

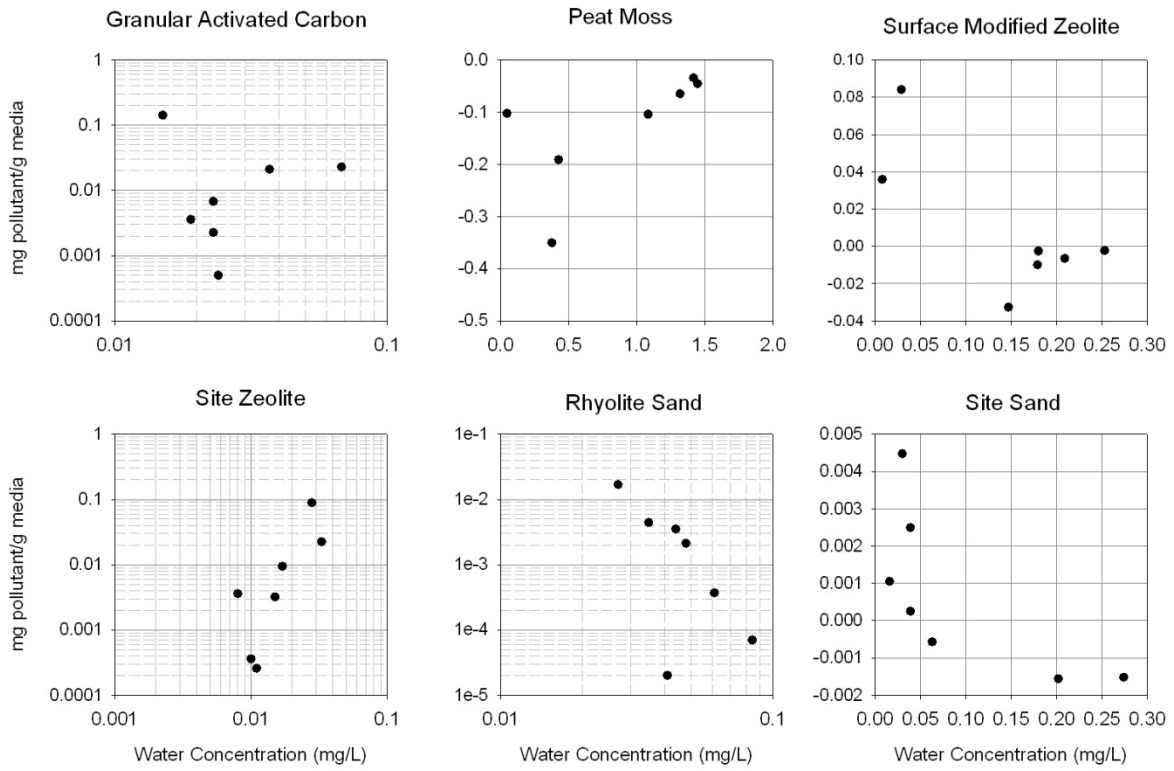
APPENDIX C2

TRADITIONAL BATCH CAPACITY TESTING RESULTS FOR BIOFILTER MEDIA COMPONENTS

The results are graphed as traditional isotherm tests, e.g., mass pollutant sorbed per unit mass of media versus equilibrium water concentration after sufficient time for pollutant retention to occur. Maximum capacity can be calculated in two ways with this data. First, a traditional isotherm equation can be used to fit the data. The Freundlich isotherm is one such isotherm and it is commonly used because one of the fitting constants is an estimate of the ultimate capacity of the media. The second method of estimating capacity is to use the data as presented on these graphs. The highest mass loadings shown are used as the maximum operational capacity. The use of the highest mass loadings on the graphs addresses one of the primary disadvantages of isotherm calculations. The isotherm constant is the ultimate capacity and it assumes that equilibrium has been reached between the media and the pollutant (e.g., the rate of uptake is equal to the rate of release from the media surface). It also assumes that all slow diffusion mechanisms where the pollutant migrates to inner surfaces and is retained more readily have had time to occur. This, however, is unlikely to happen in field applications during operation. Only during quiescent times will slow diffusion have sufficient time to occur. Therefore, the operational capacity from these graphs more closely represent what is likely to happen during the contact time available in field operation.

