



13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121 • www.midwestlabs.com

| Lab # | 2773425 | Report of Analysis | | Report Number: 18-052-4088 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|------------------------|---|----------------------------|--|--|------------------------|--------------------------|--|------------------|--|--|--|--|----------|--|--|--|--|----------------|---|------|------|------|------------------|---|------|------|------|-------------------|---|-------|-------|-----|------------------|---|------|------|-----|-------------------------------|--|--|--|--|------------|---|------|------|------|--------------------|---|------|------|------|-----------|---|------|------|------|------------------|---|------|------|------|--------|---|------|------|-----|---------|---|------|------|------|-----------|---|------|------|-----|--------|---|-------|-------|-----|----------------|--|--|--|--|------|-----|------|-------|------|-----------|-----|-----|-----|-----|-------|-----|-------|-----|-----|-------------------------|--|--|--|--|----------|---|-------|--|--|--------------|---|-------|--|--------|----------------|---|-------|-------|-------|-----|---|-------|-------|-------|--------------|---|-------|-------|--|----------|---|------|------|--|----|--|-----|--|--|----------------------------------|-------|---|--|--|
| Account: 27791 | DOUG BULLOCK CITY OF RICHLAND PO BOX 190 RICHLAND WA 99352 | |  Robert Ferris Account Manager 402-829-9871 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Date Sampled: | 2018-02-05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Date Received: | 2018-02-06 | | NUTRIENT ANALYSIS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sample ID: | FC ROW 0929-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total content, lbs per ton (as rec'd) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th></th> <th></th> <th>Analysis (as rec'd)</th> <th>Analysis (dry weight)</th> <th></th> </tr> </thead> <tbody> <tr> <td colspan="5">NUTRIENTS</td> </tr> <tr> <td colspan="5">Nitrogen</td> </tr> <tr> <td>Total Nitrogen</td> <td>%</td> <td>2.06</td> <td>3.09</td> <td>41.2</td> </tr> <tr> <td>Organic Nitrogen</td> <td>%</td> <td>1.94</td> <td>2.91</td> <td>38.8</td> </tr> <tr> <td>Ammonium Nitrogen</td> <td>%</td> <td>0.111</td> <td>0.167</td> <td>2.2</td> </tr> <tr> <td>Nitrate Nitrogen</td> <td>%</td> <td>0.01</td> <td>0.02</td> <td>0.2</td> </tr> <tr> <td colspan="5">Major and Secondary Nutrients</td> </tr> <tr> <td>Phosphorus</td> <td>%</td> <td>0.77</td> <td>1.16</td> <td>15.4</td> </tr> <tr> <td>Phosphorus as P2O5</td> <td>%</td> <td>1.76</td> <td>2.64</td> <td>35.2</td> </tr> <tr> <td>Potassium</td> <td>%</td> <td>1.04</td> <td>1.56</td> <td>20.8</td> </tr> <tr> <td>Potassium as K2O</td> <td>%</td> <td>1.25</td> <td>1.88</td> <td>25.0</td> </tr> <tr> <td>Sulfur</td> <td>%</td> <td>0.32</td> <td>0.48</td> <td>6.4</td> </tr> <tr> <td>Calcium</td> <td>%</td> <td>1.61</td> <td>2.42</td> <td>32.2</td> </tr> <tr> <td>Magnesium</td> <td>%</td> <td>0.49</td> <td>0.74</td> <td>9.8</td> </tr> <tr> <td>Sodium</td> <td>%</td> <td>0.080</td> <td>0.120</td> <td>1.6</td> </tr> <tr> <td colspan="5">Micronutrients</td> </tr> <tr> <td>Iron</td> <td>ppm</td> <td>7860</td> <td>11795</td> <td>15.7</td> </tr> <tr> <td>Manganese</td> <td>ppm</td> <td>153</td> <td>230</td> <td>0.3</td> </tr> <tr> <td>Boron</td> <td>ppm</td> <td>< 100</td> <td>---</td> <td>---</td> </tr> <tr> <td colspan="5">OTHER PROPERTIES</td> </tr> <tr> <td>Moisture</td> <td>%</td> <td>33.36</td> <td></td> <td></td> </tr> <tr> <td>Total Solids</td> <td>%</td> <td>66.64</td> <td></td> <td>1332.8</td> </tr> <tr> <td>Organic Matter</td> <td>%</td> <td>34.80</td> <td>52.22</td> <td>696.0</td> </tr> <tr> <td>Ash</td> <td>%</td> <td>31.60</td> <td>47.42</td> <td>632.0</td> </tr> <tr> <td>Total