0  |  |   |   | 2        |   |   |  |  |  |   |     |
| 0 ROP 15          |          | _ i      | 4200   | LS: It grayish-brown; vf-xtal; sli fos-frag; trc shells, nacreous; poor porosity; N.S.; 4220.  | 0   |   | Ţ        |   | Hot-  | Wire   |  |  |   | 100 |
|                   |          | ~        |  |  |   |   | Ⅎ        |   |   |  |  |  |   |     |
|                   |          |          |  | LS: It brown, off white; mic-vf xtal; v-chalky, white-wash; no grains; tight; N.S.; 30m.   |   |   | Ş        |   |   |  |  |  |   |     |
| 4120 ⊙<br>1/2 hr. |          |          |  | LS: It brown to gray; vf-xtal; dense to chalky in part; opaq. chert; poor porosity; dull fluor; N.S.   |   |   | Ł        |   |   |  |  |  |   |     |
| G-zone            |          | ~        |  | LS: md-dk grayish-brown; vf-f-xtal; good oom   |   |   | ✓<br>↓   |   |   |  |  |  |   |     |
|                   |          |          |  | porosity; dull fluor; N.S., much at 4250.  |   |   | ->       |   |   |  |  |  |   |     |
|                   |          |          |  | LS: It brown; vf-xtal; dense; minor chalky; trc opaq. chert; poor porosity; N.S.   |   |   | ł        |   |   |  |  |  |   | _   |
|                   |          |          | 。  |  |   |   | Ş        |   |   |  |  |  |   |     |
| 5                 |          | ļ        | 4250   | LS: It grayish brown; vf-xtal; chalky in part; trc opaq. chert; poor porosity; N.S.  |   |   | Ĵ        |   |   |  |  |  |   |     |
|                   |          |          |  |  |   |   | 1        |   |   | _  |  |  |   | _   |
|                   |          |          |  | LS: as above; sli. gray mottled;   |   |   | 5        |   |   | _  |  |  |   |     |
|                   |          |          |  | Shale: green, blocky; 4290.  |   |   | ₹        |   |   |  |  |  |   | _   |
|                   |          |          |  | MUNCIE CREEK 4277 (-2022)  |   |   | 4        | >   |   |  |  |  |   |     |
| G                 |          |          |  | Shale: black; carbonaceous; 4300.<br>LS: dk grayish brown; trc lt brn contact; vf-xtal;  |   |   | 7        |   |   |  |  |  |   |     |
| H-H-zone          |          |          |  | dense; trc fusulinids; trc smokey, semi-opaq. chert;<br>no visible porosity; N.S.  |   |   | ₹        |   |   |  |  |  |   |     |
|                   |          |          |  | LS: It grayish-brown; vf-xtal; trc sli fos, opaq. chert; fair oomoldic por.; dull fluor; N.S.  |   |   |          |   |   |  |  |  |   |     |
|                   |          | 000      | 4300   | I St. It brown to it grow of stals, donoos, oli foos no  |   |   | ╶╏       | _   |   |  |  |  |   |     |
|                   |          |          |  | LS: It brown to It gray; vf-xtal; dense; sli fos; no visible porosity; N.S.  |   |   | Ł        | _   |   |  |  |  |   |     |
| I-zone            |          |          |  | LS: It brown; vf-xtal; fine-med. oolite; sli fos; chalky   |   |   | {        |   |   |  |  |  |   |     |
| 2                 |          | ø        |  | in part; poor int grain porosity; dull fluor; N.S., 4330, 4340.  |   |   | }        |   |   |  |  |  |   |     |
| - E               |          |          |  |  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          |  | LS: md-dk grayish brown; vf-xtal; soft chalk; opaq. to semi-trans., smokey chert; dense; no visible porosity;  |   |   | 7        |   |   |  |  |  |   | _   |
| J-zone            |          |          |  | N.S., 4350.  |   |   | 3        |   |   |  |  |  |   |     |
|                   |          | ø        |  | LS: md brown; vf-xtal; fair oomoldic porosity; dull fluor; N.S.  |   |   | 25       |   |   | _  |  |  |   |     |
|                   | · · · ·  |          | 4350   | LS: md-brown; vf-xtal; coarse oomoldic; good   |   |   | ł        |   |   |  |  |  |   |     |
|                   |          | ø        | 7  | oomoldic porosity; dull fluor; N.S.; 4470.   |   |   |          |   |   |  |  |  |   |     |
| CON               |          |          |  | LS: oomoldic as above;   |   |   | 7        |   |   |  |  |  |   |     |
|                   |          |          |  | LS: It-md grayish brown; vf-xtal; peletal; sli fos; no   |   |   | 1        |   |   |  |  |  |   |     |
|                   |          | ø        |  | visible porosity; N.S., 4390.<br>LS: md brown; vf-xtal; fine to med. oomoldic; fair  |   |   | 7        | _   |   |  |  |  | -+  |     |
|                   |          | ~        |  | porosity; dull fluor; N.S.   |   |   | 1        |   |   |  |  |  |   |     |
| K-zone            |          |          |  | STARK SH 4382 (-2127)  |   |   | 1        |   |   |  |  |  |   |     |
|                   |          | ø        |  | LS: It grayish brown; oolitic to oomoldic; poor to fair oomoldic porosity; dull fluor.; N.S.   |   | 7 |          |   | DISRL   | IG CA<br>JPTING<br>I AGIT  | GAS  | FLOV   | V   |     |
|                   |          | ø        | 1400   | LS: as above.  |   | - | 5        |   |   |  |  |  |   |     |
| 0 ROP 15          |          | <u> </u> | 4  | LS: It gravish brown; vf-xtal; dense to chalky in part;  | 0   |   | <b>J</b> |   | Hot-  | Wire   |  |  |   | 100 |
|                   |          |          |  | LS: It grayish brown; vf-xtal; dense to chalky in part;<br>opaq. chert; poor porosity; dull fluor; N.S.  |   |   | 5        |   |   |  |  |  |   |     |
|                   |          |          |  | LS: as above.  |   |   | 5        |   |   |  |  |  |   |     |
|                   |          |          |  |  |   |   | 3        |   |   |  |  |  |   |     |
|                   |          |          |  | HUSHPUCKNEY 4430 (-2175)   |   |   | 5        |   |   |  |  |  |   |     |
|                   |          |          |  | Shale: black; carbonaceous; few chips 4450.  | -41/26  | ; | 7        | 5   |   | —15 U  | NITS   |  |   |     |
| L-zone            |          |          |  | LS: It brown; vf-xtal; dense to chalky in part; trc poor   |   |   | ł        |   |   |  |  |  |   |     |
|                   |          |          | _  | oomoldic porosity; dull fluor; N.S.  |   |   | 7        |   |   |  |  |  |   |     |
|                   |          |          | 4450   | I St. It browns of stals denses, cli shallou in parts once   |   |   | <b>1</b> |   |   |  |  |  |   |     |
|                   |          |          |  | LS: It brown; vf-xtal; dense; sli chalky in part; opaq. chert; trc even mineral fluor; N.S.  |   |   | 7        |   |   |  |  |  |   |     |