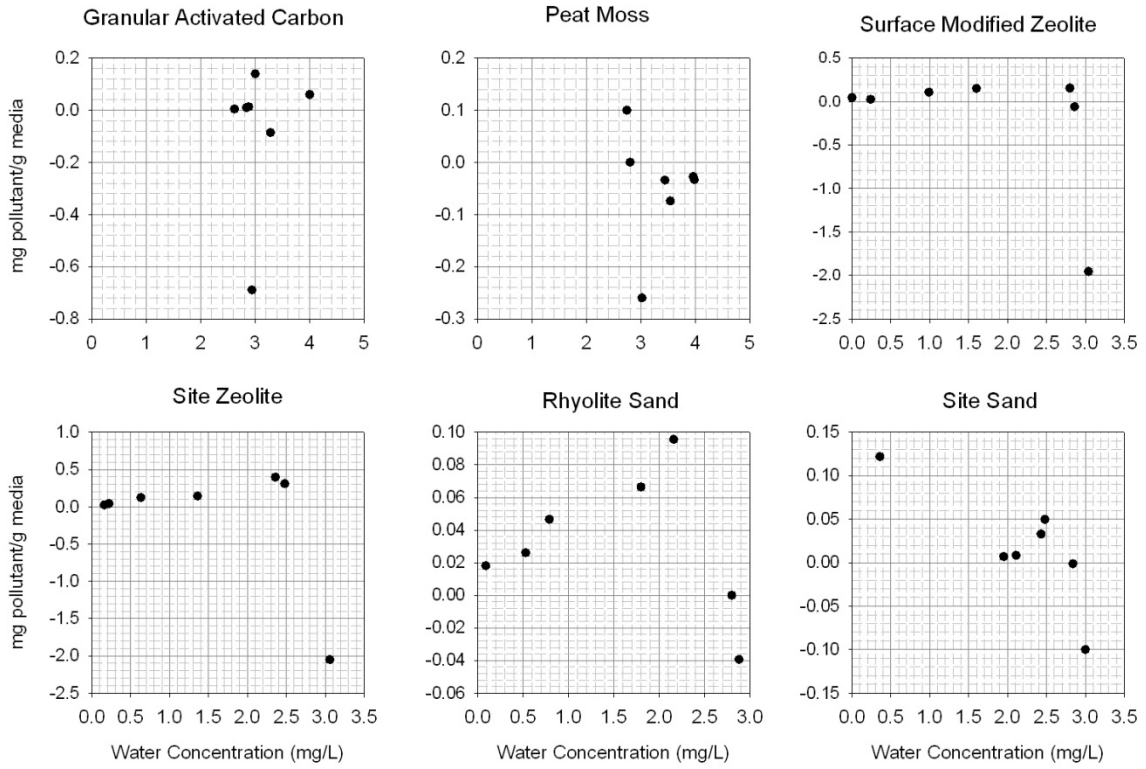
List of Appendix C2 Figures

Figure C2-1. Aluminum Capacity Testing.....	3
Figure C2-2. Ammonia Capacity Testing.....	4
Figure C2-3. Antimony Capacity Testing.....	5
Figure C2-4. Antimony Capacity Testing.....	6
Figure C2-5. Arsenic Capacity Testing	7
Figure C2-6. Boron Capacity Testing.....	8
Figure C2-7. Cadmium Capacity Testing	9
Figure C2-8. Calcium Capacity Testing.....	10
Figure C2-9. Chromium Capacity Testing.....	11
Figure C2-10. Copper Capacity Testing	12
Figure C2-11. Fluoride Capacity Testing.....	13
Figure C2-12. Iron Capacity Testing	14
Figure C2-13. Lead Capacity Testing	15
Figure C2-14. Magnesium Capacity Testing.....	16
Figure C2-15. Manganese Capacity Testing	17
Figure C2-16. Nickel Capacity Testing	18
Figure C2-17. Nitrate Capacity Testing	19
Figure C2-18. Phosphate Capacity Testing	20
Figure C2-19. Potassium Capacity Testing.....	21
Figure C2-20. Sodium Capacity Testing.....	22
Figure C2-21. Sulfate Capacity Testing.....	23
Figure C2-22. Thallium Capacity Testing	24
Figure C2-23. Total Phosphorus Capacity Testing	25
Figure C2-24. Zinc Capacity Testing.....	26