Carbon</td> <td>%</td> <td>19.26</td> <td>28.90</td> <td></td> </tr> <tr> <td>Chloride</td> <td>%</td> <td>0.23</td> <td>0.35</td> <td></td> </tr> <tr> <td>pH</td> <td></td> <td>6.0</td> <td></td> <td></td> </tr> <tr> <td>Conductivity 1:5 (Soluble Salts)</td> <td>mS/cm</td> <td>7</td> <td></td> <td></td> </tr> </tbody> </table> | | | | | | | Analysis (as rec'd) | Analysis (dry weight) | | NUTRIENTS | | | | | Nitrogen | | | | | Total Nitrogen | % | 2.06 | 3.09 | 41.2 | Organic Nitrogen | % | 1.94 | 2.91 | 38.8 | Ammonium Nitrogen | % | 0.111 | 0.167 | 2.2 | Nitrate Nitrogen | % | 0.01 | 0.02 | 0.2 | Major and Secondary Nutrients | | | | | Phosphorus | % | 0.77 | 1.16 | 15.4 | Phosphorus as P2O5 | % | 1.76 | 2.64 | 35.2 | Potassium | % | 1.04 | 1.56 | 20.8 | Potassium as K2O | % | 1.25 | 1.88 | 25.0 | Sulfur | % | 0.32 | 0.48 | 6.4 | Calcium | % | 1.61 | 2.42 | 32.2 | Magnesium | % | 0.49 | 0.74 | 9.8 | Sodium | % | 0.080 | 0.120 | 1.6 | Micronutrients | | | | | Iron | ppm | 7860 | 11795 | 15.7 | Manganese | ppm | 153 | 230 | 0.3 | Boron | ppm | < 100 | --- | --- | OTHER PROPERTIES | | | | | Moisture | % | 33.36 | | | Total Solids | % | 66.64 | | 1332.8 | Organic Matter | % | 34.80 | 52.22 | 696.0 | Ash | % | 31.60 | 47.42 | 632.0 | Total Carbon | % | 19.26 | 28.90 | | Chloride | % | 0.23 | 0.35 | | pH | | 6.0 | | | Conductivity 1:5 (Soluble Salts) | mS/cm | 7 | | |
| | | Analysis (as rec'd) | Analysis (dry weight) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NUTRIENTS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nitrogen | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Nitrogen | % | 2.06 | 3.09 | 41.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Organic Nitrogen | % | 1.94 | 2.91 | 38.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ammonium Nitrogen | % | 0.111 | 0.167 | 2.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate Nitrogen | % | 0.01 | 0.02 | 0.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Major and Secondary Nutrients | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Phosphorus | % | 0.77 | 1.16 | 15.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Phosphorus as P2O5 | % | 1.76 | 2.64 | 35.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Potassium | % | 1.04 | 1.56 | 20.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Potassium as K2O | % | 1.25 | 1.88 | 25.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sulfur | % | 0.32 | 0.48 | 6.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Calcium | % | 1.61 | 2.42 | 32.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnesium | % | 0.49 | 0.74 | 9.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sodium | % | 0.080 | 0.120 | 1.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Micronutrients | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Iron | ppm | 7860 | 11795 | 15.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Manganese | ppm | 153 | 230 | 0.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boron | ppm | < 100 | --- | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OTHER PROPERTIES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moisture | % | 33.36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Solids | % | 66.64 | | 1332.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Organic Matter | % | 34.80 | 52.22 | 696.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ash | % | 31.60 | 47.42 | 632.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Carbon | % | 19.26 | 28.90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | % | 0.23 | 0.35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pH | | 6.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity 1:5 (Soluble Salts) | mS/cm | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121 • www.midwestlabs.com