|                   |          |          |  | LS: as above.  |   |   | 4        |   |   |  |  |  |   |     |
| <u> </u>          |          |          |  |  |   |   | £        |   |   |  |  |  |   |     |
| ВКС               |          |          |  | Shale: black; carbonaceous; w/black chert; 4490.   |   |   | Ł        |   |   |  |  |  |   |     |
| PLEASANTON        |          | ø        |  | LS: It brown; vf-xtal; finely oolitic; rough textured;   |   |   | ł        |   |   |  |  |  |   |     |
|                   |          |          |  | looks tight; dull fluor; N.S., 4500.   |   |   | Ł        |   |   |  |  |  |   |     |
| <b>\$</b>         |          |          |  | LS: It brown to grayish brown; vf-xtal; dense, platey; trc opaq. chert; no visible porosity; N.S.  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | 4500   | LS: as above.  |   |   | 2        |   |   |  |  |  |   |     |
|                   |          |          | 7  | Shale: green, gray;  |   |   | ł        |   |   |  |  |  |   |     |
| <u> </u>          |          |          |  | Shale: dark grays;   |   |   | ₹        | _   | VIS 49  | , WT 9   | .2, FIL  | . 7.6  |   |     |
|                   |          |          |  |  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          |  | LS: It-md grayish-brown; vf-xtal; dense, platey; trc   |   |   | 24       |   |   |  |  |  |   |     |
|                   |          |          |  | LS: It-md grayish-brown; vf-xtal; dense, platey; trc smokey, semi-opaq chert; no visible por.; N.S.  |   |   | 24       |   |   |  |  |  |   |     |
|                   |          |          |  | smokey, semi-opaq chert; no visible por.; N.S.   |   |   |          |   |   |  |  |  |   |     |
|                   |          |          |  |  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          |  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;   |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | ខ្ល  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | 220  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;   |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | 220  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | 220  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.   |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | 220  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | 220  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;  |   |   |          |   |   |  |  |  |   |     |
|                   |          |          | 220  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: as above.   |   |   |          | 459   | 0-470   | )5: W  | /K Bl  |  | DIED  |     |
|                   |          |          | 220  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.  |   |   |          | 459<br>MIN<br>W/S   | 0-47(<br>  FFP<br>  L  S.   | )5: W<br>; 5-1<br>O.; §  | /K Bl<br>5-15-   | _OW<br>30; 5   |   |     |
|                   |          |          | 4550   | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> </ul>   |   |   |          | 459<br>MIN<br>W/S   | 0-470<br>I FFP<br>SLI S.<br>36, 37  | )5: W<br>; 5-1<br>O.; §<br>7-32.   | /K Bl<br>5-15-   | _OW<br>30; 5   | DIED<br>5' Mu   |     |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347)</li> </ul>   |   |   |          | 459<br>MIN<br>W/S   | 0-470<br>I FFP<br>SLI S.<br>36, 37  | )5: W<br>; 5-1<br>O.; §<br>7-32.   | /K Bl<br>5-15-   | _OW<br>30; 5   | DIED<br>5' Mu   |     |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> </ul>  |   |   |          | 459<br>MIN<br>W/S   | 0-470<br>I FFP<br>SLI S.<br>36, 37  | )5: W<br>; 5-1<br>O.; §<br>7-32.<br>INITS<br>Wire  | /K Bl<br>5-15-   | _OW<br>30; 5   | DIED<br>5' Mu   | D   |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347) (Corrected Top)</li> <li>LS: It-md brown; vf-xtal; dense; N.S.</li> <li>LS: It-md brown; vf-xtal; dense; N.S.</li> </ul>   | 0   |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>  | )5: W<br>; 5-1<br>O.; §<br>7-32.<br>INITS<br>Wire  | /K Bl<br>5-15-   | _OW<br>30; 5   | DIED<br>5' Mu   | D   |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347) (Corrected Top)</li> <li>LS: It-md brown; vf-xtal; dense; N.S.</li> </ul>  | 0   |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>  | 05: W<br>; 5-1<br>O.; §<br>7-32.<br>INITS<br>Wire  | /K Bl<br>5-15-   | _OW<br>30; 5   | DIED<br>5' Mu   | D   |
|                   |          |          | 4600 4550                                    | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: as above.<br>LS: as above.<br>LS: lt-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEE 4602 (-2347)<br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.  | -31/24  |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>O.; §<br>7-32.<br>INITS<br>Wire  | /K BI<br>5-15-<br>SIP: {   | _OW<br>30; 5   | DIED<br>5' MU<br>, FP: '  | D   |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347)<br/>(Corrected Top)</li> <li>LS: It-md brown; vf-xtal; dense; N.S.</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>Shale: black; carbonaceous; gassy; gray-wash at 4640, 4642.</li> </ul>  | 0<br>-31/24<br>-30/24                                   |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>O.; §<br>7-32.<br>INITS<br>Wire  | /K BI<br>5-15:-<br>6)P: {<br>  | _OW<br>30; 5<br>99-44,   | DIED<br>5' MU<br>, FP: '  | D   |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347)<br/>(Corrected Top)</li> <li>LS: It-md brown; vf-xtal; dense; Smokey chert; no visible porosity; N.S.</li> </ul>  | 0<br>-31/24<br>-30/24                                   |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire  | /K BI<br>5-15-<br>SIP: !<br>34   | _OW<br>30; 5<br>59-44,   | DIED<br>5' MU<br>, FP:<br>  | D   |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: lt-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347) (Corrected Top)</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; poorly defined oolites are sli. darker than matrix; smokey chert; poor porosity; dull</li> </ul>   | 0<br>-31/24<br>-30/24<br>-59/25                         |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   | /K BI<br>5-15-<br>SIP: (<br>34<br>   | _OW<br>30; 5<br>99-44,   | DIED<br>, FP: -:<br>, FP: -:  | D   |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347) (Corrected Top)</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; no visible porosity; N.S.</li> <li>Shale: black; carbonaceous; gassy; gray-wash at 4640, 4642.</li> <li>LS: It-md brown; vf-xtal; poorly defined oolites are sli. darker than matrix; smokey chert; poor porosity; dull mineral fluor; no visible gas or oil; no dry stains;</li> </ul>   | 0<br>-31/24<br>-59/25<br>-59/25                         |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   | /K BI<br>5-15-<br>SIP: (<br>34<br>   | _OW<br>30; 5<br>59-44,<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   | DIED<br>5' MU<br>, FP:<br>  |     |