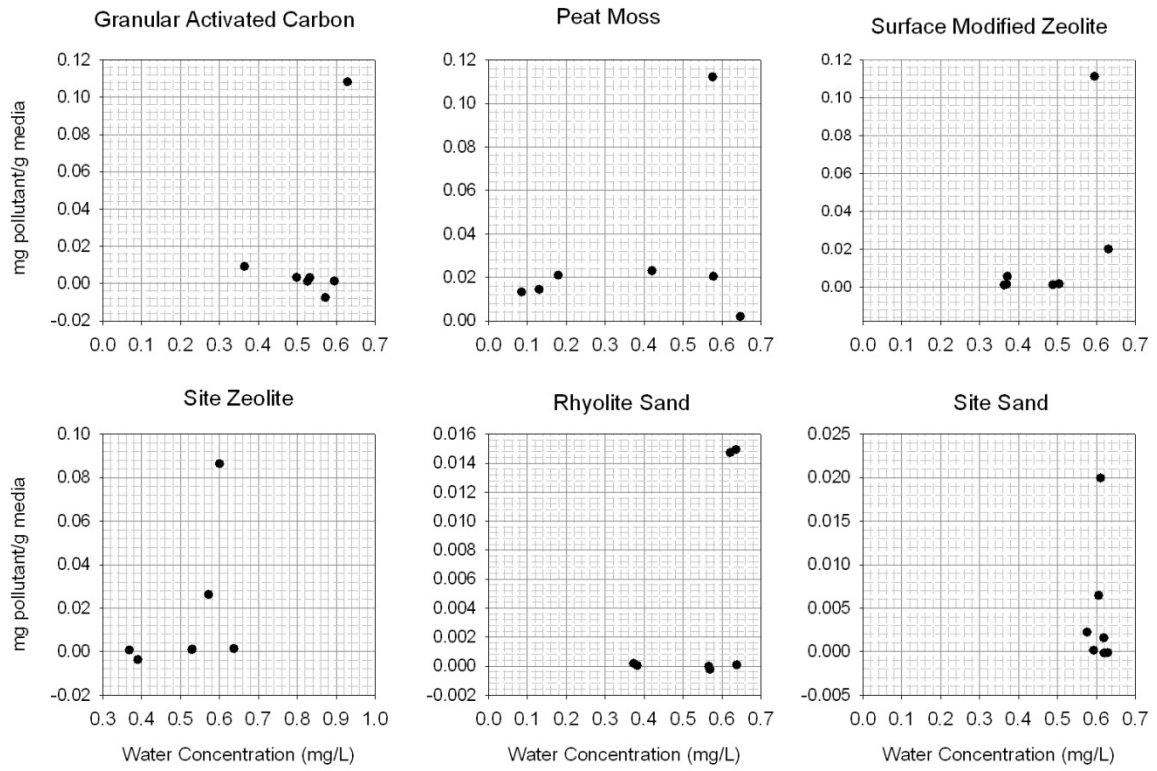
Aluminum

Figure C2-1. Aluminum Capacity Testing



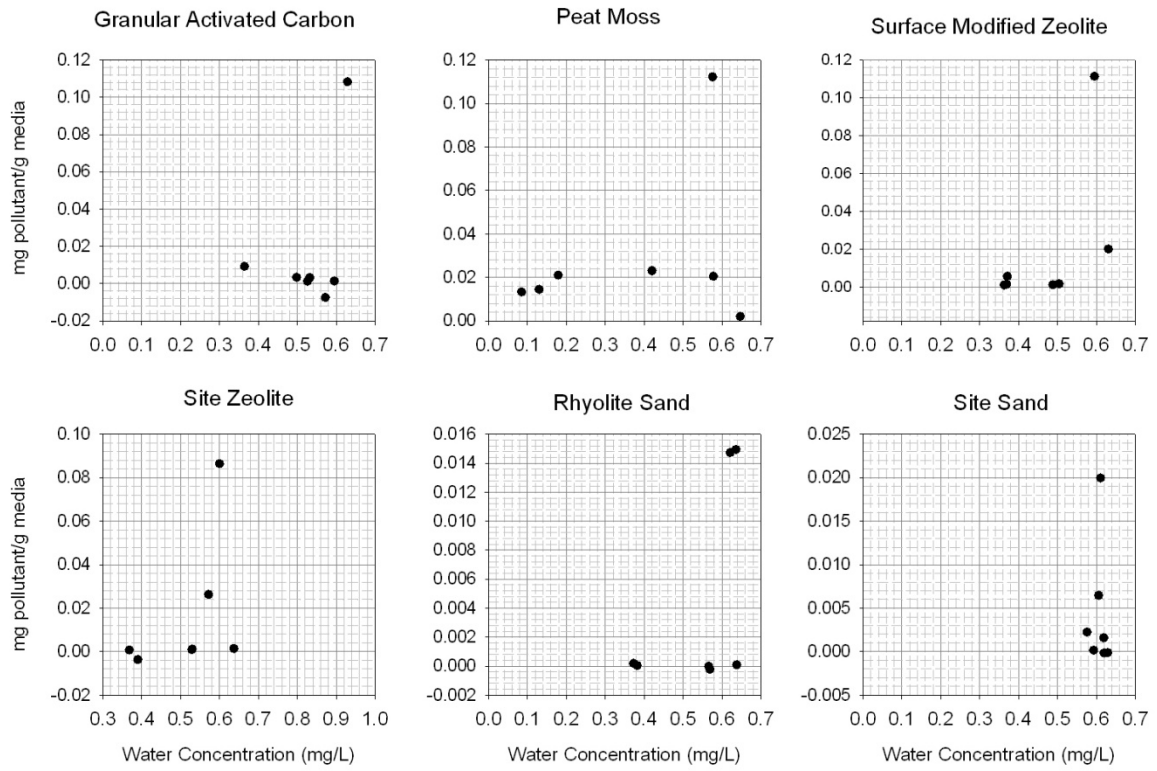
Ammonia

Figure C2-2. Ammonia Capacity Testing