| Lab # | 2773425 | Biological & Physical Properties | Report Number: 18-052-4088 | | | | | | | | |
|--|---|---|---|-----------------|--------------|--|------------------------|--------------------------|-------|-----------------|--------|
| Account: 27791 | DOUG BULLOCK CITY OF RICHLAND PO BOX 190 RICHLAND WA 99352 | |  Robert Ferris Client Service Representative 402-829-9871 | | | | | | | | |
| Date Sampled: | 2018-02-05 | | NUTRIENT ANALYSIS | | | | | | | | |
| Date Received: | 2018-02-06 | | | | | | | | | | |
| Sample ID: | FC ROW 0929-17 | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="width: 15%;">Analysis (as rec'd)</th> <th style="width: 15%;">Analysis (dry weight)</th> <th style="width: 10%;">Units</th> <th style="width: 10%;">Detection Limit</th> <th style="width: 15%;">Method</th> </tr> </thead> </table> | | | | | | | Analysis (as rec'd) | Analysis (dry weight) | Units | Detection Limit | Method |
| | Analysis (as rec'd) | Analysis (dry weight) | Units | Detection Limit | Method | | | | | | |
| Biological Properties | | | | | | | | | | | |
| Germination | 100 | | % | 1 | TMECC 05.05A | | | | | | |
| Germination Vigor | 87 | | % | 1 | TMECC 05.05A | | | | | | |
| CO ₂ OM Evolution | 0.55 | | mgCO ₂ -C/gOM/day | 0.01 | TMECC 05.08B | | | | | | |
| CO ₂ Solids Evolution | 1.25 | | mgCO ₂ -C/gTS/day | 0.01 | TMECC 05.08B | | | | | | |
| Fecal Coliform | | 142 | mpn/g | 0.2 | EPA 1681 | | | | | | |
| Stability Rating | Stable | | N/A | N/A | TMECC 05.08B | | | | | | |
| Physical Properties | | | | | | | | | | | |
| Bulk Density (Loose) | 640 | | lbs/cu yard | 1 | WT/VOL | | | | | | |
| Bulk Density (Packed) | 1129 | | lbs/cu yard | 1 | WT/VOL | | | | | | |
| Film Plastics | n.d. | | % | 0.25 | Microscopic | | | | | | |
| Glass Fragments | n.d. | | % | 0.25 | Microscopic | | | | | | |
| Hard Plastics | n.d. | | % | 0.25 | Microscopic | | | | | | |
| Metal Fragment | n.d. | | % | 0.25 | Microscopic | | | | | | |
| Sharps | Absent | | --- | --- | Microscopic | | | | | | |
| Max. Particle Length | | 2.3 | inches | N/A | TMECC Sieve | | | | | | |
| Sieve % Passing 3" | | 100 | % | 0.01 | TMECC Sieve | | | | | | |
| Sieve % Passing 2" | | 100 | % | 0.01 | TMECC Sieve | | | | | | |
| Sieve % Passing 1.5" | | 100 | % | 0.01 | TMECC Sieve | | | | | | |
| Sieve % Passing 1" | | 100 | % | 0.01 | TMECC Sieve | | | | | | |
| Sieve % Passing 3/4" | | 100 | % | 0.01 | TMECC Sieve | | | | | | |
| Sieve % Passing 5/8" | | 100 | % | 0.01 | TMECC Sieve | | | | | | |
| Sieve % Passing 3/8" | | 100 | % | 0.01 | TMECC Sieve | | | | | | |
| Sieve % Passing 1/4" | | 97 | % | 0.01 | TMECC Sieve | | | | | | |

Compost Results Interpretations

Page 1

Report #:

18-052-4088

DATE RECEIVED:

2018-02-06

| | | |
|------------------|-------------|---|
| Organic Matter % | | Greater than 20% indicates a desirable range for compost on a dry weight basis. |
| 34.80 | As Received | |
| 52.22 | Dry Weight | |