|                   |          |          | 4600 4550                                    | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: lt brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: lt brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: lt-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEE 4602 (-2347)<br>(Corrected Top)<br>LS: lt-md brown; vf-xtal; dense; N.S.<br>LS: lt-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: lt-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br>UPPER CHER. SH. 4654 (-2399)<br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.  | 0<br>-31/24<br>-30/24<br>-59/25                         |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   | /K BI<br>5-15-<br>SIP: (<br>34<br>   | _OW<br>30; 5<br>59-44,<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   | DIED<br>, FP: -:<br>, FP: - |     |
|                   |          |          | 4600 4550                                    | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: lt brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: lt brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: as above.<br>LS: lt-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: lt-md brown; vf-xtal; dense; N.S.<br>LS: lt-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: lt-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br>UPPER CHER. SH. 4654 (-2399)<br>(Corrected Top)   | 0<br>-31/24<br>-59/25<br>-59/25                         |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   | 34   | _OW<br>30; 5<br>59-44,<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   |   |     |
|                   |          |          | 4600 4550                                    | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEE 4602 (-2347)<br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; Smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br>UPPER CHER. SH. 4654 (-2399)<br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible   | 0<br>-31/24<br>-30/24<br>-59/25<br>-59/25<br>           |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   | 34   | _OW<br>30; 5<br>59-44,<br>59-44,<br>8 UNITS<br>8 UNITS<br>8 UNITS<br>8 UNITS<br>8 UNITS<br>8 UNITS   |   |     |
|                   |          |          | 4600 4550                                    | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: it brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: lt-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.  | 0<br>-31/24<br>-30/24<br>-59/25<br>-59/25<br>           |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   |  | _OW<br>30; 5<br>59-44,<br>59-44,<br>8 UNITS<br>8 UNITS<br>8 UNITS<br>8 UNITS<br>8 UNITS<br>8 UNITS   |   |     |
|                   |          |          | 4600 4550                                    | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: th thrown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: It-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347) (Corrected Top)</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>Shale: black; carbonaceous; gassy; gray-wash at 4640, 4642.</li> <li>LS: It-md brown; vf-xtal; poorly defined oolites are sli. darker than matrix; smokey chert; poor porosity; dull mineral fluor; no visible gas or oil; no dry stains;</li> <li>UPPER CHER. SH. 4654 (-2399) (Corrected Top)</li> <li>Shale: black; carbonaceous; &gt;50% at 4670.</li> <li>LS: It-md brown; vf-xtal; dense, platey; no visible porosity; N.S.</li> <li>LS: It-md brown; vf-xtal; dense, platey; no visible porosity; N.S.</li> </ul>  | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   |  | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>39<br>39<br>39  |   |     |
|                   |          |          | 4600 4550                                    | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: it brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEE 4602 (-2347)<br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br>UPPER CHER. SH. 4654 (-2399)<br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.  | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   |  | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>39<br>39<br>39  |   |     |
|                   |          |          | 4650 4550 4550                               | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above.</li> <li>LS: it brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: it-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347) (Corrected Top)</li> <li>LS: it-md brown; vf-xtal; dense; Smokey chert; no visible porosity; N.S.</li> <li>Shale: black; carbonaceous; gassy; gray-wash at 4640, 4642.</li> <li>LS: it-md brown; vf-xtal; poorly defined oolites are sli. darker than matrix; smokey chert; poor porosity; dull mineral fluor; no visible gas or oil; no dry stains;</li> <li>UPPER CHER. SH. 4654 (-2399) (Corrected Top)</li> <li>Shale: black; carbonaceous; &gt;50% at 4670.</li> <li>LS: it brown; vf-xtal; sli chalky; finely granular; tight int granular porosity; 1-2% HC fluor; show gas, v-sli S.O., crush cuts; str odor; poor dry stain at best; 4690, decr 4695.</li> <li>LOWER CHER. SH. 4689 (-2434)</li> </ul>   | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | 05: W<br>; 5-1<br>0.; 5<br>7-32.<br>NITS<br>Wire<br>ITS<br>ITS   |  | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>39<br>39<br>39  |   |     |
