TABLE JJ–2 TO SUBPART JJ OF PART 98—WASTE CHARACTERISTICS DATA

<table>
<thead>
<tr>
<th>Animal type</th>
<th>Typical animal mass (kg)</th>
<th>Volatile solids excretion rate (kg VS/day/1000 kg animal mass)</th>
<th>Nitrogen excretion rate (kg N/day/1000 kg animal mass)</th>
<th>Maximum methane generation potential, Bt. (m³ CH₄/kg VS added)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy Cows</td>
<td>604</td>
<td>See Table JJ–3</td>
<td>See Table JJ–3</td>
<td>0.24</td>
</tr>
<tr>
<td>Dairy Heifers</td>
<td>476</td>
<td>See Table JJ–3</td>
<td>See Table JJ–3</td>
<td>0.17</td>
</tr>
<tr>
<td>Dairy Calves</td>
<td>118</td>
<td>6.41</td>
<td>0.30</td>
<td>0.17</td>
</tr>
<tr>
<td>Feedlot Steers</td>
<td>420</td>
<td>See Table JJ–3</td>
<td>See Table JJ–3</td>
<td>0.33</td>
</tr>
<tr>
<td>Feedlot heifers</td>
<td>420</td>
<td>See Table JJ–3</td>
<td>See Table JJ–3</td>
<td>0.33</td>
</tr>
<tr>
<td>Market Swine &lt;60 lbs</td>
<td>16</td>
<td>8.80</td>
<td>0.60</td>
<td>0.48</td>
</tr>
<tr>
<td>Market Swine 60–119 lbs</td>
<td>41</td>
<td>5.40</td>
<td>0.42</td>
<td>0.48</td>
</tr>
<tr>
<td>Market Swine 120–179 lbs</td>
<td>68</td>
<td>5.40</td>
<td>0.42</td>
<td>0.48</td>
</tr>
<tr>
<td>Market Swine &gt;180 lbs</td>
<td>91</td>
<td>5.40</td>
<td>0.42</td>
<td>0.48</td>
</tr>
<tr>
<td>Breeding Swine</td>
<td>186</td>
<td>2.60</td>
<td>0.24</td>
<td>0.48</td>
</tr>
<tr>
<td>Feedlot Sheep</td>
<td>25</td>
<td>9.20</td>
<td>0.42</td>
<td>0.36</td>
</tr>
<tr>
<td>Goats</td>
<td>64</td>
<td>9.50</td>
<td>0.45</td>
<td>0.17</td>
</tr>
<tr>
<td>Hens &gt;1 yr</td>
<td>450</td>
<td>10.00</td>
<td>0.30</td>
<td>0.33</td>
</tr>
<tr>
<td>Hens 1–4 yr</td>
<td>1.8</td>
<td>10.09</td>
<td>0.83</td>
<td>0.39</td>
</tr>
<tr>
<td>Pullets</td>
<td>1.8</td>
<td>10.09</td>
<td>0.62</td>
<td>0.39</td>
</tr>
<tr>
<td>Other Chickens</td>
<td>1.8</td>
<td>10.80</td>
<td>0.83</td>
<td>0.39</td>
</tr>
<tr>
<td>Layers</td>
<td>0.9</td>
<td>15.00</td>
<td>1.10</td>
<td>0.36</td>
</tr>
<tr>
<td>Turkeys</td>
<td>6.8</td>
<td>9.70</td>
<td>0.74</td>
<td>0.36</td>
</tr>
</tbody>
</table>