Compost is a significant source of Organic Matter, which is an important supplier of carbon. Organic Matter improves soil and plant efficiency by improving soil physical properties, providing a source of energy to beneficial organisms, and enhancing the reservoir of soil nutrients.

| | | |
|-----------|--|---|
| C/N Ratio | | 20-30 indicates an ideal range for the initial compost process. 10-20 indicates an ideal range for a finished compost. |
| 9.3:1 | | |

All organic matter is made up of substantial amounts of carbon with lesser amounts of nitrogen. The balance of these two elements is called the Carbon/Nitrogen Ratio. For the best performance, the compost pile requires the correct proportion of carbon for energy and nitrogen for protein production. If the C:N ratio is too high (excess carbon) decomposition slows down. If the C:N ratio is too low (excess Nitrogen) the compost pile could be difficult to manage.

| | | |
|------------|--|--|
| Moisture % | | <35% = Indicates overly dry compost >55% = Indicates overly wet compost |
| 33.36 | | |

Moisture Percent is the measure of water present in the compost and expressed as a percentage of total weight. Moisture present affects handling and transport. Overly dry will be light and dusty while overly wet will be heavy and clumpy. A desirable moisture content of finished compost will range between 40 to 50%.

Compost Results Interpretations

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Conductivity or Soluble Salts measures the conductance of electrical current in a liquid compost slurry. Excessive soluble salt content in a compost can prevent or delay seed germination and proper root growth. Conductivity analysis is done on a 1:5 basis.

| |
|------------------|
| Conductivity 1:5 |
| 7.0 |

| Conductivity Level | Interpretation |
|--------------------|---|
| Greater than 10 | Very High nutrient content. Use for Ag Applications |
| 5 - 10 | High nutrient content. Use for Ag Applications |
| 3 - 5 | Higher than desirable for salt sensitive plants, some loss of vigor |
| 0.6 - 3 | Desirable range for most plants |
| 0.3 - 0.6 | Ideal range for greenhouse growth media |
| 0.0 - 0.3 | Very Low: Indicates very low nutrient status: plants may show deficiencies. |

Compost Results Interpretations

Page 3

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pH Value

6.0

0 to 14 scale with 6 to 8 as normal pH levels for compost

A pH in the 6 to 8 pH range indicates a more mature compost

pH measures the acidity or alkalinity of the compost, and is a measurement of the hydrogen ion activity of a soil or compost on a logarithmic scale. The pH scale ranges from 0 to 14 and 7 indicates a neutral pH. Growing media with a higher pH or pH greater than 7 can benefit from a compost that has a more acidic pH or pH below 7. This type of application will possibly lower the soil pH making the soil more conducive to plants that thrive in a more acidic soil condition.

Nutrient Index (Ag Index)

>10

The Nutrient Index normally runs between 1 and 10.

The Nutrient Index is obtained by dividing the total nutrients (N,P,K) by the amount of salt (Sodium and Chloride). The higher the Nutrient Index the less chance of having a toxic buildup of Sodium (salt) in the soil.

| AG INDEX CHART | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|----|----------------------|
| <i>salt injury possible</i> | <i>use on soils with excellent drainage characteristics, good water quality and low salts</i> | | | | <i>you may use on soils with poor drainage, poor water quality, or high salts</i> | | | | | <i>for all soils</i> |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | > 10 |

Nutrients (N+P205+K20)

7.61

Average Nutrient Content Dry Weight

<2 = Low, >5 = High

2-2-1.5

Rating As Received

The most commonly used compost data is the amount of Nitrogen, Phosphate, and Potash (abbreviated as N,P,K) present and the information is similar to that found in common fertilizers. If a compost result has the rating 1-2-2 it means that the compost has 1% Nitrogen, 2% Phosphate and 2% Potash. Most compost tests will have a average nutrient level (N+P+K) of < 5%.