|                   |          |          | 950 450 4600 4550                            | <ul> <li>smokey, semi-opaq chert; no visible por.; N.S.</li> <li>LS: as above w/minor green sh. &amp; marl; N.S.</li> <li>Shale: dk gray; indistinct;</li> <li>Shale: maroon &amp; green; 4560 washes red;</li> <li>LS: It brown; vf-xtal; dense, platey; sli chalky; no visible porosity; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above w/minor soft chalk; N.S.</li> <li>LS: as above.</li> <li>LS: as above.</li> <li>LS: ht brown; vf-xtal; dense, platey; sli chalky in part; no visible porosity; N.S.</li> <li>LS: as above.</li> <li>LS: ht-md brown, grayish brown; vf-xtal; sli granular; chalky in part; poor int-gran. por.; N.S.</li> <li>Shale: black; carbonaceous; 4620.</li> <li>PAWNEE 4602 (-2347)</li> <li>(Corrected Top)</li> <li>LS: It-md brown; vf-xtal; dense; N.S.</li> <li>LS: It-md brown; vf-xtal; dense; smokey chert; no visible porosity; N.S.</li> <li>Shale: black; carbonaceous; gassy; gray-wash at 4640, 4642.</li> <li>LS: It-md brown; vf-xtal; poorly defined oolites are sli. darker than matrix; smokey chert; poor porosity; dull mineral fluor; no visible gas or oil; no dry stains;</li> <li>UPPER CHER. SH. 4654 (-2399)</li> <li>(Corrected Top)</li> <li>Shale: black; carbonaceous; &gt;50% at 4670.</li> <li>LS: It-md brown; vf-xtal; dense, platey; no visible porosity; N.S.</li> <li>LS: It brown; vf-xtal; sli chalky; finely granular; tight int granular porosity; 1-2% HC fluor; show gas, v-sli S.O., crush cuts; str odor; poor dry stain at best; 4690, decr 4695.</li> <li>LOWER CHER. SH. 4689 (-2434)</li> <li>LOWER CHER. SH. 4689 (-2434)</li> <li>LS: It-md grayish brown; vf-xtal; dense; trace green</li> </ul>   | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   | 0-47(<br>I FFP<br>SLI S.<br>36, 37<br>-19 U<br>Hot-<br>-7 UN  | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>SHU<br>ST  | /K BI<br>5-15-<br>6)P: 5<br>   | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>39<br>39<br>39  |   |     |
|                   |          |          | 4650 4550 4550                               | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: h brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: h brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: ht-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: ht-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: ht-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: ht-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Sorrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: ht-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: It-md grayish brown; vf-xtal; dense; trace green<br>siltst & marl; minor green shale; no visible porosity; N.S.   | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   |   | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>SH4<br>ST   | /K BI<br>5-15-<br>6)P: 5<br>   | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>29 UN<br>29 UN  |   |     |
|                   |          |          | 4650 4550 4550                               | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: ht brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: ht brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: ht-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(Corrected Top)<br>LS: ht-md brown; vf-xtal; dense; N.S.<br>LS: ht-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: ht-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH.</b> 4654 (-2399)<br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: ht-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: It-md prown; vf-xtal; dense, irace green<br>siltst & mar1; minor green shale; no visible porosity; N.S.  | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   |   | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>SH4<br>ST   | /K BI<br>5-15-<br>6IP: 5<br>6IP: 5<br>   | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>29 UN<br>29 UN  |   |     |
|                   |          |          | 4700 4650 4650 450                           | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: ht brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: ht brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: ht-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: ht-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: ht-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: ht-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: ht brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br>LOVER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: ht-md grayish brown; vf-xtal; dense; trace green<br>siltst & marl; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.   | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   |   | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>SHO<br>ST   | /K BI<br>5-15-<br>6IP: 5<br>6IP: 5<br>   | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>29 UN<br>29 UN  |   |     |
|                   |          |          | 4700 4650 4650 450                           | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: it brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sil<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br><b>LOWER CHER. SH. 4689 (-2434)</b><br>(Corrected Top)<br>LS: It-md grayish brown; vf-xtal; dense; trace green<br>siltst & mari; minor green shale; no visible porosity; N.S.  | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   |   | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>SHO<br>ST<br>SHO<br>ST  | /K BI<br>5-15-<br>6IP: 5<br>6IP: 5<br>   | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>29 UN<br>29 UN  |   |     |
|                   |          |          | 450 4550 4500 4550                           | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: thorown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH.</b> 4654 (-2399)<br>(corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: It-md grayish brown; vf-xtal; dense; trace green<br>siltst & marl; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.  | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S   |   | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>SHO<br>ST<br>SHO<br>ST  | /K BI<br>5-15-<br>6IP: 5<br>6IP: 5<br>   | _OW<br>30; 5<br>59-44,<br>59-44,<br>UNITS<br>8 UNIT<br>RIP 24<br>AT 466<br>29 UN<br>29 UN  |   |     |
|                   |          |          | 450 4550 4500 4550                           | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: ht brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: ht brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: ht-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: ht-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: ht-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: ht-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: ht brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br>LOVER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: ht-md grayish brown; vf-xtal; dense; trace green<br>siltst & marl; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.   | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          |   |   | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>S55 UN<br>ST/   | /K BI<br>5-15-<br>6)P: 5<br>6)P: 5<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7  | _OW<br>30; 5<br>59-44,<br>59-44,<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   |   |     |
