June 23, 1943

Hole 93, T-74, Eleu, Maui

**Water Suction depth**  835.2

133.2 pipe 873.7

77.9  770.7

**46.4 on June 23, 1943**

**Hole 93, drawing of June 23, 1943, 6142' depth, Eleu, 2344.4**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Revolutions</th>
<th>Depth Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>538</td>
<td>120</td>
<td>600</td>
</tr>
<tr>
<td>500</td>
<td>480</td>
<td>580</td>
</tr>
<tr>
<td>460</td>
<td>420</td>
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<td>400</td>
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<td>360</td>
<td>590</td>
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<td>403</td>
<td>120</td>
<td>600</td>
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<tr>
<td>395</td>
<td>114</td>
<td>581-590</td>
</tr>
<tr>
<td>320</td>
<td>132</td>
<td>590-600</td>
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<tr>
<td>150</td>
<td>56.0</td>
<td>560</td>
</tr>
<tr>
<td>140</td>
<td>56.0</td>
<td>560</td>
</tr>
<tr>
<td>SURFACE ELEV.</td>
<td>TOP TURKEY</td>
<td>BOTTOM TURKEY</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>---------------</td>
</tr>
<tr>
<td>665</td>
<td>140</td>
<td>218</td>
</tr>
<tr>
<td>674</td>
<td>140</td>
<td>227</td>
</tr>
<tr>
<td>675</td>
<td>142</td>
<td>230</td>
</tr>
<tr>
<td>676</td>
<td>138 Drilled in Turkey to 216 thickness</td>
<td>78 plus</td>
</tr>
<tr>
<td>677</td>
<td>147</td>
<td>258</td>
</tr>
<tr>
<td>678</td>
<td>161</td>
<td>287</td>
</tr>
</tbody>
</table>

These thicknesses do not include the soil which caps the Wild Turkey, and which is probably the top of the flow.

(s) J.M. Heizer
LOG OF DIAMOND DRILL HOLE - NO. 74
FINISHED MAY 31, 1941

HOLE 74 - SUPPLEMENT

Precedingly reported to 495

<table>
<thead>
<tr>
<th>Depth</th>
<th>560</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hard, caving, clinker grading into a more uniform hard rock with clinkery spots</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depth</th>
<th>575</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Soft rotted clinker, partial cavity in soft rotted rock between 574.6 and 575</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depth</th>
<th>632</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLD MAUL varying in hardness with many small cavities. Cavity 600 to 600.6. This hole is below gauge for last 200 ft., but reamer shell was used which would barely pass the ring gauge to bottom. Entire hole bad to cave - particularly bad at 174-180 - also bad spot at 440</td>
</tr>
</tbody>
</table>

Cased to 98.1

From 270 to 365 a strong suction of air in rods from downward flow of water. Entirely fades out at 366.

May 3 with hole at depth of 503.3 with chopping bit on rods and rods to bottom water stands at 371.8

CURRENT METER READINGS
DEPTH OF HOLE 506

<table>
<thead>
<tr>
<th>Depth</th>
<th>460</th>
<th>240 Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>453</td>
<td>370 &quot;</td>
</tr>
<tr>
<td></td>
<td>450</td>
<td>000 &quot;</td>
</tr>
<tr>
<td></td>
<td>445</td>
<td>600 &quot;</td>
</tr>
<tr>
<td></td>
<td>547</td>
<td>000 &quot;</td>
</tr>
</tbody>
</table>

May 8 valve to stop downward flow

May 7 no valve in meter

Depth 460 -- 000 Rev. |
" 455 -- 000 " |

Meter records a few rev. on downward movement of rods.

Accumulation of fine borings in hole at 512 & 514. Small leak suspected at 510. Leak at 540. May 20 Hole 549 chop bit on bottom water stands at 374. May 22 Hole 576 water 127.5 (blew through) No borings at 549.

May 23 Hole 553. May 23 Hole 576.2 chop bit on bottom water --358.3-- Hole 587.2 chop bit on bottom water 286.9 May 26 Hole 591.4 chop on bottom water --264.8-- May 27 Hole 600.6 chop bit bottom water -- Hole 606.1 chop bit bottom water --247.5-- May 29 Hole 621.2 water --244.4-- May 30 Hole 632 chop bit bottom water --244.4

Pipe in hole perforated at bottom water stands 244.3 from same elev. as casing formerly stood. Accumulation
Previously reported to 495

495
560
Hard caving clinker grading into a more uniform hard rock with clinkery spots

560
575
Soft rotted clinker, partial cavity in soft rotted rock between 574.6 and 575

575
632
OLD MAUI varying in hardness with many small cavities. Cavity 600 to 600.6. This hole is below gauge for last 200 ft., but reamer shell was used which would barely pass the ring gauge to bottom. Entire hole bad to cave - particularly bad at 174-180 - also bad spot at 440

Cased to 98.1

From 270 to 365 a strong suction of air in rods from downward flow of water. Entirely fades out at 366.