18-052-4088

REPORT DATE
Feb 21, 2018
 RECEIVED DATE
Feb 06, 2018

SEND TO
27791



13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770
 www.midwestlabs.com

ISSUE DATE
Feb 21, 2018

**CITY OF RICHLAND
 DOUG BULLOCK
 PO BOX 190
 RICHLAND WA 99352**

**REPORT OF ANALYSIS
 For: (27791) CITY OF RICHLAND
 NUTRIENT ANALYSIS**

| Analysis | Level Found | | Reporting | | Analyst- Date | Verified- Date |
|----------|-------------|------------|-----------|-------|------------------|-------------------|
| | As Received | Dry Weight | Units | Limit | | |

Sample ID: **FC ROW 0929-17** Lab Number: **2773425** Date Sampled: **2018-02-05**

| | | | | | | | |
|--------------------|-------|-------|-------|------|----------|-----------------|-----------------|
| Cadmium (total) | n.d. | n.d. | mg/kg | 0.50 | EPA 6010 | ras7-2018/02/08 | bab2-2018/02/14 |
| Chromium (total) | 14.0 | 21.0 | mg/kg | 1.00 | EPA 6010 | ras7-2018/02/08 | bab2-2018/02/14 |
| Mercury (total) | 0.09 | 0.14 | mg/kg | 0.05 | EPA 7471 | com2-2018/02/08 | bab2-2018/02/14 |
| Lead (total) | 7.5 | 11.3 | mg/kg | 5.0 | EPA 6010 | ras7-2018/02/08 | bab2-2018/02/14 |
| Molybdenum (total) | 5.6 | 8.4 | mg/kg | 1.0 | EPA 6010 | ras7-2018/02/08 | bab2-2018/02/14 |
| Nickel (total) | 9.0 | 13.5 | mg/kg | 1.0 | EPA 6010 | ras7-2018/02/08 | bab2-2018/02/14 |
| Selenium (total) | n.d. | n.d. | mg/kg | 10.0 | EPA 6010 | ras7-2018/02/08 | bab2-2018/02/14 |
| Zinc (total) | 213.9 | 321.0 | mg/kg | 2.0 | EPA 6010 | ras7-2018/02/08 | bab2-2018/02/14 |
| Copper (total) | 120 | 180 | mg/kg | 1 | EPA 6010 | ras7-2018/02/08 | bab2-2018/02/14 |
| Arsenic (total) | 3.32 | 4.98 | mg/kg | 0.5 | EPA 6020 | ras7-2018/02/12 | bab2-2018/02/14 |

EPA 1681 holding time of < 24 hours from sampling to laboratory set up of samples for biosolids and compost has been exceeded. Individual states enforce different holding times for compost or biosolids so please contact the regulatory body in your state for their requirements.
 n.d. = not detected , ppm = parts per million, ppm = mg/kg

For questions please contact:

Rob Ferris
 Account Manager
 ferris@midwestlabs.com (402)829-9871

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

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US COMPOSTING COUNCIL

2773425-425
 Samples: Page:
 1 1/2
 Ashlyn Himan
 2016 02 08 10:17

OFFICIAL Seal of Testing Assurance
Compost Sample Chain of Custody Form

STA Laboratory: Midwest Laboratories Tel: (402) 334-7770
 Address: 13611 "B" St. FAX: (402) 334-9121
 Email: _____
 City, State Zip code: Omaha, Nebraska 68144-3693

Client/Reporting Company: City of Richland Tel: (509) 942-7481
 Contact Name: Steve Brewer FAX: (509) 942-7346
 Billing Address: P.O. Box 190 Email: SABREWER@CT.
MS # 27 Richland, WA, US
 City, State Zip code: Richland, Wa 99353
 Send Results to: Steve Brewer
 City, State Zip code: P.O. Box 190 MS#27 Richland, WA 99353
 Name or Source of Sample(s): City of Richland Compost Facility
 Name of Person(s), Sample Collector(s): Kasey Bruton

LABORATORY USE ONLY Storage Locations
 Freezer _____ Cold Room _____ Storage Shelf _____
 Sample Condition: _____
 Temperature: _____ Malodor: _____ Moisture: _____

Sample Type: POINT COMPOSITE STRATIFIED INTERVAL
 P.O. Number: _____
 USCC Member: YES NO

SELECTION OF ANALYSIS. Refer to <http://www.tmecc.org/cap/methods.html> for details.
 STA Suite: State DOT Tests (indicate State); A, B, C - Specify other tests in fields A through C, (e.g., tests required for regulated samples, etc.). NOTE! STA analytical results via the STA Compost Technical Data Sheet and this Chain of Custody form are submitted to STA program management.