|                   |          |          | 450 450 450                                  | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush buts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: It-md grayish brown; vf-xtal; dense; trace green<br>siltst & mar1; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; wi-vf-xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marly; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;   | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          |   | 0-47(0<br>IFFP<br>SLIS.<br>36, 37<br>19 L<br>6 L<br>19 L<br>6 L<br>10 | D5: Wi<br>; 5-1<br>O.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>Wire<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>ST<br>I<br>SHH<br>ST/<br>SH<br>ST/<br>ST/<br>SH<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/ | /K BI<br>5-15-<br>6)P: 5<br>6)P: 5<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7  | _OW<br>30; 5<br>59-44,<br>59-44,<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 750 4700 4700 450 4600 450                   | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: thrown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH.</b> 4654 (-2399)<br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>Shale: wostly greenish, gray, maroon, trc mottled;<br>marly; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS. WARSAW 4750 (-2496)<br>DC): gray; f-m xtal, sucrosic in part; rough texture;   | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          |   | 0-47(0<br>IFFP<br>SLIS.<br>36, 37<br>19 L<br>6 L<br>19 L<br>6 L<br>10 | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS  | /K BI<br>5-15-<br>6)P: 5<br>6)P: 5<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7  | _OW<br>30; 5<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44, | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4750 4700 450 4650 4600 4550                 | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: throm brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(Corrected Top)<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br><b>LOWER CHER. SH. 4689 (-2434)</b><br>(Corrected Top)<br>LS: It-md grayish brown; vf-xtal; dense; trace green<br>siltst & mari; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br><b>MISS. WARSAW 4750 (-2496)</b><br>DOL: gray; f-m xtal, sucrosic in part; rough texture;<br>scattered fine glauc.; minor glauc. lime; very little or<br>no chert; 30% HC fluor; spotted wet stain & sli S.O.,   | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S<br>444-3  | 0-47(0<br>IFFP<br>SLIS.<br>36, 37<br>19 L<br>6<br>19 L<br>6<br>19 L<br>6<br>19 L<br>19 L      | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS<br>ITS  | /K BI<br>5-15-<br>6)P: 5<br>6)P: 5<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7  | _OW<br>30; 5<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44,<br>i9-44, | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4750 4700 450 4650 4600 4550                 | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poro porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH.</b> 4654 (-2399)<br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4895.<br>LOWER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: It-md grayish brown; vf-xtal; dense; trace green<br>siltst & mart; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; vf-xtal; dense; trace green<br>siltst & mart; minor green shale; no visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marly; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS. WARSAW 4750 (-2496)<br>DOL: gray; I-m xtal, sucrosic in part; rough texture;<br>scattered fine glauc.; minor glauc. lime; very little or  | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>   | 0-47(7)<br>IFFP<br>SLIS<br>36, 37<br>19 L<br>6<br>19 L<br>6<br>19 L<br>10 L   | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>SH(<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4750 4700 450 4650 4600 4550                 | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & mart; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: lt brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: it brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: lt-md brown; grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: lt-md brown; vf-xtal; dense; NS.<br>LS: lt-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: lt-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; spass; gray-wash at<br>4640, 4642.<br>LS: lt-md brown; vf-xtal; dense; platey; no visible<br>porosity; N.S.<br>LS: lt-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: lt brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O, crust cuts; str odor; poor dry stain at bes; 4690,<br>decr 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>Corrected Top)<br>LS: lt-md grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marly; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS. WARSAW 4750 (-2496)<br>DOL: gray; f-m xtal, sucrosic in part; rough texture;<br>scattered fine glauc:, minor glauc. lime; very little or<br>ochert; 90% HC fluor; spotted wet stain & sli S.O.,<br>faint dodr; spotted to even heavy dry stain; diminished but str. dry fluor; few chips 4760, floods<br>4765 stop & circ.  | 0<br>-31/22<br>-59/25<br>-64/26<br>-69/40               |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>   | 0-47(7)<br>IFFP<br>SLIS<br>36, 37<br>19 L<br>6<br>19 L<br>6<br>19 L<br>10 L   | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>ITS<br>INITS<br>VIS 58<br>6.8<br>55 UN<br>DST #<br>2: MIL<br>765:<br>5-30;<br>361, 1  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4750 4700 4650 4600 4550                     | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & mart; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; platey; no visible<br>porosity; N.S.