TABLE JJ–3 TO SUBPART JJ OF PART 98—STATE-SPECIFIC VOLATILE SOLIDS (VS) AND NITROGEN (N) EXCRETION RATES FOR CATTLE

<table>
<thead>
<tr>
<th>State</th>
<th>Volatile solids excretion rate (kg VS/day/1000 kg animal mass)</th>
<th>Nitrogen excretion rate (kg N/day/1000 kg animal mass)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>Dairy cows: 8.40, Dairy heifers: 8.35, Feedlot steer: 4.27, Feedlot heifers: 4.74</td>
<td>Dairy cows: 0.50, Dairy heifers: 0.46, Feedlot steer: 0.36, Feedlot heifers: 0.36</td>
</tr>
<tr>
<td>Alaska</td>
<td>Dairy cows: 7.30, Dairy heifers: 8.35, Feedlot steer: 4.15, Feedlot heifers: 4.58</td>
<td>Dairy cows: 0.45, Dairy heifers: 0.46, Feedlot steer: 0.35, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Arizona</td>
<td>Dairy cows: 10.37, Dairy heifers: 8.35, Feedlot steer: 3.91, Feedlot heifers: 4.27</td>
<td>Dairy cows: 0.58, Dairy heifers: 0.46, Feedlot steer: 0.33, Feedlot heifers: 0.34</td>
</tr>
<tr>
<td>Arkansas</td>
<td>Dairy cows: 7.59, Dairy heifers: 8.35, Feedlot steer: 3.98, Feedlot heifers: 4.35</td>
<td>Dairy cows: 0.46, Dairy heifers: 0.46, Feedlot steer: 0.33, Feedlot heifers: 0.35</td>
</tr>
<tr>
<td>California</td>
<td>Dairy cows: 10.02, Dairy heifers: 8.35, Feedlot steer: 3.96, Feedlot heifers: 4.33</td>
<td>Dairy cows: 0.56, Dairy heifers: 0.46, Feedlot steer: 0.33, Feedlot heifers: 0.34</td>
</tr>
<tr>
<td>Colorado</td>
<td>Dairy cows: 10.25, Dairy heifers: 8.35, Feedlot steer: 3.97, Feedlot heifers: 4.34</td>
<td>Dairy cows: 0.58, Dairy heifers: 0.46, Feedlot steer: 0.33, Feedlot heifers: 0.35</td>
</tr>
<tr>
<td>Connecticut</td>
<td>Dairy cows: 9.22, Dairy heifers: 8.35, Feedlot steer: 4.41, Feedlot heifers: 4.93</td>
<td>Dairy cows: 0.53, Dairy heifers: 0.46, Feedlot steer: 0.37, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Delaware</td>
<td>Dairy cows: 8.63, Dairy heifers: 8.35, Feedlot steer: 4.19, Feedlot heifers: 4.64</td>
<td>Dairy cows: 0.51, Dairy heifers: 0.46, Feedlot steer: 0.35, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Florida</td>
<td>Dairy cows: 8.90, Dairy heifers: 8.35, Feedlot steer: 4.15, Feedlot heifers: 4.58</td>
<td>Dairy cows: 0.52, Dairy heifers: 0.46, Feedlot steer: 0.35, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Georgia</td>
<td>Dairy cows: 9.07, Dairy heifers: 8.35, Feedlot steer: 4.18, Feedlot heifers: 4.63</td>
<td>Dairy cows: 0.53, Dairy heifers: 0.46, Feedlot steer: 0.35, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Dairy cows: 7.00, Dairy heifers: 8.35, Feedlot steer: 4.15, Feedlot heifers: 4.58</td>
<td>Dairy cows: 0.44, Dairy heifers: 0.46, Feedlot steer: 0.35, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Idaho</td>
<td>Dairy cows: 10.11, Dairy heifers: 8.35, Feedlot steer: 4.03, Feedlot heifers: 4.42</td>
<td>Dairy cows: 0.57, Dairy heifers: 0.46, Feedlot steer: 0.34, Feedlot heifers: 0.35</td>
</tr>
<tr>
<td>Illinois</td>
<td>Dairy cows: 9.07, Dairy heifers: 8.35, Feedlot steer: 4.15, Feedlot heifers: 4.59</td>
<td>Dairy cows: 0.52, Dairy heifers: 0.46, Feedlot steer: 0.35, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Indiana</td>
<td>Dairy cows: 9.38, Dairy heifers: 8.35, Feedlot steer: 3.98, Feedlot heifers: 4.35</td>
<td>Dairy cows: 0.54, Dairy heifers: 0.46, Feedlot steer: 0.33, Feedlot heifers: 0.35</td>
</tr>
<tr>
<td>Iowa</td>
<td>Dairy cows: 9.46, Dairy heifers: 8.35, Feedlot steer: 3.93, Feedlot heifers: 4.28</td>
<td>Dairy cows: 0.54, Dairy heifers: 0.46, Feedlot steer: 0.33, Feedlot heifers: 0.34</td>
</tr>
<tr>
<td>Kansas</td>
<td>Dairy cows: 9.63, Dairy heifers: 8.35, Feedlot steer: 3.97, Feedlot heifers: 4.35</td>
<td>Dairy cows: 0.55, Dairy heifers: 0.46, Feedlot steer: 0.33, Feedlot heifers: 0.35</td>
</tr>
<tr>
<td>Kentucky</td>
<td>Dairy cows: 7.89, Dairy heifers: 8.35, Feedlot steer: 4.20, Feedlot heifers: 4.65</td>
<td>Dairy cows: 0.48, Dairy heifers: 0.46, Feedlot steer: 0.35, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Louisiana</td>
<td>Dairy cows: 7.39, Dairy heifers: 8.35, Feedlot steer: 4.07, Feedlot heifers: 4.48</td>
<td>Dairy cows: 0.45, Dairy heifers: 0.46, Feedlot steer: 0.34, Feedlot heifers: 0.36</td>
</tr>
<tr>
<td>Maine</td>
<td>Dairy cows: 8.99, Dairy heifers: 8.35, Feedlot steer: 4.07, Feedlot heifers: 4.47</td>
<td>Dairy cows: 0.52, Dairy heifers: 0.46, Feedlot steer: 0.34, Feedlot heifers: 0.36</td>
</tr>
<tr>
<td>Maryland</td>
<td>Dairy cows: 9.02, Dairy heifers: 8.35, Feedlot steer: 4.05, Feedlot heifers: 4.45</td>
<td>Dairy cows: 0.52, Dairy heifers: 0.46, Feedlot steer: 0.34, Feedlot heifers: 0.35</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Dairy cows: 8.63, Dairy heifers: 8.35, Feedlot steer: 4.15, Feedlot heifers: 4.58</td>
<td>Dairy cows: 0.51, Dairy heifers: 0.46, Feedlot steer: 0.35, Feedlot heifers: 0.37</td>
</tr>
<tr>
<td>Michigan</td>
<td>Dairy cows: 10.05, Dairy heifers: 8.35, Feedlot steer: 4.00, Feedlot heifers: 4.38</td>
<td>Dairy cows: 0.57, Dairy heifers: 0.46, Feedlot steer: 0.34, Feedlot heifers: 0.35</td>
</tr>
</tbody>
</table>
### Environmental Protection Agency