A B C

| Client Sample ID and Special Instructions | 1. List Feedstocks 2. Check all that apply 3. List % by volume. (Optional) | Collection Date/Time | Sample Matrix | Composting Operation Type | Shipping Temperature | Indicate Compost Analysis Requirements (*Identify state) | LAB USE ONLY Job Number & Sample Status |
|---|---|---|---|---|---|--|--|
| FC Row 0929-17 | <input checked="" type="checkbox"/> Green waste <input type="checkbox"/> Manure <input type="checkbox"/> Food <input checked="" type="checkbox"/> Biosolids <input type="checkbox"/> MSW <input type="checkbox"/> Wood <input type="checkbox"/> Carcass <input type="checkbox"/> Fish Waste <input type="checkbox"/> Grease, Fats | Date: <u>2.5.18</u> Time: <u>Grab Comp.</u> Initials: <u>KB</u> | Compost <input checked="" type="checkbox"/> Feedstock <input type="checkbox"/> Mulch <input type="checkbox"/> | Windrow <input checked="" type="checkbox"/> Static pile <input type="checkbox"/> In-Vessel <input type="checkbox"/> | Ambient <input type="checkbox"/> Wet Ice <input checked="" type="checkbox"/> Dry Ice <input type="checkbox"/> | STA Suite State DOT Identify State A B C | 2773425 |

INFORM THE STA LABORATORY AND SPECIFY THE REQUIRED LABORATORY TESTS WHEN SUBMITTING REGULATED COMPOST SAMPLES (please use spaces A, B and C provided above).
 PLEASE PROVIDE SPECIFIC FEEDSTOCK AND OPERATIONAL DETAIL IN THE SPACE PROVIDED.
 YOUR VOLUNTEERED INFORMATION PROVIDES USCC STANDARDS AND PRACTICES COMMITTEE WITH CRUTIAL DATA NEEDED TO BETTER UNDERSTAND THE COMPOSTING PROCESS AND COMPOST END USES.

STA w/o salmonella (want fecal coliform Test performed)

| | | | | | |
|--|--------------------|------------------|--|--------------------|-------------------|
| Releasing Signature 1 <u>[Signature]</u> | Date <u>2.5.18</u> | Time <u>1400</u> | Receiving Signature 1 <u>[Signature]</u> | Date <u>2/6/18</u> | Time <u>10:15</u> |
| Releasing Signature 2 | Date | Time | Receiving Signature 2 | Date | Time |
| Releasing Signature 3 | Date | Time | Receiving Signature 3 | Date | Time |
| Releasing Signature 4 | Date | Time | Receiving Signature 4 | Date | Time |

S. A. [Signature]



Sample Acceptance Checklist

Document Number: RC CHKLIST 001

Revision No.: 3

Effective Date: 1/31/17

Page 1 of 1



2773425-425

Samples: Page: 1 2/2

Ashlyn Himan

2018 02 06 10:17

Lab Number:

Thermometer Used: Therm Fisher IR II

Cooler Intact: Yes No

Received on Ice: Yes No

Sample Temperature (°C): 9.4

Hand Delivered: Yes No

Date & Initials of person accepting samples: AH 2/6/18

Comments:

Table with 5 columns: Question, Yes, No, N/A, Comments. Rows include Chain of Custody present?, Chain of Custody complete?, Sample ID(s), Sample Location(s), Client Contact, Analysis Requested, Sampler name on COC, Date & Time of collection, Sample labels match COC?, Written in indelible ink?, Labels indicate proper preservation?, Chain of Custody relinquished with signature?, Samples arrived within hold time?, Sufficient volume?, Appropriate containers used?, Filtered volume received for dissolved tests?, Headspace in VOA vials?, Trip Blank present?

Client Notification/Resolution: Date/Time Contacted:

Person Contacted: Contacted By:

Comments/Resolution: