# APPENDIX I

# OPTION B – LEACHATE SEEPAGE AND COC MASS LOADING ESTIMATES

## Table I1. Option B – Leachate Seepage Estimates for Disposal Facility Subregions

| Facility Subregion | Start Date | End Date | Waste | Surface Area (sq ft) | Mean Seepage (%P)[1] | Mean Seepage (Lpd) | Model Applied for Seepage Estimate | Appendix VII Subregion Figure No. |
|---|---|---|---|---|---|---|---|---|
| Phase 1 - Ash Dredge Cells 1& 3 - Top Working Area | 2004 | 2014 | wet ash | 1,596,662 | 11.6 | 67,618 | HELP | 1 |
| Phase 1 - Ash Dredge Cells 1& 3 - Side Slope | 2004 | 2014 | wet ash | 1,799,163 | 30.7 | 200,760 | HELP | 1 |
| Phase 1 - Ash Dredge Cell 2 (active pond) | 2004 | 2014 | wet ash | 798,350 | -- | 156,757 | MODFLOW | 1 |
| Phase 1 - Ash Dredge Cells 1-3 - Top Working Area | 2015 | 2016 | dipped ash | 1,965,662 | 13.5 | 90,215 | HELP | 2 |
| Phase 1 - Ash Dredge Cells 1-3 - Side Slope | 2015 | 2016 | dipped ash | 2,581,418 | 17.4 | 153,283 | HELP | 2 |
| Closure of Ash Dredge Cells 1-3 - Upper Cap | 2017 | 2046 | mixed ash | 1,965,662 | 19.2 | 132,247 | HELP | 3 |
| Closure of Ash Dredge Cells 1-3 - Side Slope | 2017 | 2046 | mixed ash | 2,581,418 | 17.2 | 155,163 | HELP | 3 |
| Phase 1 - Dredge Cell Lateral Expansion Area - Top | 2004 | 2014 | wet ash | 496,898 | 16.9 | 12,454 | HELP | 4 |
| Phase 1 - Dredge Cell Lateral Expansion Area - Slope | 2004 | 2014 | wet ash | 502,432 | 24.4 | 44,483 | HELP | 4 |
| Phase 2 - Ash Dredge Cell - Top - NO BUFFER | 2009 | 2009 | wet ash | 900,003 | 7.1 | 23,559 | HELP | 5 |
| Phase 2 - Ash Dredge Cell - Top - BUFFER | 2017 | 2017 | wet ash | 900,003 | 5.4 | 17,950 | HELP | 6 |
| Phase 2 - Ash Dredge Cell - Slope - NO BUFFER | 2009 | 2009 | wet ash | 1,175,800 | 23.6 | 102,398 | HELP | 5 |
| Phase 2 - Ash Dredge Cell - Slope - BUFFER | 2009 | 2009 | wet ash | 1,175,800 | 17.1 | 74,052 | HELP | 6 |
| Phase 3 - Dry Ash Stack - Top - NO BUFFER | 2019 | 2019 | dry ash | 897,897 | 2.9 | 9,747 | HELP | 6 |
| Phase 3 - Dry Ash Stack - Top - BUFFER | 2019 | 2019 | dry ash | 897,897 | 1.8 | 6,013 | HELP | 7 |
| Phase 3 - Dry Ash Stack - Slope - NO BUFFER | 2019 | 2019 | dry ash | 1,307,901 | 21.0 | 101,410 | HELP | 6 |
| Phase 3 - Dry Ash Stack - Slope - BUFFER | 2019 | 2019 | dry ash | 1,307,901 | 15.3 | 74,029 | HELP | 7 |
| Phase2-3 - Dry Ash Cap - Top - NO BUFFER | 2029 | 2029 | mixed ash | 2,709,399 | 2.0 | 10,880 | HELP | 8 |
| Phase2-3 - Dry Ash Cap - Top - BUFFER | 2029 | 2029 | mixed ash | 1,538,324 | 1.9 | 10,583 | HELP | 9 |
| Phase2-3 - Dry Ash Cap - Slope - NO BUFFER | 2029 | 2029 | mixed ash | 2,709,399 | 7.8 | 77,280 | HELP | 8 |
| Phase2-3 - Dry Ash Cap - Slope - BUFFER | 2029 | 2029 | mixed ash | 1,538,324 | 5.9 | 58,254 | HELP | 9 |
| Closure of Phase 2&3 Areas - Upper Cap - NO BUFFER | 2029 | 2058 | 60:40 ash/gypsum | 1,538,324 | 14.5 | 78,822 | HELP | 10 |
| Closure of Phase 2&3 Areas - Upper Cap - BUFFER | 2029 | 2058 | 60:40 ash/gypsum | 1,538,324 | 14.2 | 77,024 | HELP | 11 |
| Closure of Phase 2&3 Areas - Side Slope - NO BUFFER | 2029 | 2058 | 60:40 ash/gypsum | 2,709,399 | 16.0 | 152,122 | HELP | 10 |
| Closure of Phase 2&3 Areas - Side Slope - BUFFER | 2029 | 2058 | 60:40 ash/gypsum | 2,709,399 | 16.0 | 152,199 | HELP | 11 |

[1] *Percent of mean annual precipitation*

## Table I2. Options B – COC Mass Loading Estimates

| Facility | Start Date | End Date | Waste | Ammonia | | | Arsenic | | | Cadmium | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Weighted Average Leachate Conc. (mg/L) | Mass Loading SPC (kg/day) | Mass Loading Emory River (kg/day) | Weighted Average Leachate Conc. (mg/L) | Mass Loading SPC (kg/day) | Mass Loading Emory River (kg/day) | Weighted Average Leachate Conc. (mg/L) | Mass Loading SPC (kg/day) | Mass Loading Emory River (kg/day) |
| Phase 1 - Ash Dredge Cells 1-3 | 2004 | 2014 | wet ash | 1.00 | 0.4237 | 0.4237 | 0.0037 | 0.0016 | 0.0016 | 0.001 | 0.0004 | 0.0004 |
| Phase 1 - Ash Dredge Cells 1-3 | 2015 | 2016 | dipped ash | 1.13 | 0.2754 | 0.2754 | 0.0037 | 0.0009 | 0.0009 | 0.001 | 0.0002 | 0.0002 |
| Closure of Ash Dredge Cells 1-3 | 2017 | 2046 | mixed ash | 1.13 | 0.3250 | 0.3250 | 0.0037 | 0.0011 | 0.0011 | 0.001 | 0.0003 | 0.0003 |
| Phase 1 - Dredge Cell Lateral Expansion Area | 2004 | 2014 | wet ash | 2.64 | -- | 0.1503 | 0.0037 | -- | 0.0002 | 0.001 | -- | 0.0001 |
| Phase 2 - Ash Dredge Cells - NO BUFFER | 2017 | 2028 | wet ash | 2.64 | -- | 0.2429 | 0.75 | -- | 0.0690 | 0.002 | -- | 0.0002 |
| Phase 2 - Ash Dredge Cells - BUFFER | 2017 | 2028 | wet ash | 2.64 | -- | 0.3325 | 0.75 | -- | 0.0945 | 0.002 | -- | 0.0003 |
| Phase 3 - Dry Ash Stack - NO BUFFER | 2029 | 2040 | dry ash | 733.00 | -- | 58.6711 | 0.75 | -- | 0.0600 | 0.002 | -- | 0.0002 |
| Phase 3 - Dry Ash Stack - BUFFER | 2029 | 2040 | dry ash | 733.00 | -- | 81.4785 | 0.75 | -- | 0.0834 | 0.002 | -- | 0.0002 |
| Phase 2&3 - Dry Ash Cap - NO BUFFER | 2041 | 2047 | dry ash | 417.21 | -- | 28.7193 | 0.75 | -- | 0.0516 | 0.002 | -- | 0.0001 |
| Phase 2&3 - Dry Ash Cap - BUFFER | 2041 | 2047 | dry ash | 417.21 | -- | 36.7811 | 0.75 | -- | 0.0661 | 0.002 | -- | 0.0002 |
| Closure of Phase 2&3 Areas - NO BUFFER | 2048 | 2077 | ash | 417.21 | -- | 96.3518 | 0.75 | -- | 0.1732 | 0.002 | -- | 0.0005 |
| Closure of Phase 2&3 Areas - BUFFER | 2048 | 2077 | ash | 417.21 | -- | 95.6339 | 0.75 | -- | 0.1719 | 0.002 | -- | 0.0005 |

## Table I2. Options B – COC Mass Loading Estimates (cont.)

| Facility | Start Date | End Date | Waste | Copper | | | Mercury | | | Nickel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Weighted Average Leachate Conc. (mg/L) | Mass Loading SPC (kg/day) | Mass Loading Emory River (kg/day) | Weighted Average Leachate Conc. (mg/L) | Mass Loading SPC (kg/day) | Mass Loading Emory River (kg/day) | Weighted Average Leachate Conc. (mg/L) | Mass Loading SPC (kg/day) | Mass Loading Emory River (kg/day) |
| Phase 1 - Ash Dredge Cells 1-3 | 2004 | 2014 | wet ash | 0.0253 | 0.0108 | 0.0108 | 0.0006 | 0.00026 | 0.00026 | 0.0466 | 0.0198 | 0.0198 |
| Phase 1 - Ash Dredge Cells 1-3 | 2015 | 2016 | dipped ash | 0.0253 | 0.0062 | 0.0062 | 0.0006 | 0.00015 | 0.00015 | 0.0466 | 0.0113 | 0.0113 |
| Closure of Ash Dredge Cells 1-3 | 2017 | 2046 | mixed ash | 0.0253 | 0.0073 | 0.0073 | 0.0006 | 0.00017 | 0.00017 | 0.0466 | 0.0134 | 0.0134 |
| Phase 1 - Dredge Cell Lateral Expansion Area | 2004 | 2014 | wet ash | 0.0253 | -- | 0.0014 | 0.0006 | -- | 0.00003 | 0.0466 | -- | 0.0027 |
| Phase 2 - Ash Dredge Cells - NO BUFFER | 2017 | 2028 | wet ash | 0.005 | -- | 0.0005 | 0.0001 | -- | 0.00001 | 0.003 | -- | 0.0003 |
| Phase 2 - Ash Dredge Cells - BUFFER | 2017 | 2028 | wet ash | 0.005 | -- | 0.0006 | 0.0001 | -- | 0.00001 | 0.003 | -- | 0.0004 |
| Phase 3 - Dry Ash Stack - NO BUFFER | 2029 | 2040 | dry ash | 0.005 | -- | 0.0004 | 0.0001 | -- | 0.00001 | 0.003 | -- | 0.0002 |
| Phase 3 - Dry Ash Stack - BUFFER | 2029 | 2040 | dry ash | 0.005 | -- | 0.0006 | 0.0001 | -- | 0.00001 | 0.003 | -- | 0.0003 |
| Phase 2&3 - Dry Ash Cap - NO BUFFER | 2041 | 2047 | dry ash | 0.005 | -- | 0.0003 | 0.0001 | -- | 0.00001 | 0.003 | -- | 0.0002 |
| Phase 2&3 - Dry Ash Cap - BUFFER | 2041 | 2047 | dry ash | 0.005 | -- | 0.0004 | 0.0001 | -- | 0.00001 | 0.003 | -- | 0.0003 |
| Closure of Phase 2&3 Areas - NO BUFFER | 2048 | 2077 | ash | 0.005 | -- | 0.0012 | 0.0001 | -- | 0.00002 | 0.003 | -- | 0.0007 |
| Closure of Phase 2&3 Areas - BUFFER | 2048 | 2077 | ash | 0.005 | -- | 0.0011 | 0.0001 | -- | 0.00002 | 0.003 | -- | 0.0007 |

## Table I2. Options B – COC Mass Loading Estimates (cont.)

| Facility | Start Date | End Date | Waste | Selenium | | | Zinc | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Weighted Average Leachate Conc. (mg/L) | Mass Loading SPC (kg/day) | Mass Loading Emory River (kg/day) | Weighted Average Leachate Conc. (mg/L) | Mass Loading SPC (kg/day) | Mass Loading Emory River (kg/day) |
| Phase 1 - Ash Dredge Cells 1-3 | 2004 | 2014 | wet ash | 0.001 | 0.0004 | 0.0004 | 0.209 | 0.0889 | 0.0889 |
| Phase 1 - Ash Dredge Cells 1-3 | 2015 | 2016 | dipped ash | 0.001 | 0.0002 | 0.0002 | 0.209 | 0.0509 | 0.0509 |
| Closure of Ash Dredge Cells 1-3 | 2017 | 2046 | mixed ash | 0.001 | 0.0003 | 0.0003 | 0.209 | 0.0601 | 0.0601 |
| Phase 1 - Dredge Cell Lateral Expansion Area | 2004 | 2014 | wet ash | 0.001 | -- | 0.0001 | 0.209 | -- | 0.0119 |
| Phase 2 - Ash Dredge Cells - NO BUFFER | 2017 | 2028 | wet ash | 0.001 | -- | 0.0000 | 0.005 | -- | 0.0005 |
| Phase 2 - Ash Dredge Cells - BUFFER | 2017 | 2028 | wet ash | 0.001 | -- | 0.0001 | 0.005 | -- | 0.0006 |
| Phase 3 - Dry Ash Stack - NO BUFFER | 2029 | 2040 | dry ash | 0.001 | -- | 0.0000 | 0.005 | -- | 0.0004 |
| Phase 3 - Dry Ash Stack - BUFFER | 2029 | 2040 | dry ash | 0.001 | -- | 0.0001 | 0.005 | -- | 0.0006 |
| Phase 2&3 - Dry Ash Cap - NO BUFFER | 2041 | 2047 | dry ash | 0.001 | -- | 0.0000 | 0.005 | -- | 0.0003 |
| Phase 2&3 - Dry Ash Cap - BUFFER | 2041 | 2047 | dry ash | 0.001 | -- | 0.0000 | 0.005 | -- | 0.0004 |
| Closure of Phase 2&3 Areas - NO BUFFER | 2048 | 2077 | ash | 0.001 | -- | 0.0001 | 0.005 | -- | 0.0012 |
| Closure of Phase 2&3 Areas - BUFFER | 2048 | 2077 | ash | 0.001 | -- | 0.0001 | 0.005 | -- | 0.0011 |