PT. 98, Subpt. JJ, Table JJ–4

#### Minnesota
- Dairy cows: 9.17
- Dairy heifers: 8.35
- Feedlot steer: 3.89
- Feedlot heifers: 4.24
- Dairy cows: 0.53
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.34

#### Mississippi
- Dairy cows: 8.19
- Dairy heifers: 8.35
- Feedlot steer: 4.14
- Feedlot heifers: 4.57
- Dairy cows: 0.49
- Dairy heifers: 0.46
- Feedlot steer: 0.35
- Feedlot heifers: 0.37

#### Missouri
- Dairy cows: 8.02
- Dairy heifers: 8.35
- Feedlot steer: 4.08
- Feedlot heifers: 4.49
- Dairy cows: 0.48
- Dairy heifers: 0.46
- Feedlot steer: 0.34
- Feedlot heifers: 0.36

#### Montana
- Dairy cows: 9.03
- Dairy heifers: 8.35
- Feedlot steer: 4.23
- Feedlot heifers: 4.69
- Dairy cows: 0.52
- Dairy heifers: 0.46
- Feedlot steer: 0.36
- Feedlot heifers: 0.38

#### Nevada
- Dairy cows: 9.65
- Dairy heifers: 8.35
- Feedlot steer: 4.07
- Feedlot heifers: 4.48
- Dairy cows: 0.55
- Dairy heifers: 0.46
- Feedlot steer: 0.34
- Feedlot heifers: 0.36

#### New Hampshire
- Dairy cows: 9.44
- Dairy heifers: 8.35
- Feedlot steer: 3.94
- Feedlot heifers: 4.30
- Dairy cows: 0.54
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.34

#### New Jersey
- Dairy cows: 8.51
- Dairy heifers: 8.35
- Feedlot steer: 3.98
- Feedlot heifers: 4.36
- Dairy cows: 0.50
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.35

#### New Mexico
- Dairy cows: 10.34
- Dairy heifers: 8.35
- Feedlot steer: 3.88
- Feedlot heifers: 4.22
- Dairy cows: 0.58
- Dairy heifers: 0.46
- Feedlot steer: 0.32
- Feedlot heifers: 0.33

#### New York
- Dairy cows: 9.42
- Dairy heifers: 8.35
- Feedlot steer: 3.75
- Feedlot heifers: 4.05
- Dairy cows: 0.54
- Dairy heifers: 0.46
- Feedlot steer: 0.31
- Feedlot heifers: 0.32

#### North Carolina
- Dairy cows: 9.38
- Dairy heifers: 8.35
- Feedlot steer: 4.20
- Feedlot heifers: 4.65
- Dairy cows: 0.55
- Dairy heifers: 0.46
- Feedlot steer: 0.35
- Feedlot heifers: 0.37

#### North Dakota
- Dairy cows: 8.40
- Dairy heifers: 8.35
- Feedlot steer: 3.88
- Feedlot heifers: 4.22
- Dairy cows: 0.50
- Dairy heifers: 0.46
- Feedlot steer: 0.32
- Feedlot heifers: 0.34

#### Ohio
- Dairy cows: 9.01
- Dairy heifers: 8.35
- Feedlot steer: 3.86
- Feedlot heifers: 4.33
- Dairy cows: 0.52
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.34

#### Oklahoma
- Dairy cows: 8.58
- Dairy heifers: 8.35
- Feedlot steer: 3.98
- Feedlot heifers: 4.35
- Dairy cows: 0.50
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.35

#### Oregon
- Dairy cows: 9.40
- Dairy heifers: 8.35
- Feedlot steer: 4.06
- Feedlot heifers: 4.46
- Dairy cows: 0.54
- Dairy heifers: 0.46
- Feedlot steer: 0.34
- Feedlot heifers: 0.36

#### Pennsylvania
- Dairy cows: 9.26
- Dairy heifers: 8.35
- Feedlot steer: 3.88
- Feedlot heifers: 4.35
- Dairy cows: 0.53
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.35

#### Rhode Island
- Dairy cows: 8.94
- Dairy heifers: 8.35
- Feedlot steer: 4.36
- Feedlot heifers: 4.87
- Dairy cows: 0.52
- Dairy heifers: 0.46
- Feedlot steer: 0.37
- Feedlot heifers: 0.39

#### South Carolina
- Dairy cows: 9.05
- Dairy heifers: 8.35
- Feedlot steer: 4.15
- Feedlot heifers: 4.58
- Dairy cows: 0.53
- Dairy heifers: 0.46
- Feedlot steer: 0.35
- Feedlot heifers: 0.37

#### South Dakota
- Dairy cows: 9.45
- Dairy heifers: 8.35
- Feedlot steer: 4.01
- Feedlot heifers: 4.39
- Dairy cows: 0.54
- Dairy heifers: 0.46
- Feedlot steer: 0.34
- Feedlot heifers: 0.35

#### Tennessee
- Dairy cows: 8.60
- Dairy heifers: 8.35
- Feedlot steer: 4.48
- Feedlot heifers: 5.02
- Dairy cows: 0.51
- Dairy heifers: 0.46
- Feedlot steer: 0.38
- Feedlot heifers: 0.40

#### Texas
- Dairy cows: 9.51
- Dairy heifers: 8.35
- Feedlot steer: 3.85
- Feedlot heifers: 4.32
- Dairy cows: 0.54
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.34

#### Utah
- Dairy cows: 9.70
- Dairy heifers: 8.35
- Feedlot steer: 3.88
- Feedlot heifers: 4.22
- Dairy cows: 0.55
- Dairy heifers: 0.46
- Feedlot steer: 0.32
- Feedlot heifers: 0.34

#### Vermont
- Dairy cows: 9.03
- Dairy heifers: 8.35
- Feedlot steer: 4.10
- Feedlot heifers: 4.52
- Dairy cows: 0.52
- Dairy heifers: 0.46
- Feedlot steer: 0.34
- Feedlot heifers: 0.36

#### Virginia
- Dairy cows: 9.02
- Dairy heifers: 8.35
- Feedlot steer: 3.88
- Feedlot heifers: 4.35
- Dairy cows: 0.53
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.35

#### Washington
- Dairy cows: 10.36
- Dairy heifers: 8.35
- Feedlot steer: 4.07
- Feedlot heifers: 4.47
- Dairy cows: 0.58
- Dairy heifers: 0.46
- Feedlot steer: 0.34
- Feedlot heifers: 0.36

#### West Virginia
- Dairy cows: 8.13
- Dairy heifers: 8.35
- Feedlot steer: 4.65
- Feedlot heifers: 5.25
- Dairy cows: 0.48
- Dairy heifers: 0.46
- Feedlot steer: 0.40
- Feedlot heifers: 0.42

#### Wisconsin
- Dairy cows: 9.34
- Dairy heifers: 8.35
- Feedlot steer: 3.95
- Feedlot heifers: 4.31
- Dairy cows: 0.54
- Dairy heifers: 0.46
- Feedlot steer: 0.33
- Feedlot heifers: 0.34

#### Wyoming
- Dairy cows: 9.29
- Dairy heifers: 8.35
- Feedlot steer: 4.17
- Feedlot heifers: 4.61
- Dairy cows: 0.53
- Dairy heifers: 0.46
- Feedlot steer: 0.35
- Feedlot heifers: 0.37

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**Table JJ–4 to Subpart JJ of Part 98—Volatile Solids and Nitrogen Removal through Solids Separation**

<table>
<thead>
<tr>
<th>Type of solids separation</th>
<th>Volatile solids removal (decimal)</th>
<th>Nitrogen removal (decimal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravity</td>
<td>0.60</td>
<td>0.60</td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationary Screen</td>
<td>0.20</td>
<td>0.10</td>
</tr>
<tr>
<td>Vibrating Screen</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>Screw Press</td>
<td>0.25</td>
<td>0.15</td>
</tr>
<tr>
<td>Centrifuge</td>
<td>0.50</td>
<td>0.25</td>
</tr>
<tr>
<td>Roller drum</td>
<td>0.25</td>
<td>0.15</td>
</tr>
<tr>
<td>Belt press/screen</td>
<td>0.50</td>
<td>0.30</td>
</tr>
</tbody>
</table>