

Memorandum

February 4, 2011

To: Ben Cope, EPA

From: Chris Berger and Scott Wells, PSU

Subject: January Test Scenario

A January test scenario was simulated using the CE-QUAL-W2 models developed for the Washington Department of Ecology and the Environmental Protection Agency. The scenario used Year 2001 conditions during January 1-31 and no source conditions for the rest of the year.

The semi-monthly averages of the daily minimum, volume-averaged DO in the hypolimnion (greater than 8 m depth) of each Long Lake segment (158-188) for the January test scenario were listed in Table 1 and Table 2. For comparison the no source concentrations were also listed along with the difference in dissolved oxygen concentration between January test and the no source scenario. The greatest DO difference of the January test scenario with respect to the no source scenario was 0.04 mg/l.

The semi-monthly averages of the daily minimum, volume-averaged DO for the full water column of all Long Lake segments (154-188) were listed in Table 3 and Table 4. The greatest difference between the no source and the January test scenario was 0.03 mg/l.

Table 1. January test scenario average dissolved oxygen concentrations at greater than 8 m depth for June 1 to September 15 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the January test scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	June 1-15			June 15-30			July 1-15			July 16-31			Aug 1-15			Aug 16-31			Sept 1-15		
158	<i>9.42</i>	<i>9.41</i>	<u>0.01</u>	9.41	<i>9.41</i>	<i>0.00</i>	9.06	<i>9.05</i>	<u>0.02</u>	9.11	<i>9.11</i>	<i>0.00</i>	9.14	<i>9.14</i>	<u>0.00</u>	9.31	<i>9.30</i>	<i>0.00</i>	9.46	<i>9.46</i>	<u>0.00</u>
159	<i>9.53</i>	<i>9.53</i>	<u>0.00</u>	9.45	<i>9.46</i>	<u>-0.01</u>	9.13	<i>9.12</i>	<u>0.01</u>	9.19	<i>9.19</i>	<i>0.00</i>	9.19	<i>9.18</i>	<u>0.01</u>	9.32	<i>9.32</i>	<i>0.00</i>	9.46	<i>9.46</i>	<u>0.01</u>
160	<i>9.56</i>	<i>9.57</i>	<u>0.00</u>	9.44	<i>9.46</i>	<u>-0.02</u>	9.12	<i>9.12</i>	<u>0.00</u>	9.19	<i>9.18</i>	<i>0.00</i>	9.18	<i>9.17</i>	<u>0.01</u>	9.29	<i>9.29</i>	<i>0.00</i>	9.44	<i>9.44</i>	<u>0.01</u>
161	<i>9.55</i>	<i>9.56</i>	<u>0.00</u>	9.50	<i>9.52</i>	<u>-0.03</u>	9.16	<i>9.16</i>	<u>0.00</u>	9.19	<i>9.19</i>	<i>0.00</i>	9.18	<i>9.18</i>	<u>0.01</u>	9.30	<i>9.29</i>	<i>0.00</i>	9.45	<i>9.44</i>	<u>0.01</u>
162	<i>9.55</i>	<i>9.55</i>	<u>0.00</u>	9.54	<i>9.56</i>	<u>-0.01</u>	9.16	<i>9.16</i>	<u>0.00</u>	9.18	<i>9.18</i>	<i>0.00</i>	9.18	<i>9.17</i>	<u>0.00</u>	9.26	<i>9.25</i>	<i>0.00</i>	9.41	<i>9.41</i>	<u>0.00</u>
163	<i>9.58</i>	<i>9.59</i>	<u>0.00</u>	9.58	<i>9.60</i>	<u>-0.01</u>	9.18	<i>9.18</i>	<u>-0.01</u>	9.17	<i>9.18</i>	<i>0.00</i>	9.17	<i>9.17</i>	<u>0.00</u>	9.18	<i>9.18</i>	<i>0.00</i>	9.31	<i>9.31</i>	<u>0.00</u>
164	<i>9.61</i>	<i>9.62</i>	<u>-0.01</u>	9.57	<i>9.59</i>	<u>-0.01</u>	9.15	<i>9.16</i>	<u>0.00</u>	9.14	<i>9.15</i>	<u>-0.01</u>	9.13	<i>9.13</i>	<u>0.00</u>	9.10	<i>9.10</i>	<i>0.00</i>	9.20	<i>9.20</i>	<u>-0.01</u>
165	<i>9.63</i>	<i>9.63</i>	<u>-0.01</u>	9.56	<i>9.57</i>	<u>-0.01</u>	9.07	<i>9.06</i>	<u>0.01</u>	9.09	<i>9.09</i>	<u>-0.01</u>	9.07	<i>9.07</i>	<u>0.00</u>	8.96	<i>8.96</i>	<i>0.00</i>	9.11	<i>9.12</i>	<u>-0.01</u>
166	<i>9.59</i>	<i>9.60</i>	<u>-0.01</u>	9.51	<i>9.53</i>	<u>-0.02</u>	8.87	<i>8.86</i>	<u>0.01</u>	8.98	<i>8.98</i>	<u>-0.01</u>	8.97	<i>8.97</i>	<u>0.00</u>	8.82	<i>8.82</i>	<i>0.00</i>	9.07	<i>9.08</i>	<u>0.00</u>
167	<i>9.59</i>	<i>9.60</i>	<u>-0.01</u>	9.48	<i>9.50</i>	<u>-0.02</u>	8.73	<i>8.71</i>	<u>0.02</u>	8.84	<i>8.84</i>	<i>0.00</i>	8.87	<i>8.87</i>	<u>0.00</u>	8.69	<i>8.69</i>	<u>0.01</u>	9.01	<i>9.01</i>	<u>0.00</u>
168	<i>9.61</i>	<i>9.62</i>	<u>-0.01</u>	9.43	<i>9.45</i>	<u>-0.02</u>	8.52	<i>8.50</i>	<u>0.02</u>	8.55	<i>8.55</i>	<i>0.00</i>	8.66	<i>8.66</i>	<u>0.00</u>	8.44	<i>8.43</i>	<u>0.01</u>	8.95	<i>8.95</i>	<u>0.00</u>
169	<i>9.62</i>	<i>9.64</i>	<u>-0.02</u>	9.37	<i>9.39</i>	<u>-0.02</u>	8.41	<i>8.39</i>	<u>0.02</u>	8.36	<i>8.36</i>	<i>0.00</i>	8.47	<i>8.47</i>	<u>0.00</u>	8.25	<i>8.24</i>	<u>0.01</u>	8.85	<i>8.85</i>	<u>0.00</u>
170	<i>9.61</i>	<i>9.63</i>	<u>-0.02</u>	9.28	<i>9.31</i>	<u>-0.03</u>	8.37	<i>8.36</i>	<u>0.01</u>	8.27	<i>8.26</i>	<i>0.00</i>	8.37	<i>8.37</i>	<u>0.00</u>	8.13	<i>8.12</i>	<u>0.01</u>	8.69	<i>8.69</i>	<u>0.00</u>
171	<i>9.58</i>	<i>9.61</i>	<u>-0.03</u>	9.23	<i>9.25</i>	<u>-0.02</u>	8.40	<i>8.38</i>	<u>0.02</u>	8.23	<i>8.22</i>	<u>0.01</u>	8.31	<i>8.30</i>	<u>0.01</u>	8.04	<i>8.03</i>	<u>0.01</u>	8.57	<i>8.57</i>	<u>0.00</u>
172	<i>9.50</i>	<i>9.53</i>	<u>-0.03</u>	9.07	<i>9.10</i>	<u>-0.02</u>	8.23	<i>8.20</i>	<u>0.03</u>	7.96	<i>7.95</i>	<u>0.01</u>	7.98	<i>7.97</i>	<u>0.01</u>	7.70	<i>7.69</i>	<u>0.01</u>	8.35	<i>8.34</i>	<u>0.00</u>
173	<i>9.40</i>	<i>9.43</i>	<u>-0.03</u>	8.95	<i>8.97</i>	<u>-0.02</u>	8.12	<i>8.10</i>	<u>0.03</u>	7.80	<i>7.78</i>	<u>0.01</u>	7.80	<i>7.78</i>	<u>0.01</u>	7.51	<i>7.50</i>	<u>0.02</u>	8.15	<i>8.15</i>	<u>0.00</u>
174	<i>9.29</i>	<i>9.32</i>	<u>-0.02</u>	8.80	<i>8.82</i>	<u>-0.02</u>	7.97	<i>7.94</i>	<u>0.03</u>	7.59	<i>7.58</i>	<u>0.02</u>	7.56	<i>7.54</i>	<u>0.02</u>	7.26	<i>7.23</i>	<u>0.02</u>	7.85	<i>7.84</i>	<u>0.01</u>
175	<i>9.20</i>	<i>9.23</i>	<u>-0.02</u>	8.68	<i>8.70</i>	<u>-0.02</u>	7.86	<i>7.84</i>	<u>0.02</u>	7.46	<i>7.44</i>	<u>0.02</u>	7.40	<i>7.38</i>	<u>0.02</u>	7.09	<i>7.07</i>	<u>0.02</u>	7.62	<i>7.61</i>	<u>0.01</u>
176	<i>9.11</i>	<i>9.14</i>	<u>-0.02</u>	8.62	<i>8.64</i>	<u>-0.02</u>	7.83	<i>7.81</i>	<u>0.02</u>	7.41	<i>7.39</i>	<u>0.02</u>	7.39	<i>7.36</i>	<u>0.02</u>	7.06	<i>7.04</i>	<u>0.02</u>	7.55	<i>7.54</i>	<u>0.01</u>
177	<i>8.92</i>	<i>8.94</i>	<u>-0.02</u>	8.34	<i>8.36</i>	<u>-0.02</u>	7.51	<i>7.48</i>	<u>0.02</u>	6.99	<i>6.96</i>	<u>0.03</u>	6.92	<i>6.89</i>	<u>0.03</u>	6.56	<i>6.54</i>	<u>0.03</u>	7.01	<i>6.99</i>	<u>0.02</u>
178	<i>8.85</i>	<i>8.87</i>	<u>-0.02</u>	8.26	<i>8.28</i>	<u>-0.02</u>	7.44	<i>7.42</i>	<u>0.02</u>	6.92	<i>6.89</i>	<u>0.03</u>	6.88	<i>6.85</i>	<u>0.03</u>	6.51	<i>6.48</i>	<u>0.03</u>	6.89	<i>6.86</i>	<u>0.03</u>
179	<i>8.79</i>	<i>8.81</i>	<u>-0.02</u>	8.23	<i>8.25</i>	<u>-0.02</u>	7.42	<i>7.40</i>	<u>0.02</u>	6.88	<i>6.85</i>	<u>0.03</u>	6.87	<i>6.84</i>	<u>0.03</u>	6.51	<i>6.48</i>	<u>0.03</u>	6.81	<i>6.78</i>	<u>0.03</u>
180	<i>8.73</i>	<i>8.74</i>	<u>-0.01</u>	8.19	<i>8.21</i>	<u>-0.02</u>	7.39	<i>7.37</i>	<u>0.02</u>	6.84	<i>6.81</i>	<u>0.03</u>	6.81	<i>6.79</i>	<u>0.03</u>	6.49	<i>6.47</i>	<u>0.03</u>	6.68	<i>6.65</i>	<u>0.03</u>
181	<i>8.66</i>	<i>8.67</i>	<u>-0.01</u>	8.14	<i>8.16</i>	<u>-0.02</u>	7.36	<i>7.35</i>	<u>0.02</u>	6.78	<i>6.75</i>	<u>0.03</u>	6.74	<i>6.71</i>	<u>0.03</u>	6.47	<i>6.45</i>	<u>0.03</u>	6.53	<i>6.50</i>	<u>0.03</u>
182	<i>8.67</i>	<i>8.68</i>	<u>-0.01</u>	8.16	<i>8.18</i>	<u>-0.02</u>	7.41	<i>7.40</i>	<u>0.01</u>	6.85	<i>6.82</i>	<u>0.03</u>	6.79	<i>6.76</i>	<u>0.03</u>	6.57	<i>6.54</i>	<u>0.03</u>	6.54	<i>6.51</i>	<u>0.03</u>
183	<i>8.56</i>	<i>8.57</i>	<u>-0.01</u>	8.00	<i>8.02</i>	<u>-0.02</u>	7.27	<i>7.25</i>	<u>0.02</u>	6.71	<i>6.68</i>	<u>0.03</u>	6.59	<i>6.56</i>	<u>0.03</u>	6.38	<i>6.35</i>	<u>0.03</u>	6.29	<i>6.26</i>	<u>0.03</u>
184	<i>8.54</i>	<i>8.56</i>	<u>-0.01</u>	7.99	<i>8.01</i>	<u>-0.02</u>	7.32	<i>7.30</i>	<u>0.01</u>	6.78	<i>6.76</i>	<u>0.03</u>	6.65	<i>6.62</i>	<u>0.03</u>	6.45	<i>6.42</i>	<u>0.03</u>	6.32	<i>6.29</i>	<u>0.03</u>
185	<i>8.49</i>	<i>8.50</i>	<u>-0.01</u>	7.96	<i>7.98</i>	<u>-0.02</u>	7.32	<i>7.31</i>	<u>0.01</u>	6.81	<i>6.78</i>	<u>0.03</u>	6.61	<i>6.59</i>	<u>0.03</u>	6.45	<i>6.42</i>	<u>0.03</u>	6.26	<i>6.23</i>	<u>0.03</u>
186	<i>8.37</i>	<i>8.37</i>	<u>0.00</u>	7.86	<i>7.87</i>	<u>-0.01</u>	7.21	<i>7.20</i>	<u>0.01</u>	6.66	<i>6.64</i>	<u>0.03</u>	6.40	<i>6.37</i>	<u>0.03</u>	6.27	<i>6.24</i>	<u>0.04</u>	5.99	<i>5.95</i>	<u>0.04</u>
187	<i>8.33</i>	<i>8.33</i>	<u>0.00</u>	7.87	<i>7.88</i>	<u>-0.01</u>	7.26	<i>7.25</i>	<u>0.01</u>	6.69	<i>6.66</i>	<u>0.03</u>	6.39	<i>6.35</i>	<u>0.03</u>	6.30	<i>6.26</i>	<u>0.04</u>	5.99	<i>5.95</i>	<u>0.04</u>
188	<i>8.29</i>	<i>8.30</i>	<u>-0.01</u>	7.76	<i>7.78</i>	<u>-0.01</u>	7.18	<i>7.17</i>	<u>0.01</u>	6.61	<i>6.58</i>	<u>0.03</u>	6.22	<i>6.20</i>	<u>0.03</u>	6.14	<i>6.11</i>	<u>0.03</u>	5.80	<i>5.76</i>	<u>0.03</u>

Table 2. January test scenario average dissolved oxygen concentrations at greater than 8 m depth for September 16 to December 31 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the January test scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	Sept 16-30			Oct 1-15			Oct 16-31			Nov 1-15			Nov 16-30			Dec 1-15			Dec 16-31		
158	9.63	<i>9.63</i>	<u>0.00</u>	9.99	<i>9.99</i>	<u>0.00</u>	10.49	<i>10.49</i>	<u>0.00</u>	10.67	<i>10.67</i>	<u>0.00</u>	10.80	<i>10.81</i>	<u>0.00</u>	11.43	<i>11.43</i>	<u>0.00</u>	11.50	<i>11.50</i>	<u>0.00</u>
159	9.62	<i>9.61</i>	<u>0.01</u>	10.01	<i>10.00</i>	<u>0.00</u>	10.51	<i>10.51</i>	<u>0.00</u>	10.70	<i>10.70</i>	<u>0.00</u>	10.83	<i>10.83</i>	<u>0.00</u>	11.43	<i>11.43</i>	<u>0.00</u>	11.51	<i>11.51</i>	<u>0.00</u>
160	9.60	<i>9.59</i>	<u>0.00</u>	10.01	<i>10.01</i>	<u>0.00</u>	10.52	<i>10.51</i>	<u>0.00</u>	10.69	<i>10.69</i>	<u>0.00</u>	10.82	<i>10.82</i>	<u>0.00</u>	11.43	<i>11.43</i>	<u>0.00</u>	11.50	<i>11.50</i>	<u>0.00</u>
161	9.60	<i>9.59</i>	<u>0.00</u>	10.02	<i>10.02</i>	<u>0.00</u>	10.52	<i>10.51</i>	<u>0.00</u>	10.69	<i>10.69</i>	<u>0.00</u>	10.83	<i>10.83</i>	<u>0.00</u>	11.43	<i>11.43</i>	<u>0.00</u>	11.49	<i>11.49</i>	<u>0.00</u>
162	9.58	<i>9.58</i>	<u>0.00</u>	10.04	<i>10.03</i>	<u>0.00</u>	10.55	<i>10.54</i>	<u>0.00</u>	10.67	<i>10.67</i>	<u>0.00</u>	10.82	<i>10.82</i>	<u>0.00</u>	11.43	<i>11.43</i>	<u>0.00</u>	11.49	<i>11.49</i>	<u>0.00</u>
163	9.52	<i>9.52</i>	<u>0.00</u>	10.01	<i>10.01</i>	<u>0.00</u>	10.56	<i>10.56</i>	<u>0.00</u>	10.66	<i>10.66</i>	<u>0.00</u>	10.81	<i>10.81</i>	<u>0.00</u>	11.42	<i>11.42</i>	<u>0.00</u>	11.49	<i>11.49</i>	<u>0.00</u>
164	9.41	<i>9.41</i>	<u>0.00</u>	9.91	<i>9.91</i>	<u>0.00</u>	10.55	<i>10.55</i>	<u>0.00</u>	10.65	<i>10.65</i>	<u>0.00</u>	10.80	<i>10.80</i>	<u>0.00</u>	11.40	<i>11.40</i>	<u>0.00</u>	11.48	<i>11.48</i>	<u>0.00</u>
165	9.30	<i>9.31</i>	<u>0.00</u>	9.77	<i>9.77</i>	<u>0.00</u>	10.47	<i>10.47</i>	<u>0.00</u>	10.65	<i>10.65</i>	<u>0.00</u>	10.81	<i>10.81</i>	<u>0.00</u>	11.39	<i>11.39</i>	<u>0.00</u>	11.47	<i>11.47</i>	<u>0.00</u>
166	9.26	<i>9.27</i>	<u>0.00</u>	9.70	<i>9.70</i>	<u>0.00</u>	10.42	<i>10.42</i>	<u>0.00</u>	10.60	<i>10.60</i>	<u>0.00</u>	10.78	<i>10.79</i>	<u>0.00</u>	11.37	<i>11.38</i>	<u>0.00</u>	11.45	<i>11.45</i>	<u>0.00</u>
167	9.20	<i>9.21</i>	<u>0.00</u>	9.63	<i>9.63</i>	<u>0.00</u>	10.37	<i>10.37</i>	<u>0.00</u>	10.59	<i>10.59</i>	<u>0.00</u>	10.80	<i>10.80</i>	<u>0.00</u>	11.36	<i>11.36</i>	<u>0.00</u>	11.43	<i>11.43</i>	<u>0.00</u>
168	9.15	<i>9.15</i>	<u>0.00</u>	9.55	<i>9.56</i>	<u>0.00</u>	10.28	<i>10.28</i>	<u>0.00</u>	10.59	<i>10.59</i>	<u>0.00</u>	10.80	<i>10.80</i>	<u>0.00</u>	11.34	<i>11.34</i>	<u>0.00</u>	11.43	<i>11.43</i>	<u>0.00</u>
169	9.10	<i>9.10</i>	<u>0.00</u>	9.49	<i>9.49</i>	<u>0.00</u>	10.17	<i>10.17</i>	<u>0.00</u>	10.61	<i>10.61</i>	<u>0.00</u>	10.79	<i>10.80</i>	<u>0.00</u>	11.27	<i>11.27</i>	<u>0.00</u>	11.41	<i>11.41</i>	<u>0.00</u>
170	9.03	<i>9.03</i>	<u>0.00</u>	9.40	<i>9.40</i>	<u>0.00</u>	10.04	<i>10.04</i>	<u>0.00</u>	10.56	<i>10.56</i>	<u>0.00</u>	10.79	<i>10.79</i>	<u>0.00</u>	11.20	<i>11.20</i>	<u>0.00</u>	11.38	<i>11.38</i>	<u>0.00</u>
171	8.96	<i>8.96</i>	<u>0.00</u>	9.31	<i>9.31</i>	<u>0.00</u>	9.91	<i>9.91</i>	<u>0.00</u>	10.48	<i>10.48</i>	<u>0.00</u>	10.75	<i>10.76</i>	<u>0.00</u>	11.20	<i>11.20</i>	<u>0.00</u>	11.36	<i>11.36</i>	<u>0.00</u>
172	8.86	<i>8.86</i>	<u>0.00</u>	9.26	<i>9.26</i>	<u>0.00</u>	9.83	<i>9.83</i>	<u>0.00</u>	10.37	<i>10.37</i>	<u>0.00</u>	10.72	<i>10.72</i>	<u>0.00</u>	11.29	<i>11.29</i>	<u>0.00</u>	11.43	<i>11.43</i>	<u>0.00</u>
173	8.75	<i>8.76</i>	<u>0.00</u>	9.21	<i>9.22</i>	<u>0.00</u>	9.77	<i>9.77</i>	<u>0.00</u>	10.29	<i>10.29</i>	<u>0.00</u>	10.68	<i>10.68</i>	<u>0.00</u>	11.29	<i>11.29</i>	<u>0.00</u>	11.46	<i>11.46</i>	<u>0.00</u>
174	8.56	<i>8.57</i>	<u>0.00</u>	9.17	<i>9.17</i>	<u>0.00</u>	9.75	<i>9.75</i>	<u>0.00</u>	10.27	<i>10.27</i>	<u>0.00</u>	10.66	<i>10.66</i>	<u>0.00</u>	11.27	<i>11.27</i>	<u>0.00</u>	11.45	<i>11.45</i>	<u>0.00</u>
175	8.37	<i>8.38</i>	<u>-0.01</u>	9.09	<i>9.09</i>	<u>0.00</u>	9.73	<i>9.73</i>	<u>0.00</u>	10.24	<i>10.24</i>	<u>0.00</u>	10.64	<i>10.64</i>	<u>0.00</u>	11.26	<i>11.26</i>	<u>0.00</u>	11.45	<i>11.46</i>	<u>0.00</u>
176	8.27	<i>8.28</i>	<u>0.00</u>	8.95	<i>8.95</i>	<u>0.00</u>	9.67	<i>9.67</i>	<u>0.00</u>	10.16	<i>10.16</i>	<u>0.00</u>	10.60	<i>10.60</i>	<u>0.00</u>	11.24	<i>11.24</i>	<u>0.00</u>	11.50	<i>11.50</i>	<u>0.00</u>
177	7.79	<i>7.79</i>	<u>0.00</u>	8.67	<i>8.67</i>	<u>0.00</u>	9.69	<i>9.69</i>	<u>0.00</u>	10.15	<i>10.15</i>	<u>0.00</u>	10.58	<i>10.58</i>	<u>0.00</u>	11.21	<i>11.22</i>	<u>0.00</u>	11.50	<i>11.50</i>	<u>0.00</u>
178	7.60	<i>7.60</i>	<u>0.01</u>	8.50	<i>8.51</i>	<u>0.00</u>	9.68	<i>9.68</i>	<u>0.00</u>	10.12	<i>10.12</i>	<u>0.00</u>	10.55	<i>10.55</i>	<u>0.00</u>	11.19	<i>11.19</i>	<u>0.00</u>	11.52	<i>11.52</i>	<u>0.00</u>
179	7.54	<i>7.53</i>	<u>0.01</u>	8.45	<i>8.45</i>	<u>0.00</u>	9.65	<i>9.65</i>	<u>0.00</u>	10.08	<i>10.08</i>	<u>0.00</u>	10.52	<i>10.52</i>	<u>0.00</u>	11.18	<i>11.18</i>	<u>0.00</u>	11.58	<i>11.58</i>	<u>0.00</u>
180	7.37	<i>7.36</i>	<u>0.01</u>	8.31	<i>8.31</i>	<u>0.00</u>	9.63	<i>9.63</i>	<u>0.00</u>	10.06	<i>10.06</i>	<u>0.00</u>	10.50	<i>10.50</i>	<u>0.00</u>	11.17	<i>11.17</i>	<u>0.00</u>	11.61	<i>11.61</i>	<u>0.00</u>
181	7.19	<i>7.17</i>	<u>0.01</u>	8.14	<i>8.14</i>	<u>0.00</u>	9.53	<i>9.53</i>	<u>0.00</u>	10.04	<i>10.04</i>	<u>0.00</u>	10.48	<i>10.48</i>	<u>0.00</u>	11.16	<i>11.16</i>	<u>0.00</u>	11.59	<i>11.59</i>	<u>0.00</u>
182	7.03	<i>7.01</i>	<u>0.02</u>	7.98	<i>7.98</i>	<u>0.00</u>	9.39	<i>9.39</i>	<u>0.00</u>	10.04	<i>10.04</i>	<u>0.00</u>	10.48	<i>10.48</i>	<u>0.00</u>	11.15	<i>11.15</i>	<u>0.00</u>	11.56	<i>11.56</i>	<u>0.00</u>
183	6.67	<i>6.65</i>	<u>0.03</u>	7.61	<i>7.60</i>	<u>0.01</u>	9.28	<i>9.28</i>	<u>0.00</u>	10.02	<i>10.02</i>	<u>0.00</u>	10.47	<i>10.47</i>	<u>0.00</u>	11.14	<i>11.14</i>	<u>0.00</u>	11.59	<i>11.59</i>	<u>0.00</u>
184	6.53	<i>6.49</i>	<u>0.03</u>	7.32	<i>7.31</i>	<u>0.01</u>	9.14	<i>9.13</i>	<u>0.00</u>	10.02	<i>10.02</i>	<u>0.00</u>	10.46	<i>10.46</i>	<u>0.00</u>	11.14	<i>11.14</i>	<u>0.00</u>	11.59	<i>11.60</i>	<u>0.00</u>
185	6.34	<i>6.30</i>	<u>0.04</u>	7.05	<i>7.03</i>	<u>0.02</u>	8.90	<i>8.89</i>	<u>0.01</u>	10.00	<i>10.00</i>	<u>0.00</u>	10.46	<i>10.46</i>	<u>0.00</u>	11.13	<i>11.13</i>	<u>0.00</u>	11.59	<i>11.59</i>	<u>0.00</u>
186	5.97	<i>5.92</i>	<u>0.04</u>	6.68	<i>6.66</i>	<u>0.02</u>	8.67	<i>8.66</i>	<u>0.01</u>	9.96	<i>9.96</i>	<u>0.00</u>	10.46	<i>10.46</i>	<u>0.00</u>	11.11	<i>11.11</i>	<u>0.00</u>	11.54	<i>11.55</i>	<u>0.00</u>
187	5.90	<i>5.86</i>	<u>0.04</u>	6.41	<i>6.38</i>	<u>0.03</u>	8.54	<i>8.53</i>	<u>0.01</u>	9.93	<i>9.93</i>	<u>0.00</u>	10.44	<i>10.44</i>	<u>0.00</u>	11.09	<i>11.09</i>	<u>0.00</u>	11.52	<i>11.52</i>	<u>0.00</u>
188	5.62	<i>5.58</i>	<u>0.04</u>	5.93	<i>5.89</i>	<u>0.04</u>	7.97	<i>7.96</i>	<u>0.01</u>	9.85	<i>9.84</i>	<u>0.01</u>	10.40	<i>10.40</i>	<u>0.00</u>	11.07	<i>11.07</i>	<u>0.00</u>	11.55	<i>11.55</i>	<u>0.00</u>

Table 3. January test scenario average dissolved oxygen concentrations for full water column for June 1 to September 15 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the January test scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	June 1-15			June 15-30			July 1-15			July 16-31			Aug 1-15			Aug 16-31			Sept 1-15		
154	9.27	<i>9.28</i>	0.00	8.84	<i>8.84</i>	0.00	8.74	<i>8.75</i>	0.00	8.85	<i>8.86</i>	0.00	8.84	<i>8.84</i>	0.00	9.11	<i>9.11</i>	0.00	9.29	<i>9.29</i>	0.00
155	9.20	<i>9.20</i>	0.00	8.85	<i>8.84</i>	0.00	8.79	<i>8.79</i>	0.00	8.78	<i>8.78</i>	0.00	8.81	<i>8.81</i>	0.00	9.03	<i>9.03</i>	0.00	9.13	<i>9.13</i>	0.00
156	9.19	<i>9.19</i>	<u>0.00</u>	8.86	<i>8.85</i>	<u>0.01</u>	8.81	<i>8.82</i>	<u>0.00</u>	8.88	<i>8.88</i>	<u>0.00</u>	8.90	<i>8.89</i>	<u>0.00</u>	9.07	<i>9.08</i>	<u>0.00</u>	9.25	<i>9.25</i>	<u>0.00</u>
157	9.21	<i>9.21</i>	<u>0.00</u>	9.10	<i>9.10</i>	<u>0.01</u>	8.93	<i>8.93</i>	<u>0.00</u>	8.94	<i>8.95</i>	<u>-0.01</u>	8.83	<i>8.83</i>	<u>-0.01</u>	8.81	<i>8.82</i>	<u>-0.01</u>	9.11	<i>9.12</i>	<u>-0.01</u>
158	9.31	<i>9.31</i>	<u>0.00</u>	9.40	<i>9.41</i>	<u>-0.01</u>	8.99	<i>8.99</i>	<u>0.00</u>	8.96	<i>8.97</i>	<u>-0.01</u>	8.90	<i>8.91</i>	<u>-0.01</u>	8.87	<i>8.88</i>	<u>-0.01</u>	9.12	<i>9.13</i>	<u>-0.01</u>
159	9.45	<i>9.45</i>	<u>0.00</u>	9.51	<i>9.52</i>	<u>-0.01</u>	9.07	<i>9.08</i>	<u>-0.01</u>	9.01	<i>9.03</i>	<u>-0.01</u>	8.95	<i>8.96</i>	<u>-0.01</u>	8.88	<i>8.89</i>	<u>-0.01</u>	9.12	<i>9.13</i>	<u>-0.01</u>
160	9.57	<i>9.57</i>	<u>0.00</u>	9.52	<i>9.53</i>	<u>-0.01</u>	9.08	<i>9.09</i>	<u>-0.01</u>	8.99	<i>9.01</i>	<u>-0.01</u>	8.92	<i>8.94</i>	<u>-0.01</u>	8.84	<i>8.85</i>	<u>-0.01</u>	9.08	<i>9.09</i>	<u>-0.01</u>
161	9.66	<i>9.67</i>	<u>-0.01</u>	9.49	<i>9.49</i>	<u>-0.01</u>	9.05	<i>9.07</i>	<u>-0.01</u>	8.92	<i>8.94</i>	<u>-0.02</u>	8.82	<i>8.84</i>	<u>-0.02</u>	8.71	<i>8.72</i>	<u>-0.02</u>	8.97	<i>8.98</i>	<u>-0.01</u>
162	9.66	<i>9.67</i>	<u>-0.01</u>	9.48	<i>9.49</i>	<u>-0.01</u>	9.08	<i>9.09</i>	<u>-0.02</u>	8.84	<i>8.86</i>	<u>-0.02</u>	8.77	<i>8.79</i>	<u>-0.02</u>	8.64	<i>8.66</i>	<u>-0.01</u>	8.89	<i>8.90</i>	<u>-0.01</u>
163	9.66	<i>9.66</i>	<u>-0.01</u>	9.50	<i>9.53</i>	<u>-0.03</u>	9.11	<i>9.13</i>	<u>-0.02</u>	8.83	<i>8.85</i>	<u>-0.02</u>	8.79	<i>8.81</i>	<u>-0.02</u>	8.62	<i>8.63</i>	<u>-0.01</u>	8.84	<i>8.86</i>	<u>-0.01</u>
164	9.67	<i>9.68</i>	<u>-0.01</u>	9.54	<i>9.58</i>	<u>-0.04</u>	9.13	<i>9.15</i>	<u>-0.02</u>	8.85	<i>8.87</i>	<u>-0.02</u>	8.80	<i>8.82</i>	<u>-0.02</u>	8.63	<i>8.65</i>	<u>-0.01</u>	8.85	<i>8.86</i>	<u>-0.01</u>
165	9.72	<i>9.74</i>	<u>-0.01</u>	9.56	<i>9.61</i>	<u>-0.05</u>	9.13	<i>9.16</i>	<u>-0.02</u>	8.80	<i>8.82</i>	<u>-0.02</u>	8.72	<i>8.74</i>	<u>-0.02</u>	8.54	<i>8.55</i>	<u>-0.01</u>	8.77	<i>8.79</i>	<u>-0.01</u>
166	9.73	<i>9.75</i>	<u>-0.02</u>	9.57	<i>9.62</i>	<u>-0.05</u>	9.12	<i>9.14</i>	<u>-0.02</u>	8.83	<i>8.85</i>	<u>-0.02</u>	8.74	<i>8.76</i>	<u>-0.02</u>	8.57	<i>8.58</i>	<u>-0.01</u>	8.82	<i>8.83</i>	<u>-0.01</u>
167	9.77	<i>9.80</i>	<u>-0.03</u>	9.55	<i>9.61</i>	<u>-0.06</u>	9.05	<i>9.06</i>	<u>-0.02</u>	8.75	<i>8.77</i>	<u>-0.02</u>	8.67	<i>8.68</i>	<u>-0.01</u>	8.49	<i>8.50</i>	<u>-0.01</u>	8.77	<i>8.78</i>	<u>-0.01</u>
168	9.73	<i>9.76</i>	<u>-0.03</u>	9.48	<i>9.53</i>	<u>-0.05</u>	8.87	<i>8.89</i>	<u>-0.01</u>	8.60	<i>8.61</i>	<u>-0.02</u>	8.57	<i>8.58</i>	<u>-0.01</u>	8.37	<i>8.37</i>	<u>0.00</u>	8.74	<i>8.74</i>	<u>-0.01</u>
169	9.67	<i>9.71</i>	<u>-0.04</u>	9.42	<i>9.46</i>	<u>-0.04</u>	8.75	<i>8.76</i>	<u>-0.01</u>	8.46	<i>8.47</i>	<u>-0.01</u>	8.46	<i>8.47</i>	<u>-0.01</u>	8.26	<i>8.26</i>	<u>0.00</u>	8.69	<i>8.69</i>	<u>-0.01</u>
170	9.61	<i>9.65</i>	<u>-0.04</u>	9.33	<i>9.37</i>	<u>-0.04</u>	8.69	<i>8.70</i>	<u>-0.01</u>	8.37	<i>8.38</i>	<u>-0.01</u>	8.38	<i>8.39</i>	<u>-0.01</u>	8.18	<i>8.18</i>	<u>0.00</u>	8.60	<i>8.60</i>	<u>-0.01</u>
171	9.57	<i>9.61</i>	<u>-0.04</u>	9.26	<i>9.29</i>	<u>-0.03</u>	8.67	<i>8.68</i>	<u>-0.01</u>	8.32	<i>8.33</i>	<u>-0.01</u>	8.34	<i>8.35</i>	<u>-0.01</u>	8.12	<i>8.12</i>	<u>0.00</u>	8.53	<i>8.53</i>	<u>0.00</u>
172	9.51	<i>9.55</i>	<u>-0.04</u>	9.15	<i>9.19</i>	<u>-0.03</u>	8.56	<i>8.57</i>	<u>-0.01</u>	8.17	<i>8.18</i>	<u>-0.01</u>	8.19	<i>8.19</i>	<u>0.00</u>	7.97	<i>7.97</i>	<u>0.00</u>	8.44	<i>8.44</i>	<u>0.00</u>
173	9.46	<i>9.50</i>	<u>-0.04</u>	9.09	<i>9.12</i>	<u>-0.03</u>	8.47	<i>8.47</i>	<u>0.00</u>	8.06	<i>8.06</i>	<u>0.00</u>	8.07	<i>8.07</i>	<u>0.00</u>	7.84	<i>7.83</i>	<u>0.00</u>	8.34	<i>8.34</i>	<u>0.00</u>
174	9.39	<i>9.42</i>	<u>-0.03</u>	9.01	<i>9.03</i>	<u>-0.03</u>	8.37	<i>8.37</i>	<u>0.00</u>	7.93	<i>7.93</i>	<u>0.00</u>	7.92	<i>7.92</i>	<u>0.00</u>	7.68	<i>7.67</i>	<u>0.01</u>	8.17	<i>8.17</i>	<u>0.00</u>
175	9.33	<i>9.36</i>	<u>-0.03</u>	8.93	<i>8.96</i>	<u>-0.03</u>	8.30	<i>8.30</i>	<u>0.00</u>	7.87	<i>7.86</i>	<u>0.01</u>	7.83	<i>7.83</i>	<u>0.00</u>	7.60	<i>7.59</i>	<u>0.01</u>	8.05	<i>8.04</i>	<u>0.00</u>
176	9.26	<i>9.29</i>	<u>-0.03</u>	8.87	<i>8.90</i>	<u>-0.02</u>	8.26	<i>8.25</i>	<u>0.00</u>	7.82	<i>7.81</i>	<u>0.01</u>	7.80	<i>7.80</i>	<u>0.00</u>	7.56	<i>7.55</i>	<u>0.01</u>	7.98	<i>7.97</i>	<u>0.01</u>
177	9.12	<i>9.14</i>	<u>-0.03</u>	8.66	<i>8.68</i>	<u>-0.02</u>	8.00	<i>7.99</i>	<u>0.00</u>	7.50	<i>7.49</i>	<u>0.01</u>	7.46	<i>7.44</i>	<u>0.02</u>	7.19	<i>7.17</i>	<u>0.02</u>	7.58	<i>7.56</i>	<u>0.01</u>
178	9.06	<i>9.08</i>	<u>-0.02</u>	8.60	<i>8.62</i>	<u>-0.02</u>	7.95	<i>7.94</i>	<u>0.00</u>	7.45	<i>7.43</i>	<u>0.02</u>	7.43	<i>7.41</i>	<u>0.02</u>	7.15	<i>7.13</i>	<u>0.02</u>	7.49	<i>7.47</i>	<u>0.01</u>
179	9.01	<i>9.03</i>	<u>-0.02</u>	8.57	<i>8.59</i>	<u>-0.02</u>	7.92	<i>7.92</i>	<u>0.00</u>	7.42	<i>7.40</i>	<u>0.02</u>	7.41	<i>7.40</i>	<u>0.02</u>	7.15	<i>7.13</i>	<u>0.02</u>	7.43	<i>7.41</i>	<u>0.02</u>
180	8.96	<i>8.98</i>	<u>-0.02</u>	8.55	<i>8.56</i>	<u>-0.02</u>	7.91	<i>7.90</i>	<u>0.00</u>	7.40	<i>7.38</i>	<u>0.02</u>	7.39	<i>7.38</i>	<u>0.02</u>	7.15	<i>7.14</i>	<u>0.02</u>	7.35	<i>7.34</i>	<u>0.02</u>
181	8.90	<i>8.92</i>	<u>-0.02</u>	8.50	<i>8.51</i>	<u>-0.02</u>	7.87	<i>7.87</i>	<u>0.00</u>	7.34	<i>7.32</i>	<u>0.02</u>	7.32	<i>7.31</i>	<u>0.02</u>	7.12	<i>7.10</i>	<u>0.02</u>	7.22	<i>7.20</i>	<u>0.02</u>
182	8.93	<i>8.94</i>	<u>-0.02</u>	8.55	<i>8.56</i>	<u>-0.02</u>	7.95	<i>7.95</i>	<u>0.00</u>	7.44	<i>7.43</i>	<u>0.01</u>	7.42	<i>7.41</i>	<u>0.01</u>	7.24	<i>7.23</i>	<u>0.01</u>	7.29	<i>7.28</i>	<u>0.02</u>
183	8.82	<i>8.83</i>	<u>-0.02</u>	8.40	<i>8.41</i>	<u>-0.01</u>	7.79	<i>7.79</i>	<u>0.00</u>	7.29	<i>7.27</i>	<u>0.02</u>	7.22	<i>7.20</i>	<u>0.02</u>	7.04	<i>7.03</i>	<u>0.02</u>	7.04	<i>7.02</i>	<u>0.02</u>
184	8.82	<i>8.84</i>	<u>-0.02</u>	8.42	<i>8.43</i>	<u>-0.01</u>	7.86	<i>7.86</i>	<u>0.00</u>	7.38	<i>7.36</i>	<u>0.02</u>	7.30	<i>7.28</i>	<u>0.02</u>	7.15	<i>7.13</i>	<u>0.02</u>	7.10	<i>7.08</i>	<u>0.02</u>
185	8.80	<i>8.81</i>	<u>-0.02</u>	8.43	<i>8.44</i>	<u>-0.01</u>	7.92	<i>7.92</i>	<u>0.00</u>	7.44	<i>7.43</i>	<u>0.01</u>	7.33	<i>7.32</i>	<u>0.01</u>	7.21	<i>7.20</i>	<u>0.02</u>	7.12	<i>7.10</i>	<u>0.02</u>
