**Table 2** Multiple linear regression summary from the best fitting three-variable model of the natural log (ln) of “final SRP” (average SRP concentration in intact cores floodwater between day 10-14) (n = 40) (20 sampling plots x 2 gas treatments). To translate the values in this table to final SRP (mg P L-1), use , where DO = final surface water DO (mg/L). All parameters for soil variables are for the 0-5cm layer. All models meet the assumptions of normality, homoskedasticity, and multicollinearity. See Table 1 for variable definitions. Significance codes for type II sum of squares: \*\*0.01 ≥ p > 0.001, all other estimates are significant at p < 0.001 level.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **X1** | **X2** | **adj-R2** | **b0 (intercept)** | **b1** | **b2** | **b3** |
| ln([P:Fe]ox) | YSF | 0.77 | 1.59 ± 0.32 | 1.86 ± 0.28 | -0.0505 ± 0.012 | -0.179 ± 0.038 |
| ln(BD) | ln([P:Fe]ox) | 0.77 | 1.89 ± 0.34 | 0.701 ± 0.17 | 2.24 ± 0.25 | -0.182 ± 0.038 |
| FF | ln([Al:Fe]ox) | 0.75 | -2.41 ± 0.21 | 3.28 ± 0.35 | 1.18 ± 0.25 | -0.174 ± 0.041 |
| ln(clay) | SPSCox | 0.74 | -2.45 ± 0.6 | 0.905 ± 0.26 \*\* | -0.00393 ± 0.00045 | -0.17 ± 0.042 |
| LOI | ln([P:Fe]ox) | 0.73 | 1.9 ± 0.38 | -2.52 ± 0.82  \*\* | 2.31 ± 0.27 | -0.179 ± 0.042 |
| clay | SPSCox | 0.73 | -0.955 ± 0.24 | 0.0474 ± 0.014 \*\* | -0.00366 ± 0.00041 | -0.173 ± 0.042 |
| FF | [Al:Fe]ox | 0.73 | -3.58 ± 0.38 | 3.25 ± 0.36 | 1.06 ± 0.25 | -0.173 ± 0.042 |
| FF | ln(MM-P) | 0.72 | -3.01 ± 0.28 | 1.94 ± 0.39 | 0.499 ± 0.12 | -0.192 ± 0.042 |