May 3 with hole at depth of 503.3 with chopping bit on rods and rods to bottom water stands at 371.8

CURRENT METER READINGS
DEPTH OF HOLE 506

May 7 no valve in meter

<table>
<thead>
<tr>
<th>Depth</th>
<th>Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>460</td>
<td>240</td>
</tr>
<tr>
<td>453</td>
<td>370</td>
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<tr>
<td>450</td>
<td>000</td>
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<tr>
<td>345</td>
<td>600</td>
</tr>
<tr>
<td>347</td>
<td>000</td>
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</tbody>
</table>

May 8 valve to stop downward fl

<table>
<thead>
<tr>
<th>Depth</th>
<th>Rev.</th>
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</thead>
<tbody>
<tr>
<td>460</td>
<td>000</td>
</tr>
<tr>
<td>455</td>
<td>000</td>
</tr>
</tbody>
</table>

Meter records a few rev. on downward movement of rods.

Accumulation of fine borings in hole at 512 & 514. Small leak suspected at 530. Leak at 540. May 20 Hole 549 chop bit on bottom water stands at --374-- May 22 Hole 576 water 127.5 (blow through) No borings at 549. Slickensides at 553. May 23 Hole 576.2 chop bit on bottom water --358.3-- May 24 Hole 567.2 chop bit on bottom water 286.9 May 26 Hole 591.4 chop bit on bottom water --286.8-- May 27 Hole 600.6 chop bit bottom water --259.3-- May 28 Hole 606.1 chop bit bottom water --247.5-- May 29 Hole 621, chop bit bottom water --244.6-- May 30 Hole 632 chop bit bottom water--244. May 31 632' 1" pipe in hole perforated at bottom water stands 244.3 from top of pipe which is same level as casing formerly stood. Accumulation fine borings in bottom of hole.

(s) J.M.Heizer

copy
1. USGS No.: Maui T IV, EMDG No. 74
2. Location: Nahiku area, E of Hanawi Gulch, ca. 820 ft. and 165° E of HCL #40.
3. Location determined by: S. Ohara.
4. Longitude: 156° 6' 31"
5. Latitude: 20° 48' 44"
8. Started: 
9. Completed: 
10. Altitude: 1072.0
11. Depth: 632
12. Diameter: 1/2 inches
13. Casing:
14. Purpose:
15. Salt content when completed:
16. Head: 
17. Geologic formations penetrated:

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Name of Formation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 - 50.0</td>
<td>Waiakapu Lava</td>
</tr>
<tr>
<td>50.0 - 73.4</td>
<td>Waiakapu Lava</td>
</tr>
<tr>
<td>73.4 - 134.7</td>
<td>Hanakapi Lava</td>
</tr>
<tr>
<td>134.7 - 197.5</td>
<td>Hanakapi Lava</td>
</tr>
<tr>
<td>197.5 - 227.0</td>
<td>Hanakapi Lava</td>
</tr>
<tr>
<td>227.0 - 459.5</td>
<td>Hanakapi Lava</td>
</tr>
<tr>
<td>459.5 - 491.0</td>
<td>Hanakapi Lava</td>
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<tr>
<td>491.0 - 495.0</td>
<td>Hanakapi Lava</td>
</tr>
<tr>
<td>Depth (feet)</td>
<td>Length (inches)</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>0.0 - 8.3</td>
<td>0</td>
</tr>
<tr>
<td>8.3 - 11.2</td>
<td>7½</td>
</tr>
<tr>
<td>11.2 - 17.6</td>
<td>22</td>
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<td>17.6 - 25.9</td>
<td>40½</td>
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<tr>
<td>25.9 - 34.6</td>
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<td>34.6 - 43.4</td>
<td>50½</td>
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<td>43.4 - 46.4</td>
<td>26</td>
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<td>46.4 - 50.0</td>
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<td>52.6 - 52.8</td>
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<tr>
<td>52.8 - 53.7</td>
<td>30</td>
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<tr>
<td>58.7 - 64.9</td>
<td>43</td>
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<tr>
<td>64.9 - 69.5</td>
<td>47</td>
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<tr>
<td>69.5 - 73.4</td>
<td>62</td>
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<tr>
<td>73.4 - 74.6</td>
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<tr>
<td>74.6 - 87.1</td>
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<td>87.1 - 89.5</td>
<td>9½</td>
</tr>
<tr>
<td>89.5 - 91.2</td>
<td>13½</td>
</tr>
<tr>
<td>91.2 - 100.5</td>
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</tr>
<tr>
<td>100.5 - 115.9</td>
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<tr>
<td>115.7 - 118.4</td>
<td>12</td>
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<tr>
<td>118.4 - 121.0</td>
<td>6</td>
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<tr>
<td>121.0 - 132.7</td>
<td>2</td>
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<tr>
<td>132.7 - 134.7</td>
<td>3</td>
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<td>134.7 - 135.2</td>
<td>4</td>
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<td>Layer</td>
<td>Color</td>
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<td>138.2 - 140.0</td>
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<td>140.0 - 142.9</td>
<td>23</td>
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<td>142.9 - 152.3</td>
<td>57</td>
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<tr>
<td>152.3 - 156.1</td>
<td>35</td>
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<tr>
<td>156.0 - 159.0</td>
<td>25</td>
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<td>159.0 - 175.5</td>
<td>31.5</td>
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<td>175.5 - 181.8</td>
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<tr>
<td>181.8 - 184.4</td>
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<td>184.4 - 191.7</td>
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<td>191.7 - 197.5</td>
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<td>206.0 - 216.0</td>
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<td>216.0 - 227.0</td>
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<td>227.0 - 235.2</td>
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<td>238.0 - 238.0</td>
<td>43</td>
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<tr>
<td>238.1 - 247.0</td>
<td>58</td>
</tr>
<tr>
<td>247.0 - 261.0</td>
<td>11.5</td>
</tr>
<tr>
<td>261.0 - 280.8</td>
<td>90</td>
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<td>286.8 - 285.0</td>
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<td>Depth Range</td>
<td>Core</td>
</tr>
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<td>------</td>
</tr>
<tr>
<td>295.0 - 297.0</td>
<td>43½</td>
</tr>
<tr>
<td>297.0 - 312.5</td>
<td>49</td>
</tr>
<tr>
<td>312.5 - 322.5</td>
<td>6</td>
</tr>
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<td>322.5 - 329.5</td>
<td>38</td>
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<tr>
<td>329.5 - 333.2</td>
<td>35</td>
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<tr>
<td>333.2 - 334.6</td>
<td>17</td>
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<td>334.6 - 353.2</td>
<td>118</td>
</tr>
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<td>353.2 - 365.5</td>
<td>45</td>
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<td>365.5 - 389.6</td>
<td>57</td>
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<td>389.8 - 391.3</td>
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<tr>
<td>391.3 - 416.0</td>
<td>32</td>
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<td>416.0 - 438.5</td>
<td>43½</td>
</tr>
<tr>
<td>438.5 - 448.8</td>
<td>40</td>
</tr>
<tr>
<td>448.8 - 451.1</td>
<td>0</td>
</tr>
<tr>
<td>451.1 - 460.8</td>
<td>70</td>
</tr>
<tr>
<td>460.8 - 474.2</td>
<td>81</td>
</tr>
<tr>
<td>Depth Range</td>
<td>Units</td>
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<td>-------</td>
</tr>
<tr>
<td>474.2 - 483.3</td>
<td>50</td>
</tr>
<tr>
<td>483.3 - 493.7</td>
<td>40</td>
</tr>
<tr>
<td>493.7 - 495.0</td>
<td>1½</td>
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</tbody>
</table>
LOG OF DIAMOND DRILL HOLE
Finished Feb. 22, 1939

HOLE 74:

<table>
<thead>
<tr>
<th>Depth</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Soil and lumps of rotted rock.</td>
</tr>
<tr>
<td>6</td>
<td>11.2 Tame Turkey clinker, partly rotted.</td>
</tr>
<tr>
<td>11.2</td>
<td>50 Tame Turkey, badly broken, with many frothy spots.</td>
</tr>
<tr>
<td>50</td>
<td>52.8 Very soft rotted rock with trace of soil. Leaky.</td>
</tr>
<tr>
<td>52.8</td>
<td>73.4 N.D.S. hard basalt, first few feet of a clinkery character. All fractures filled with clay. Not leaky.</td>
</tr>
<tr>
<td>73.4</td>
<td>87.1 Firm clay or soil, brown on top. Not leaky. No leak on this contact.</td>
</tr>
<tr>
<td>87.1</td>
<td>89.5 Hard blue basalt (boulder) A portion of this core shows evidence of &quot;drag&quot; or movement under pressure.</td>
</tr>
<tr>
<td>89.5</td>
<td>91.2 Same as 73.4; 87.1.</td>
</tr>
<tr>
<td>91.2</td>
<td>130 Partly rotted basalt lumps with clay or soil. Does not leak or cave.</td>
</tr>
<tr>
<td>130</td>
<td>133.7 Broken, caving, leaky basalt.</td>
</tr>
<tr>
<td>133.7</td>
<td>140 Clay or soil of various colors. Very compact. Sticky. Does not leak.</td>
</tr>
<tr>
<td>140</td>
<td>151.5 Wild Turkey, very porous, quite soft.</td>
</tr>
<tr>
<td>151.5</td>
<td>153 Crevice. Heavy leak.</td>
</tr>
<tr>
<td>153</td>
<td>154.4 Soft clay-like material.</td>
</tr>
<tr>
<td>154.4</td>
<td>197.5 Wild Turkey, ranging from hard to very soft.</td>
</tr>
<tr>
<td>197.5</td>
<td>200.7 Soil, with a few lumps of rotted rock.</td>
</tr>
<tr>
<td>200.7</td>
<td>227 Wild Turkey, averaged harder and less broken.</td>
</tr>
<tr>
<td>227</td>
<td>232 Smooth clay or soil with a few lumps of rotted rock.</td>
</tr>
<tr>
<td>232</td>
<td>243 N.D.S. basalt with a very few lime crystals. Some of this core is bottled a yellowish green. Leak 243.</td>
</tr>
<tr>
<td>243</td>
<td>280 N.D.S. Hard basalt. First 8 ft. quite clinkery.</td>
</tr>
<tr>
<td>280</td>
<td>285 Caving, soft, broken rock with a trace of clay or soil in fractures. Believed to be leaky.</td>
</tr>
<tr>
<td>285</td>
<td>312 Appears to be the same as 243, 280.</td>
</tr>
<tr>
<td>312</td>
<td>322.4 Rotted clinker, or partly rotted gravel in soil mass. Believed to be leaky.</td>
</tr>
<tr>
<td>322.4</td>
<td>354.5 N.D.S. hard basalt (Contact here?)</td>
</tr>
<tr>
<td>354.5</td>
<td>365.3 Rotted clinker. Much of this is as soft as clay.</td>
</tr>
<tr>
<td>365.3</td>
<td>389.3 N.D.S. hard gray basalt. Badly broken.</td>
</tr>
<tr>
<td>389.3</td>
<td>438.5 Partly rotted clinker; cores about 20%. Caves badly.</td>
</tr>
<tr>
<td>438.5</td>
<td>448.8 Same as above but greater proportion of hard rock.</td>
</tr>
<tr>
<td>448.8</td>
<td>451 Broken caving partly rotted rock.</td>
</tr>
<tr>
<td>451</td>
<td>456.8 N.D.S. hard blue basalt.</td>
</tr>
<tr>
<td>456.8</td>
<td>490 Old Maui, quite porous, badly broken. Considerably harder than O.M. found in same position in hole 65 until a depth of 485 is reached, but below this depth it is quite rotted and soft. Leaky.</td>
</tr>
<tr>
<td>490</td>
<td>495 N.D.S. hard caving clinker, rotted first foot on top.</td>
</tr>
</tbody>
</table>

Leaks: 15-30-46-49-98. Crevice and leak 130; Leaks at 149-155 - Cav. & Leak 166; Cav.167 to 169; Leak 175 - 208 - 225 - Cav. & Leak 266; Leak 312 - 358-278 - 378 (Heavy leak); Heavy leak also at 495 and cavity. Leak 456. Badly caving spots at 130 - 133- 165 - 166 - 280 - 432 - 445 - 490 - 495.
2/22/39
Sheet #2

HOLE 74, continued

COLOR

Jan. 26, 12 Noon, hole 131 water stands 85.2; Jan. 26, 2:30 P.M.
Hole 140 water stands 104.5; Jan. 27, L40 P.M., 154.4 depth of hole.
Water stands at 115.6; Jan. 31 at 3:30 P.M. hole 121, water 119.7.
Feb. 1 at 1:30 P.M. Hole 132, water 128.7, Feb. 14, 12 Noon, Hole 138,
water 120. This was an extra heavy stone of color, specified by Mr. D.S.S.
Feb. 4, 11 A.M. Hole 247, water 119.7, Feb 5 at 3:30 P.M. Hole 250,
water 119.9; Feb. 9, Hole 322, water 100.3 Feb. 14, Hole 390; Feb. 10
Hole 460.8.  

D.O. MOUTH varying in size and shape with many small crevices.  Curly calcs 40 ft.
This hole is the same as W 1 by J.M. Keizer.  But never shall this type could carry pass
the 32 holes of 100 feet.
Entire hole has to ones - particularly had at 15, 100 - also had 200 at 440

Cased to 981

May 7 no value in motor

May 8 valve to stop water in

<table>
<thead>
<tr>
<th>Depth</th>
<th>460</th>
<th>453</th>
<th>420</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rev.</td>
<td>240</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td></td>
<td>620</td>
<td>026</td>
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</table>

<table>
<thead>
<tr>
<th>Depth</th>
<th>460</th>
<th>453</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>420</td>
<td>421</td>
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