186	8.65	<i>8.66</i>	<u>-0.01</u>	8.29	<i>8.30</i>	<u>-0.01</u>	7.76	<i>7.77</i>	<u>0.00</u>	7.25	<i>7.23</i>	<u>0.02</u>	7.10	<i>7.09</i>	<u>0.02</u>	7.00	<i>6.98</i>	<u>0.02</u>	6.81	<i>6.79</i>	<u>0.02</u>
187	8.62	<i>8.62</i>	<u>-0.01</u>	8.32	<i>8.33</i>	<u>-0.01</u>	7.81	<i>7.82</i>	<u>0.00</u>	7.29	<i>7.27</i>	<u>0.02</u>	7.12	<i>7.10</i>	<u>0.02</u>	7.05	<i>7.03</i>	<u>0.02</u>	6.84	<i>6.82</i>	<u>0.02</u>
188	8.57	<i>8.59</i>	<u>-0.01</u>	8.23	<i>8.24</i>	<u>-0.01</u>	7.72	<i>7.72</i>	<u>0.00</u>	7.19	<i>7.18</i>	<u>0.02</u>	6.96	<i>6.95</i>	<u>0.02</u>	6.88	<i>6.87</i>	<u>0.02</u>	6.67	<i>6.64</i>	<u>0.02</u>

Table 4. January test scenario average dissolved oxygen concentrations for full water column for September 16 to December 31 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the January test scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	Sept 16-30			Oct 1-15			Oct 16-31			Nov 1-15			Nov 16-30			Dec 1-15			Dec 16-31		
154	<i>9.37</i>	<i>9.37</i>	<u>0.00</u>	9.89	9.89	<u>0.00</u>	10.32	10.32	<u>0.00</u>	10.59	10.59	<u>0.00</u>	10.83	10.83	<u>0.00</u>	11.53	11.53	<u>0.00</u>	11.58	11.58	<u>0.00</u>
155	<i>9.29</i>	<i>9.29</i>	<u>0.00</u>	9.74	9.74	<u>0.00</u>	10.29	10.29	<u>0.00</u>	10.59	10.59	<u>0.00</u>	10.74	10.74	<u>0.00</u>	11.38	11.38	<u>0.00</u>	11.48	11.48	<u>0.00</u>
156	<i>9.38</i>	<i>9.38</i>	<u>0.00</u>	9.72	9.72	<u>0.00</u>	10.27	10.27	<u>0.00</u>	10.55	10.55	<u>0.00</u>	10.72	10.72	<u>0.00</u>	11.39	11.39	<u>0.00</u>	11.48	11.48	<u>0.00</u>
157	<i>9.49</i>	<i>9.50</i>	<u>0.00</u>	9.86	9.86	<u>0.00</u>	10.37	10.37	<u>0.00</u>	10.61	10.61	<u>0.00</u>	10.78	10.78	<u>0.00</u>	11.42	11.42	<u>0.00</u>	11.49	11.49	<u>0.00</u>
158	<i>9.45</i>	<i>9.46</i>	<u>0.00</u>	10.06	10.06	<u>0.00</u>	10.54	10.54	<u>0.00</u>	10.69	10.69	<u>0.00</u>	10.81	10.81	<u>0.00</u>	11.44	11.44	<u>0.00</u>	11.52	11.52	<u>0.00</u>
159	<i>9.42</i>	<i>9.43</i>	<u>0.00</u>	10.06	10.06	<u>0.00</u>	10.58	10.58	<u>0.00</u>	10.76	10.76	<u>0.00</u>	10.84	10.84	<u>0.00</u>	11.44	11.44	<u>0.00</u>	11.53	11.53	<u>0.00</u>
160	<i>9.34</i>	<i>9.35</i>	<u>-0.01</u>	10.01	10.01	<u>0.00</u>	10.57	10.57	<u>0.00</u>	10.75	10.75	<u>0.00</u>	10.82	10.82	<u>0.00</u>	11.44	11.44	<u>0.00</u>	11.53	11.53	<u>0.00</u>
161	<i>9.20</i>	<i>9.21</i>	<u>-0.01</u>	9.94	9.94	<u>0.00</u>	10.58	10.58	<u>0.00</u>	10.75	10.75	<u>0.00</u>	10.84	10.84	<u>0.00</u>	11.44	11.44	<u>0.00</u>	11.52	11.52	<u>0.00</u>
162	<i>9.13</i>	<i>9.14</i>	<u>-0.01</u>	9.85	9.86	<u>0.00</u>	10.59	10.59	<u>0.00</u>	10.75	10.75	<u>0.00</u>	10.84	10.84	<u>0.00</u>	11.44	11.44	<u>0.00</u>	11.52	11.52	<u>0.00</u>
163	<i>9.07</i>	<i>9.08</i>	<u>-0.01</u>	9.64	9.65	<u>-0.01</u>	10.57	10.57	<u>0.00</u>	10.74	10.74	<u>0.00</u>	10.84	10.84	<u>0.00</u>	11.44	11.44	<u>0.00</u>	11.52	11.52	<u>0.00</u>
164	<i>9.06</i>	<i>9.07</i>	<u>-0.01</u>	9.54	9.55	<u>-0.01</u>	10.44	10.44	<u>0.00</u>	10.72	10.72	<u>0.00</u>	10.83	10.83	<u>0.00</u>	11.42	11.42	<u>0.00</u>	11.52	11.52	<u>0.00</u>
165	<i>8.96</i>	<i>8.98</i>	<u>-0.01</u>	9.41	9.41	<u>-0.01</u>	10.26	10.26	<u>0.00</u>	10.72	10.72	<u>0.00</u>	10.84	10.84	<u>0.00</u>	11.42	11.42	<u>0.00</u>	11.54	11.54	<u>0.00</u>
166	<i>9.00</i>	<i>9.01</i>	<u>-0.01</u>	9.40	9.41	<u>-0.01</u>	10.22	10.22	<u>0.00</u>	10.67	10.67	<u>0.00</u>	10.82	10.82	<u>0.00</u>	11.40	11.40	<u>0.00</u>	11.51	11.51	<u>0.00</u>
167	<i>8.95</i>	<i>8.96</i>	<u>-0.01</u>	9.33	9.34	<u>-0.01</u>	10.16	10.16	<u>0.00</u>	10.65	10.66	<u>0.00</u>	10.82	10.82	<u>0.00</u>	11.39	11.39	<u>0.00</u>	11.50	11.50	<u>0.00</u>
168	<i>8.93</i>	<i>8.94</i>	<u>-0.01</u>	9.31	9.32	<u>-0.01</u>	10.07	10.07	<u>0.00</u>	10.64	10.64	<u>0.00</u>	10.82	10.82	<u>0.00</u>	11.38	11.38	<u>0.00</u>	11.49	11.49	<u>0.00</u>
169	<i>8.91</i>	<i>8.91</i>	<u>-0.01</u>	9.28	9.28	<u>0.00</u>	9.95	9.95	<u>0.00</u>	10.64	10.64	<u>0.00</u>	10.81	10.81	<u>0.00</u>	11.34	11.34	<u>0.00</u>	11.47	11.47	<u>0.00</u>
170	<i>8.86</i>	<i>8.87</i>	<u>0.00</u>	9.22	9.23	<u>0.00</u>	9.85	9.85	<u>0.00</u>	10.52	10.53	<u>0.00</u>	10.79	10.79	<u>0.00</u>	11.29	11.29	<u>0.00</u>	11.44	11.44	<u>0.00</u>
171	<i>8.81</i>	<i>8.82</i>	<u>0.00</u>	9.17	9.17	<u>0.00</u>	9.76	9.76	<u>0.00</u>	10.41	10.41	<u>0.00</u>	10.76	10.76	<u>0.00</u>	11.28	11.28	<u>0.00</u>	11.43	11.44	<u>0.00</u>
172	<i>8.76</i>	<i>8.76</i>	<u>0.00</u>	9.14	9.14	<u>0.00</u>	9.71	9.71	<u>0.00</u>	10.29	10.29	<u>0.00</u>	10.69	10.69	<u>0.00</u>	11.34	11.35	<u>0.00</u>	11.57	11.57	<u>0.00</u>
173	<i>8.74</i>	<i>8.74</i>	<u>0.00</u>	9.13	9.13	<u>0.00</u>	9.68	9.68	<u>0.00</u>	10.22	10.22	<u>0.00</u>	10.65	10.65	<u>0.00</u>	11.33	11.33	<u>0.00</u>	11.64	11.64	<u>0.00</u>
174	<i>8.64</i>	<i>8.65</i>	<u>-0.01</u>	9.11	9.11	<u>0.00</u>	9.67	9.67	<u>0.00</u>	10.19	10.19	<u>0.00</u>	10.63	10.63	<u>0.00</u>	11.29	11.29	<u>0.00</u>	11.61	11.62	<u>0.00</u>
175	<i>8.54</i>	<i>8.55</i>	<u>-0.01</u>	9.08	9.08	<u>0.00</u>	9.65	9.65	<u>0.00</u>	10.17	10.16	<u>0.00</u>	10.61	10.61	<u>0.00</u>	11.28	11.28	<u>0.00</u>	11.66	11.66	<u>0.00</u>
176	<i>8.48</i>	<i>8.48</i>	<u>0.00</u>	9.00	9.00	<u>0.00</u>	9.61	9.61	<u>0.00</u>	10.11	10.11	<u>0.00</u>	10.57	10.57	<u>0.00</u>	11.25	11.25	<u>0.00</u>	11.69	11.70	<u>0.00</u>
177	<i>8.15</i>	<i>8.15</i>	<u>0.00</u>	8.82	8.82	<u>0.00</u>	9.63	9.63	<u>0.00</u>	10.10	10.10	<u>0.00</u>	10.55	10.55	<u>0.00</u>	11.22	11.22	<u>0.00</u>	11.66	11.66	<u>0.00</u>
178	<i>8.02</i>	<i>8.02</i>	<u>0.00</u>	8.71	8.71	<u>0.00</u>	9.63	9.63	<u>0.00</u>	10.08	10.08	<u>0.00</u>	10.53	10.53	<u>0.00</u>	11.19	11.19	<u>0.00</u>	11.68	11.68	<u>0.00</u>
179	<i>7.97</i>	<i>7.97</i>	<u>0.00</u>	8.68	8.68	<u>0.00</u>	9.62	9.62	<u>0.00</u>	10.05	10.05	<u>0.00</u>	10.51	10.51	<u>0.00</u>	11.18	11.18	<u>0.00</u>	11.71	11.71	<u>0.00</u>
180	<i>7.87</i>	<i>7.86</i>	<u>0.01</u>	8.59	8.59	<u>0.00</u>	9.60	9.60	<u>0.00</u>	10.03	10.03	<u>0.00</u>	10.49	10.49	<u>0.00</u>	11.17	11.17	<u>0.00</u>	11.71	11.71	<u>0.00</u>
181	<i>7.72</i>	<i>7.71</i>	<u>0.01</u>	8.46	8.46	<u>0.00</u>	9.53	9.53	<u>0.00</u>	10.01	10.01	<u>0.00</u>	10.47	10.47	<u>0.00</u>	11.16	11.16	<u>0.00</u>	11.67	11.67	<u>0.00</u>
182	<i>7.68</i>	<i>7.67</i>	<u>0.01</u>	8.38	8.38	<u>0.00</u>	9.44	9.44	<u>0.00</u>	10.01	10.01	<u>0.00</u>	10.47	10.47	<u>0.00</u>	11.15	11.15	<u>0.00</u>	11.65	11.65	<u>0.00</u>
183	<i>7.37</i>	<i>7.35</i>	<u>0.02</u>	8.07	8.07	<u>0.00</u>	9.35	9.35	<u>0.00</u>	10.00	10.00	<u>0.00</u>	10.46	10.46	<u>0.00</u>	11.15	11.15	<u>0.00</u>	11.66	11.66	<u>0.00</u>
184	<i>7.30</i>	<i>7.28</i>	<u>0.02</u>	7.90	7.89	<u>0.01</u>	9.24	9.23	<u>0.00</u>	10.00	10.00	<u>0.00</u>	10.46	10.46	<u>0.00</u>	11.14	11.14	<u>0.00</u>	11.65	11.65	<u>0.00</u>
185	<i>7.24</i>	<i>7.22</i>	<u>0.02</u>	7.74	7.73	<u>0.01</u>	9.07	9.06	<u>0.00</u>	9.99	9.99	<u>0.00</u>	10.46	10.46	<u>0.00</u>	11.13	11.13	<u>0.00</u>	11.64	11.64	<u>0.00</u>
186	<i>6.85</i>	<i>6.82</i>	<u>0.03</u>	7.37	7.35	<u>0.02</u>	8.87	8.86	<u>0.00</u>	9.96	9.96	<u>0.00</u>	10.45	10.45	<u>0.00</u>	11.11	11.11	<u>0.00</u>	11.59	11.60	<u>0.00</u>
187	<i>6.81</i>	<i>6.78</i>	<u>0.03</u>	7.17	7.15	<u>0.02</u>	8.76	8.76	<u>0.00</u>	9.93	9.93	<u>0.00</u>	10.44	10.44	<u>0.00</u>	11.09	11.09	<u>0.00</u>	11.56	11.56	<u>0.00</u>
188	<i>6.56</i>	<i>6.53</i>	<u>0.03</u>	6.79	6.76	<u>0.03</u>	8.34	8.33	<u>0.01</u>	9.88	9.87	<u>0.01</u>	10.41	10.41	<u>0.00</u>	11.07	11.07	<u>0.00</u>	11.61	11.61	<u>0.00</u>