<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It forwn; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str dodr; poor dry stain at best; 4690,<br>dcer 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: It-md grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale; chert and Mari as above. Trc. It brown lime w/<br>green sh. contact;<br><b>MISS. WARSAW 4750 (-2496)</b><br>DOL: grayish-brown; f-xtal, lacks sucrosic texture;<br>includes much geoidal quartz & trc opaq chert; glauc;;<br>DOL: grayish-brown; f-xtal, lacks sucrosic texture;<br>includes much geoidal quartz & trc opaq chert; glauc;;  |   |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>   | 0-470 FFP SL 536, 37 19 L 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>SH(<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/<br>ST/  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4750 4700 4650 4600 4550                     | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & mart; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; sassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; platey; no visible<br>porosity; N.S.<br>VPPER CHER. SH. 4654 (-2399)<br>(corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O, crush cuts; str odor; poor dry stain at best; 4690,<br>decr 4695.<br>LOWER CHER. SH. 4669 (-2434)<br>(corrected Top)<br>LS: It-md grayish brown; wi-xtal; dense; trace green<br>siltst & mart; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale: chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS. WARSAW 4750 (-2496)<br>DOL: gray; H- mxtal, sucrosic in part; rough texture;<br>includes much geoidal quartz & trc opaq chert; glauc.;<br>tight int xtal porosity; even min. fluor; trc drab stain at<br>best; no                 | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>14<br>24<br>44-3<br>7<br>7<br>5<br>14<br>24<br>22<br>44-3<br>7<br>8<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14 |   | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INTS<br>Wire<br>ITS<br>ITS<br>INTS<br>Wire<br>ITS<br>INTS<br>VIS 55<br>6.8<br>55 UN<br>DST #<br>2: MI<br>7-30;<br>5-30;<br>5-30;<br>5-30;<br>1.  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4750 4700 4650 4600 4550                     | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: it brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: it brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: it brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: it hend brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEE 4602 (-2347)<br>(Corrected Top)<br>LS: it-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: it-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; sassy; gray-wash at<br>4640, 4642.<br>LS: it-md brown; vf-xtal; poorly defined oolites are sli.<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: it-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str dodr; poor dry stain at best; 4690,<br>decr 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>(Corrected Top)<br>LS: it-md grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale: chert and Mari as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS. WARSAW 4750 (-2496)<br>DCL: grayish-brown; f-xtal, lacks sucrosic texture;<br>includes much geoidal quart & tro opaq chert; glauc;<br>ithin tith grown; i-xtal, lacks sucrosic texture;<br>includes much geoidal quart & tro opaq chert; glauc;<br>ithin tith oproxity;                     | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>14<br>24<br>44-3<br>7<br>7<br>5<br>14<br>24<br>22<br>44-3<br>7<br>8<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14 |   | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INTS<br>Wire<br>ITS<br>ITS<br>INTS<br>Wire<br>ITS<br>INTS<br>VIS 55<br>6.8<br>55 UN<br>DST #<br>2: MII<br>7-30;<br>5-30;<br>5-30;<br>5-30;<br>1.   | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4750 4700 4650 4600 4550                     | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It hord brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEE 4602 (-2347)<br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; spass; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; platey; no visible<br>porosity; N.S.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It-md promy; vf-xtal; dense; trace green<br>sitts 4 mart; minor green shale; no visible porosity; M.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marly; minor oxidized chert; 4740.<br>Shale; Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS. WARSAW 4750 (-2496)<br>DOL: gray; Fm xtal, sucrosic in part; rough texture;<br>scattered fine glauc;; minor glauc. lime; very liftle or<br>no chert; 990; HC fluor; spotted wet stain.?<br>MISS. WARSAW 4750 (-2496)<br>DOL: gray; Fm xtal, sucrosic in part; rough texture;<br>scattered fine glauc; tight in xtal poro; f-xtal; nuch fos, semi-opaq, to opaq.<br>from systel borown; f-xtal, lacks sucrosic texture;<br>includes much geoidal quart & trc opaq chert; glauc;<br>tight in xtal porosity; exm min                         | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           |   | D5: W<br>; 5-1<br>O.; 5<br>7-32.<br>INTS<br>Wire<br>ITS<br>ITS<br>INTS<br>Wire<br>ITS<br>INTS<br>VIS 55<br>6.8<br>55 UN<br>DST #<br>2: MII<br>7-30;<br>5-30;<br>5-30;<br>5-30;<br>1.   | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 00 4750 4750 4700 4650 4600 450              | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: it brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEE 4602 (-2347)<br>(corrected Tep)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; jassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It-md grayish brown; vf-xtal; dense; trace green<br>sitts & mart; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS. WARSAW 4750 (-2496)<br>DOL: grayish-brown; f-xtal; lacks sucrosic texture;<br>scattered fine glauc;, minor glauc. lime, very litter<br>or chert; 90% HC fluor; spotted wet stain & sli S.O.,<br>faint dor; spotted to even heavy dry stain.;<br>diminished but str. dry fluor; few chips 4760, floods<br>4765 stop & circ.<br>DOL: grayish-brown; f-xtal; grayish-brown to It brown<br>mottled, micro-fox, opaq, chert; geoidal quar                       | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           | 0-47(7)<br>FFP SLI S. 36, 37<br>19 L<br>19 L<br>10    | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 0 450 4700 4700 450 450                      | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & mart; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br><b>Shale:</b> black; carbonaceous; sassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br><b>UPPER CHER. SH.</b> 4654 (-2399)<br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; sli chalky; finely granular; tight<br>int granular porosity; 1-2% HC fluor; show gas, v-sli<br>S.O., crush cuts; str odor; poor dry stain at best; 4660,<br>deer 4695.<br>LOWER CHER. SH. 4689 (-2434)<br>(corrected Top)<br>LS: It-md grayish brown; wir.xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marly; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br><b>MISS. WARSAW 4750 (-2496)</b><br>DOL: grayish-brown; f-xtal, lacks sucrosic texture;<br>includes much geoldal quartz & trc opaq chert; glauc.;<br>diminished but str. dry fluor; few chips 4760, floods<br>4765 stop & circ.<br>DOL: grayish-brown; f-xtal; grayish-brown to It brown<br>DOL: It brown; f-xtal; grayish-brown to It brown  | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           |   | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4800 4750 4700 4650 4600 450                 | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: it brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEE 4602 (-2347)<br>(corrected Tep)<br>LS: It-md brown; vf-xtal; dense; N.S.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; jassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It-md grayish brown; vf-xtal; dense; trace green<br>sitts & mart; minor green shale; no visible porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS. WARSAW 4750 (-2496)<br>DOL: grayish-brown; f-xtal; lacks sucrosic texture;<br>scattered fine glauc;, minor glauc. lime, very litter<br>or chert; 90% HC fluor; spotted wet stain & sli S.O.,<br>faint dor; spotted to even heavy dry stain.;<br>diminished but str. dry fluor; few chips 4760, floods<br>4765 stop & circ.<br>DOL: grayish-brown; f-xtal; grayish-brown to It brown<br>mottled, micro-fox, opaq, chert; geoidal quar                       | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           | 0-47(7)<br>FFP SLI S. 36, 37<br>19 L<br>19    | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4800 4750 4700 4650 4600 450                 | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above wiminor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above wiminor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli,<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mart; minor green shale; no visible porosity;<br>N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marty; minor oxidized chert; 4740.<br>Shale, Chert and Mari as above. Trc. It brown lime w/<br>green sh. contact;<br><b>MISS. WARSAW 4750 (-2496)</b><br>DCL: grayish-brown; f-xtal, lacks sucrosic texture;<br>scattered fine glauc; minor glauc. lime; very little or<br>or chert; 90% IC fluor; spotted to even heavy dry stain.;<br>diminished but str. dry fluor; few chips 4760, floods<br>4765 stop & circ.<br>DCL: grayish-brown; f-xtal, lacks sucrosic texture;<br>includes much geoidal quarz; trc opaq chert; glauc;<br>itght int xtal porosity; even min. fluor; trc drab sta | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           | 0-47(7)<br>FFP SLI S. 36, 37<br>19 L<br>19    | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4800 4750 4700 4650 4600 450                 | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & mart; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown, grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(Corrected Top)<br>LS: It-md brown; vf-xtal; dense; NS.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; soft, at 4670.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(Corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It dray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mariy; minor oxidized chert; 4740.<br>Shale: Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br><b>MISS. WARSAW 4750 (-2496)</b><br>DOL: gray; Fm xtal, sucrosic In part; rough texture;<br>scattered fine glauc;; minor glauc. lime; very lifter or<br>no chert; 90× lCf litor; spotted wet stain & sli S.O.,<br>faint door; spotted to even heavy dry stain.;<br>diminished but str. dry fluor; few chips 4760, floods<br>Ar66 stop & circ.<br>DOL: gray; Fm xtal, sucrosic In part; rough texture;<br>includes mucy lexich diver, fucy fluor; few chips 4760,      | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           | 0-47(7)<br>FFP SLI S. 36, 37<br>19 L<br>19    | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4800 4750 4700 4650 4600 450                 | smokey, semi-opaq chert; no visible por.; N.S.<br>LS: as above wiminor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above wiminor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; poorly defined oolites are sli,<br>darker than matrix; smokey chert; poor porosity; dull<br>mineral fluor; no visible gas or oil; no dry stains;<br><b>UPPER CHER. SH. 4654 (-2399)</b><br>(corrected Top)<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It gray to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>mart; minor green shale; no visible porosity;<br>N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marty; minor oxidized chert; 4740.<br>Shale, Chert and Mari as above. Trc. It brown lime w/<br>green sh. contact;<br><b>MISS. WARSAW 4750 (-2496)</b><br>DCL: grayish-brown; f-xtal, lacks sucrosic texture;<br>scattered fine glauc; minor glauc. lime; very little or<br>or chert; 90% IC fluor; spotted to even heavy dry stain.;<br>diminished but str. dry fluor; few chips 4760, floods<br>4765 stop & circ.<br>DCL: grayish-brown; f-xtal, lacks sucrosic texture;<br>includes much geoidal quarz; trc opaq chert; glauc;<br>itght int xtal porosity; even min. fluor; trc drab sta | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           | 0-47(7)<br>FFP SLI S. 36, 37<br>19 L<br>19    | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>80<br>7<br>80<br>7<br>80<br>7<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80   | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4800 4750 4700 4650 4600 450                 | smokey, semi-opaq chert; no visible por; N.S.<br>LS: as above wiminor green sh. & mari; N.S.<br>Shale: dk gray; indistinct;<br>Shale: marcon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above wiminor soft chalk; N.S.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown; grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE 4602 (-2347)</b><br>(consettal Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It prown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It gray to grayish brown; win-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, marcon, trc mottled;<br>marly; minor oxidized chert; 4740.<br>Shale, Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MISS: WARSAW 4750 (-2496)<br>DOL: grayish-brown; f-xtal, lacks sucrosic texture;<br>includes muck goidal quarz; wry try withe or<br>no chert; 90% HC fluor; spotted wet stain & sli S.O.,<br>faint dof; spotted to even heavy dry stain; at<br>minished but str. dry fluor; lev chips 4760, floods<br>4765 stop & circ.<br>DOL: grayish-brown; f-xtal, lacks sucrosic texture;<br>includes muck goidal quarz & trc opag chert; glauc;<br>tight in xtal porosity; N.S.<br>DOL: th orwm; f-xtal; dense; N.S.<br>DOL: as above.<br>LS: It-md brown; vf-xtal; dense; N.S.<br>DOL: as above.   | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           | 0-47(7)<br>FFP SLI S. 36, 37<br>19 L<br>19 L<br>10    | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>5)P: 5<br>7<br>34<br>  | _OW<br>30; 5<br>59-44,<br>   | DIED<br>DIED<br>DIED<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   |     |
|                   |          |          | 4800 4750 4700 4650 4600 450                 | smokey, sēmi-opaq chert; no visible por.; N.S.<br>LS: as above w/minor green sh. & mari; N.S.<br>Shale: dk gray; indistinct;<br>Shale: maroon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky: no<br>visible porosity; N.S.<br>LS: as above w/minor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown; grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por.; N.S.<br>Shale: black; carbonaceous; 4620.<br><b>PAWNEE</b> 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It proy to grayish brown; mic-vf xtal; chalky; no<br>visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marl; minor green shale; no visible porosity; N.S.<br>Shale: mostly greenish, gray, maroon, trc mottled;<br>marly; minor oxidized chert; 4740.<br>Shale: Chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br><b>MISS. WARSAW 4750 (-2496)</b><br>DOL; grayish-brown; f-xtal; kacks sucrosic texture;<br>includes much geoidd quartz & tro opaq chert; golw; find<br>at best; no show oil;<br>DOL: It brown; f-xtal; grayish-brown to It brown<br>mottled, micro-fos, opaq, chert; geoldal quartz; only<br>trace glauc; tight int xtal porosity; N.S.<br>DOL: It brown; f-xtal; dense; N.S.<br>DOL: It brown; f-xtal; dense; N.S.<br>DO       | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           | 0-47(7)<br>FFP SLI S. 36, 37<br>19 L<br>19 L<br>10    | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>SIP: 5<br>SIP: 5<br>SIP: 5<br>SIP: 5<br>SIP: 7<br>SIP: | _OW<br>30; 5<br>59-44,<br>   |   |     |
|                   |          |          | 4800 4750 4700 4600 4600 450                 | smokey, semi-opaq chert; no visible por; N.S.<br>LS: as above wiminor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: marcon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above wiminor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown; grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEEE 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It more cuts; str odor; poor dry stain at best; 4630,<br>decr 4639.<br>LOWERCHER. SH. 4689 (-2434)<br>(corrected Top)<br>LS: It-md grayish brown; wi-xtal; dense; trace green<br>sitts & amar; minor green shale; no visible porosity; N.S.<br>Shale: chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MLSS. WARSAW 4750 (-2496)<br>DOL; gray; I-m xtal, sucrosic in part; rough texture;<br>acthreed fing dauc; minor green wy dry stain, t<br>best; no show 0il:<br>DOL: grayish-brown; f-xtal; acks sucrosic texture;<br>includes much geoldal quarz & tro opaq, chert; glau; at<br>thert, solw, Oile<br>DOL: grayish-brown; f-xtal; dense; N.S.<br>DOL: It brown; f-xtal; dense; N.S.<br>DOL: as above.<br>LS: It-md brown; vf-xtal; dense; N.S.<br>DOL: as above.<br>LS: It-md brown; vf-xtal;             | 0<br>-31/22<br>-59/25<br>-59/25<br>                     |   |          | 459<br>MIN<br>W/S<br>44-3<br>44-3<br>7<br>47-<br>5<br>47-<br>5<br>47-<br>14<br>24<br>22<br>44-3<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14<br>14                           | 0-47(7)<br>FFP SLI S. 36, 37<br>19 L<br>19 L<br>10    | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>SIP: 5<br>SIP: 5<br>SIP: 5<br>SIP: 5<br>SIP: 7<br>SIP: | _OW<br>30; 5<br>i9-44,<br>i9-44,<br>i<br>30NITS<br>30NITS<br>30NITS<br>29 UN<br>29 UN<br>20 C<br>20 C<br>20 C<br>20 C<br>20 C<br>20 C<br>20 C<br>20 C   |   |     |
|                   |          |          | 50 4650 4750 4750 4700 4650 4600 450 450 450 | smokey, semi-opaq chert; no visible por; N.S.<br>LS: as above wiminor green sh. & marl; N.S.<br>Shale: dk gray; indistinct;<br>Shale: marcon & green; 4560 washes red;<br>LS: It brown; vf-xtal; dense, platey; sli chalky; no<br>visible porosity; N.S.<br>LS: as above wiminor soft chalk; N.S.<br>LS: as above.<br>LS: It brown; vf-xtal; dense, platey; sli chalky in part;<br>no visible porosity; N.S.<br>LS: as above.<br>LS: It-md brown; grayish brown; vf-xtal; sli granular;<br>chalky in part; poor int-gran. por; N.S.<br>Shale: black; carbonaceous; 4620.<br>PAWNEEE 4602 (-2347)<br>(corrected Top)<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense; smokey chert; no<br>visible porosity; N.S.<br>Shale: black; carbonaceous; gassy; gray-wash at<br>4640, 4642.<br>LS: It-md brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>Shale: black; carbonaceous; >50% at 4670.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It brown; vf-xtal; dense, platey; no visible<br>porosity; N.S.<br>LS: It more cuts; str odor; poor dry stain at best; 4630,<br>decr 4639.<br>LOWERCHER. SH. 4689 (-2434)<br>(corrected Top)<br>LS: It-md grayish brown; wi-xtal; dense; trace green<br>sitts & amar; minor green shale; no visible porosity; N.S.<br>Shale: chert and Marl as above. Trc. It brown lime w/<br>green sh. contact;<br>MLSS. WARSAW 4750 (-2496)<br>DOL; gray; I-m xtal, sucrosic in part; rough texture;<br>acthreed fing dauc; minor green wy dry stain, t<br>best; no show 0il:<br>DOL: grayish-brown; f-xtal; acks sucrosic texture;<br>includes much geoldal quarz & tro opaq, chert; glau; at<br>thert, solw, Oile<br>DOL: grayish-brown; f-xtal; dense; N.S.<br>DOL: It brown; f-xtal; dense; N.S.<br>DOL: as above.<br>LS: It-md brown; vf-xtal; dense; N.S.<br>DOL: as above.<br>LS: It-md brown; vf-xtal;             | 0<br>-31/22<br>-31/22<br>-30/24<br>-59/28<br>-64/26<br> |   |          | 459<br>MIN<br>W/S<br>444-3<br>444-3<br>444-3<br>  |   | D5: W<br>; 5-1<br>0.; 5<br>7-32.<br>INITS<br>Wire<br>ITS<br>ITS<br>INITS<br>VIS 55<br>6.8<br>55 UN<br>DST #  | /K BI<br>5-15-<br>SIP: 5<br>SIP: 5<br>SIP: 5<br>SIP: 5<br>SIP: 7<br>SIP: | _OW<br>30; 5<br>i9-44,<br>i9-44,<br>i<br>30NITS<br>30NITS<br>30NITS<br>29 UN<br>29 UN<br>20 C<br>20 C<br>20 C<br>20 C<br>20 C<br>20 C<br>20 C<br>20 C   |   |     |