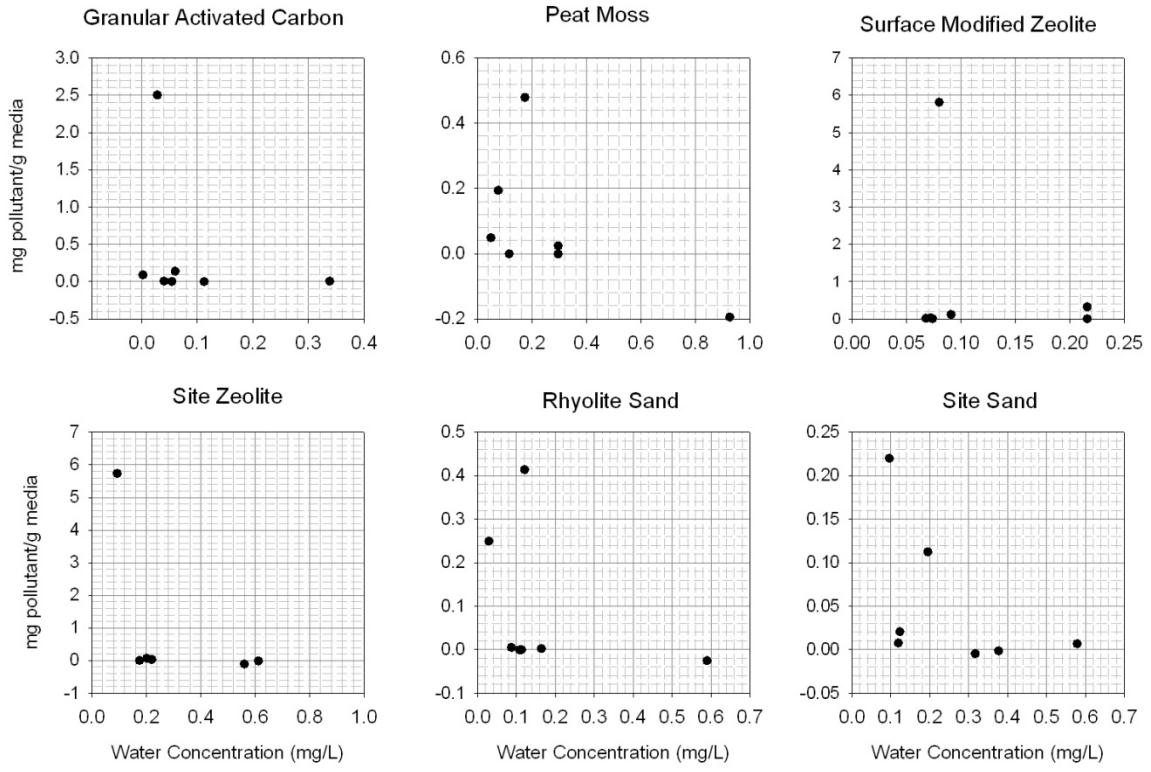
Antimony

Figure C2-3. Antimony Capacity Testing



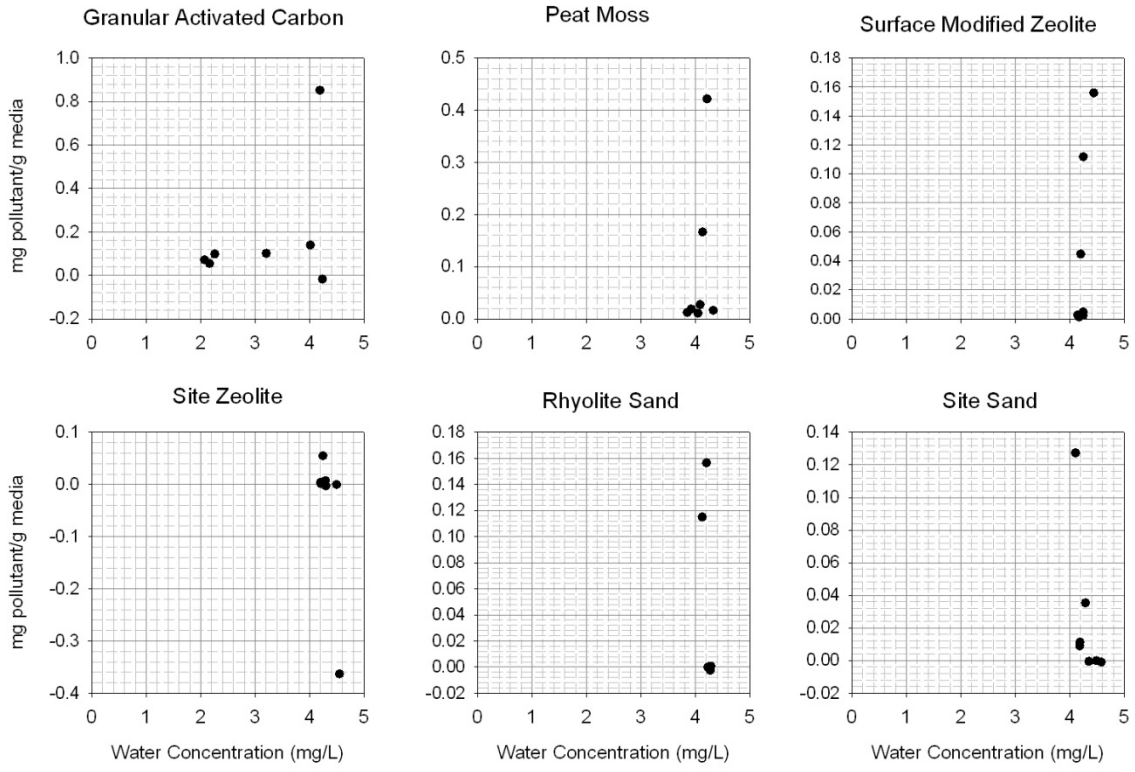
Antimony

Figure C2-4. Antimony Capacity Testing



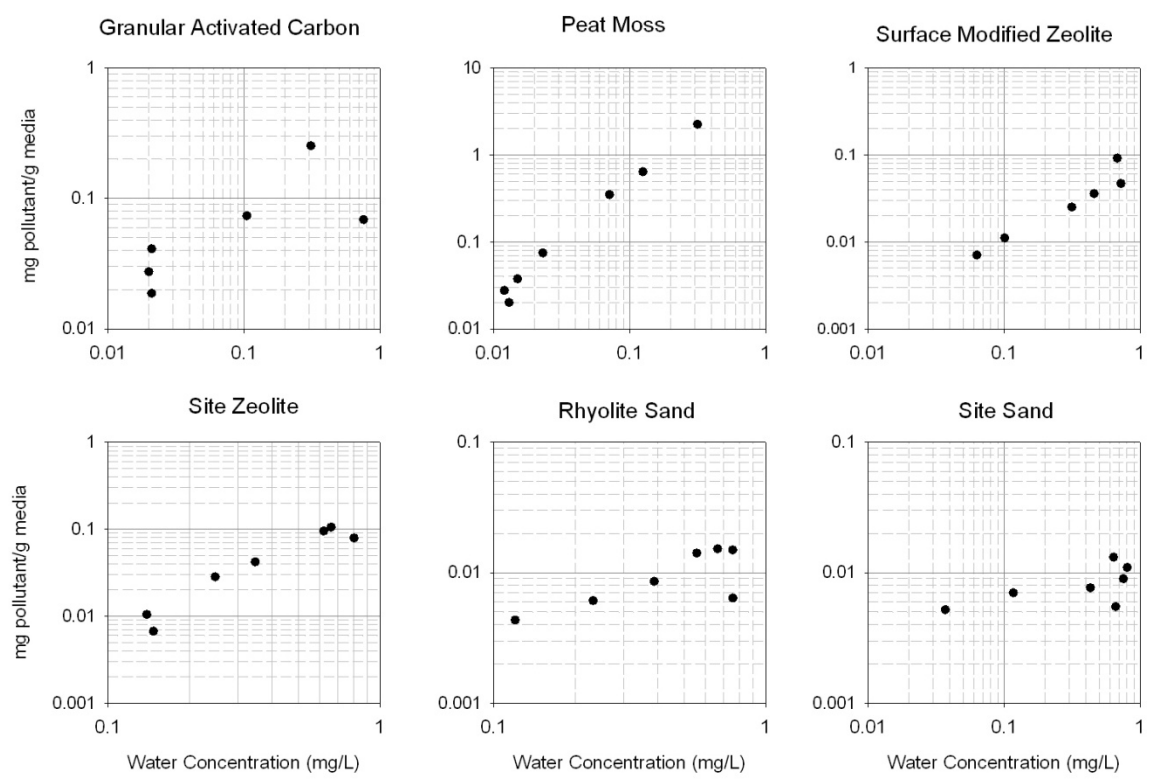
Arsenic

Figure C2-5. Arsenic Capacity Testing



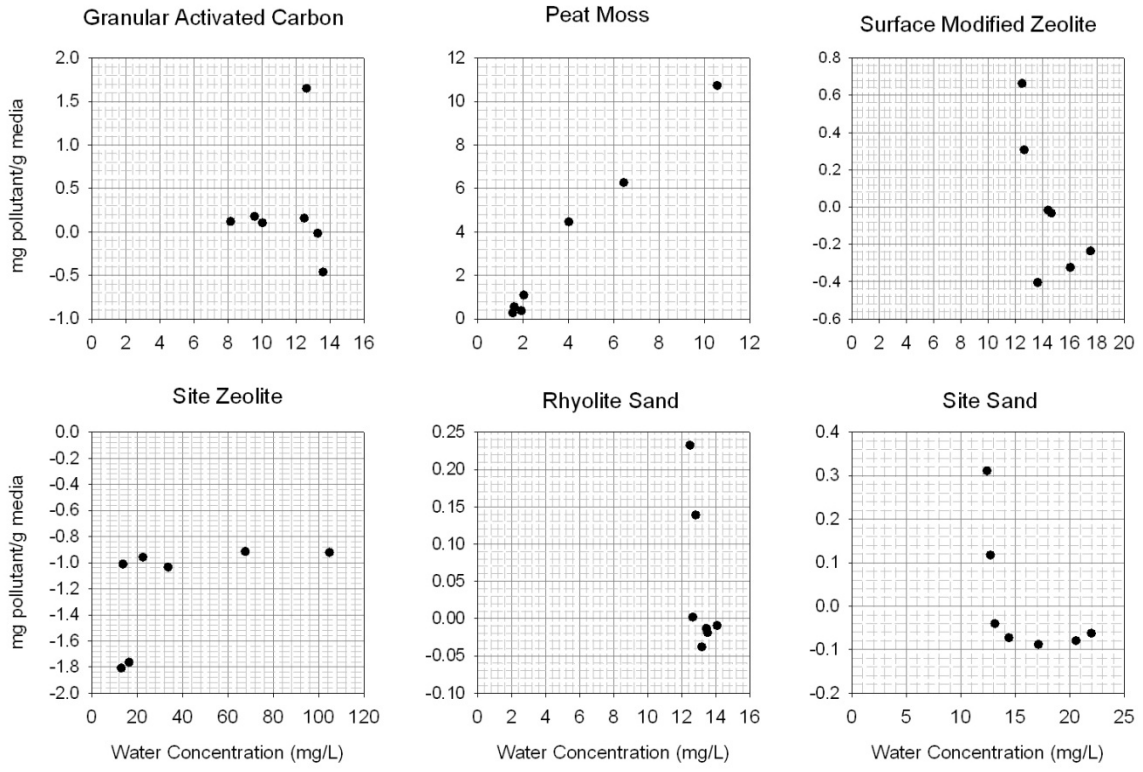
Boron

Figure C2-6. Boron Capacity Testing



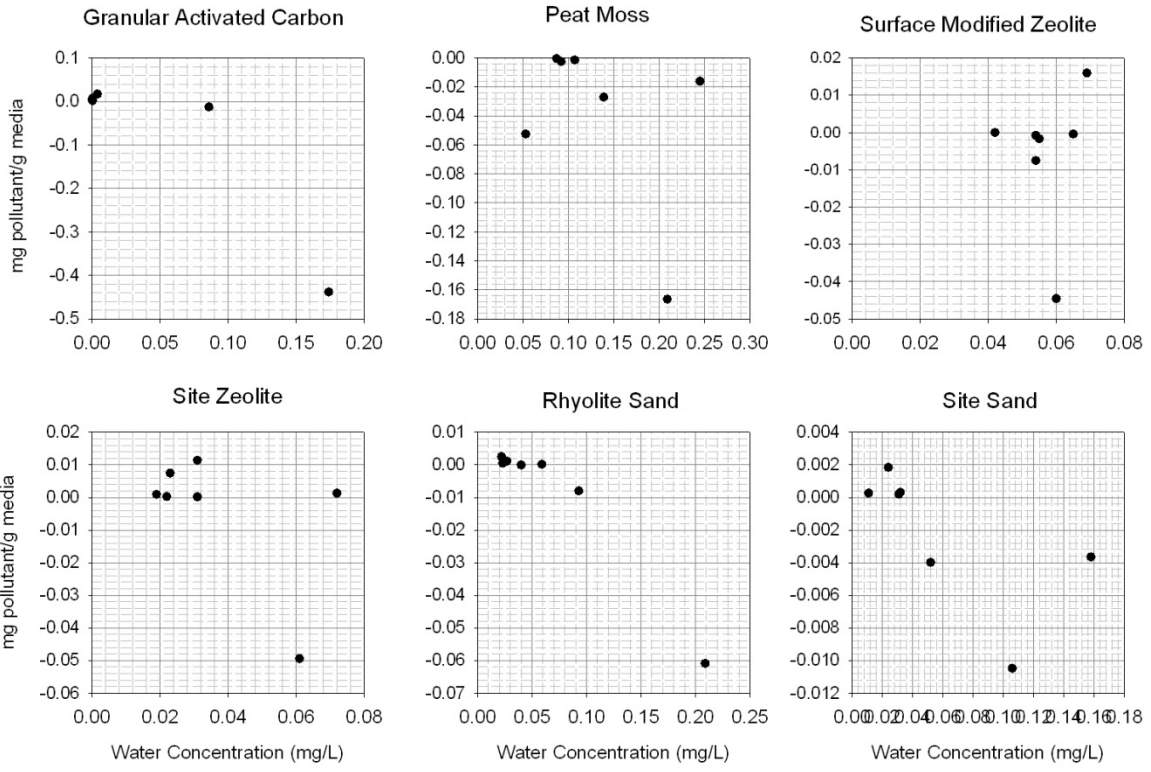
Cadmium

Figure C2-7. Cadmium Capacity Testing



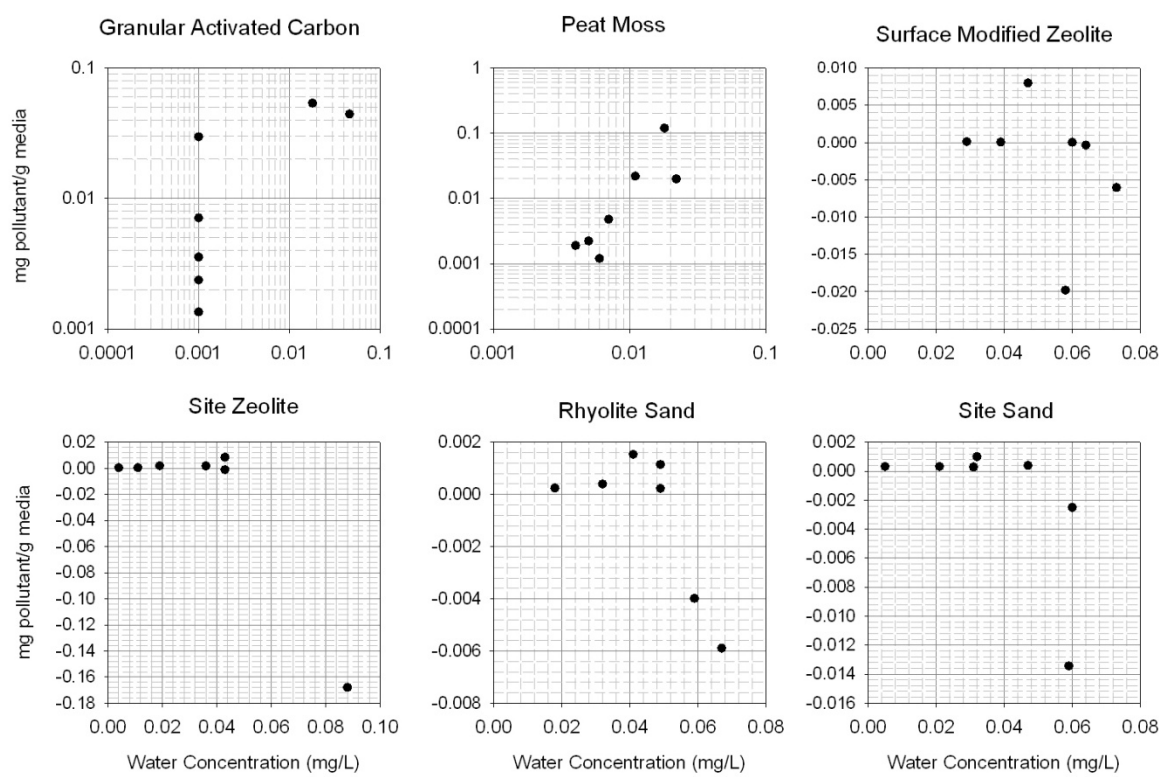
Calcium

Figure C2-8. Calcium Capacity Testing



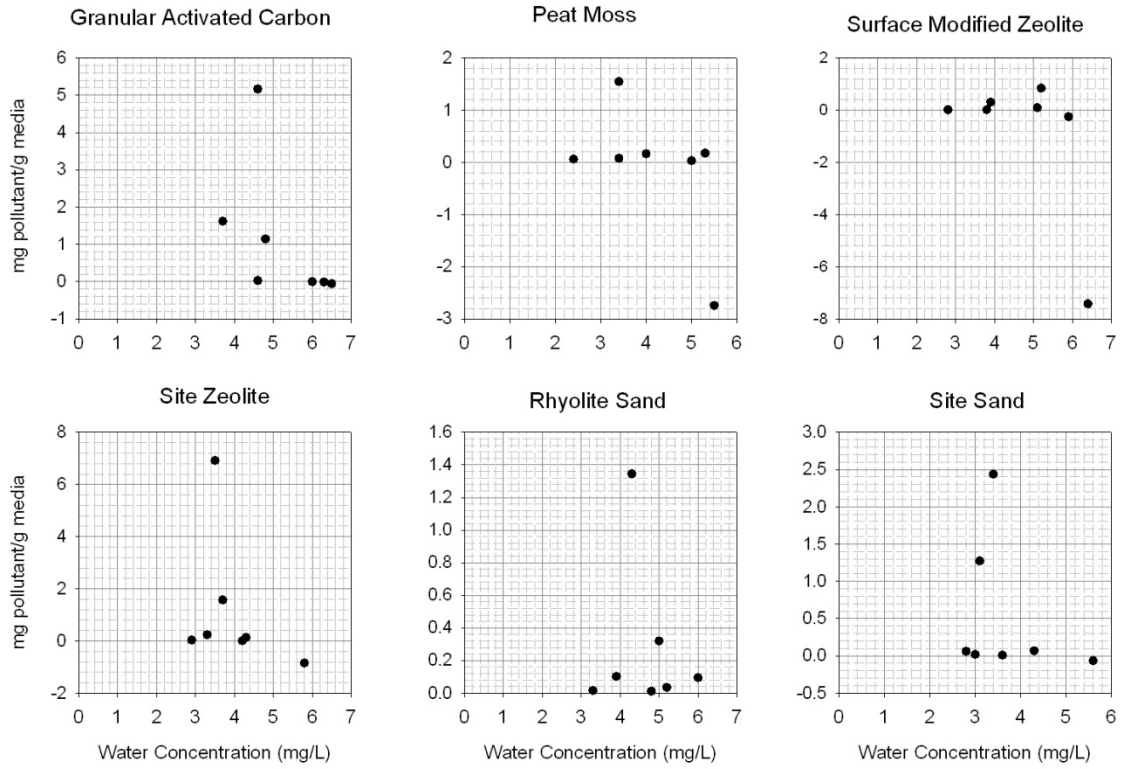
Chromium

Figure C2-9. Chromium Capacity Testing



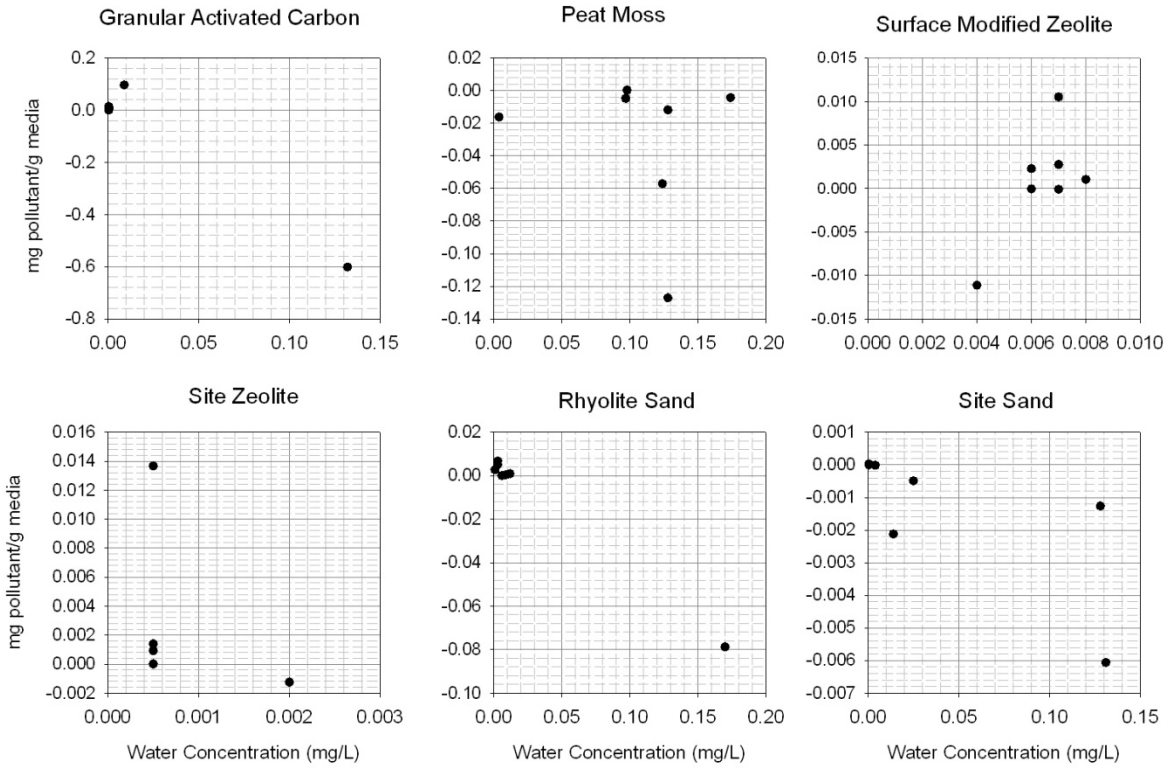
Copper

Figure C2-10. Copper Capacity Testing



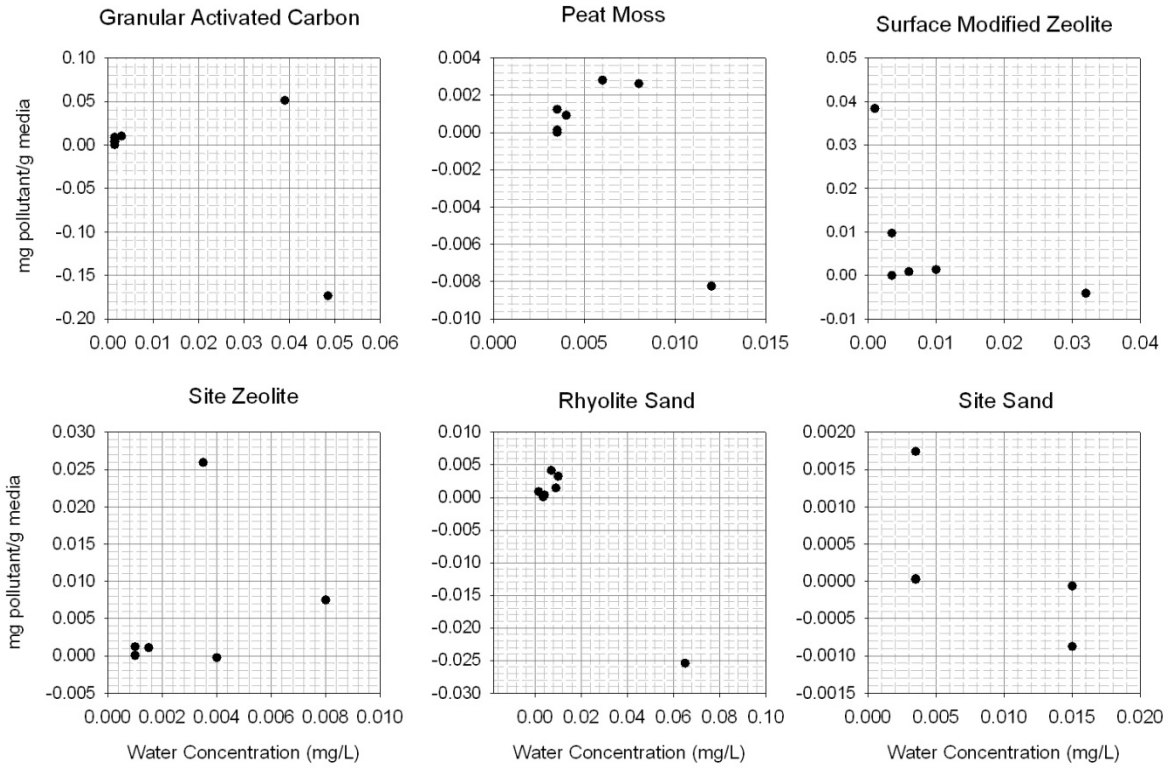
Fluoride

Figure C2-11. Fluoride Capacity Testing



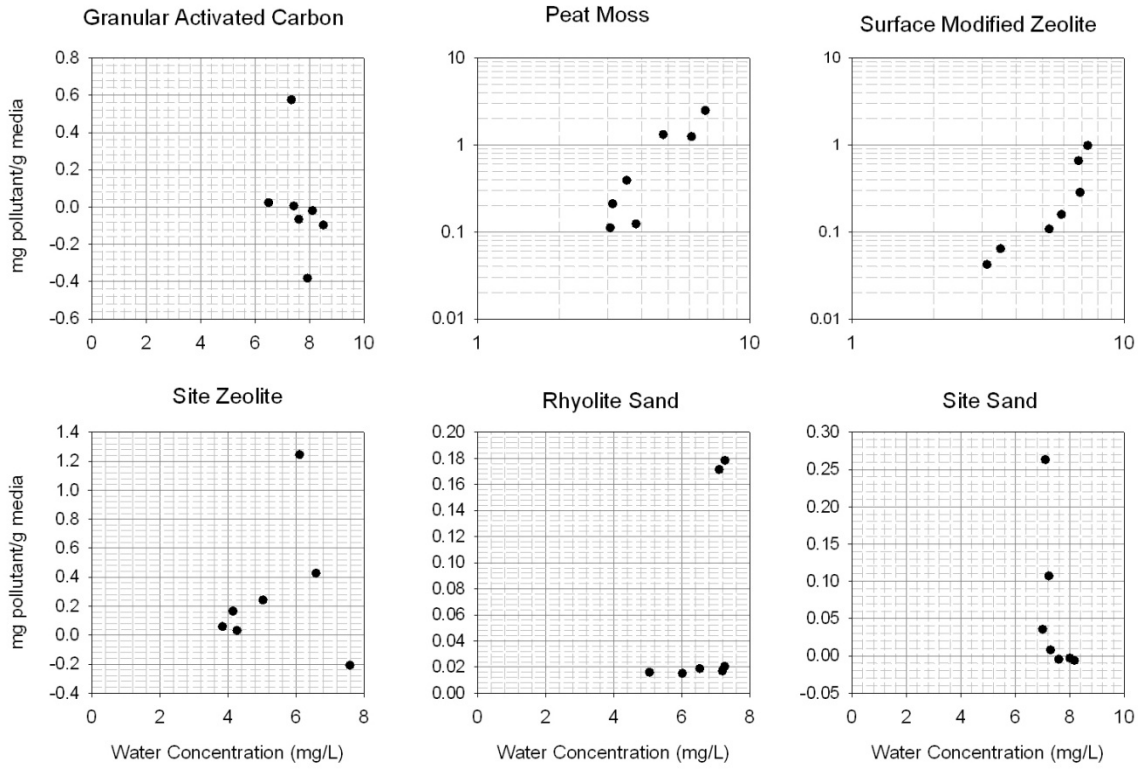
Iron

Figure C2-12. Iron Capacity Testing



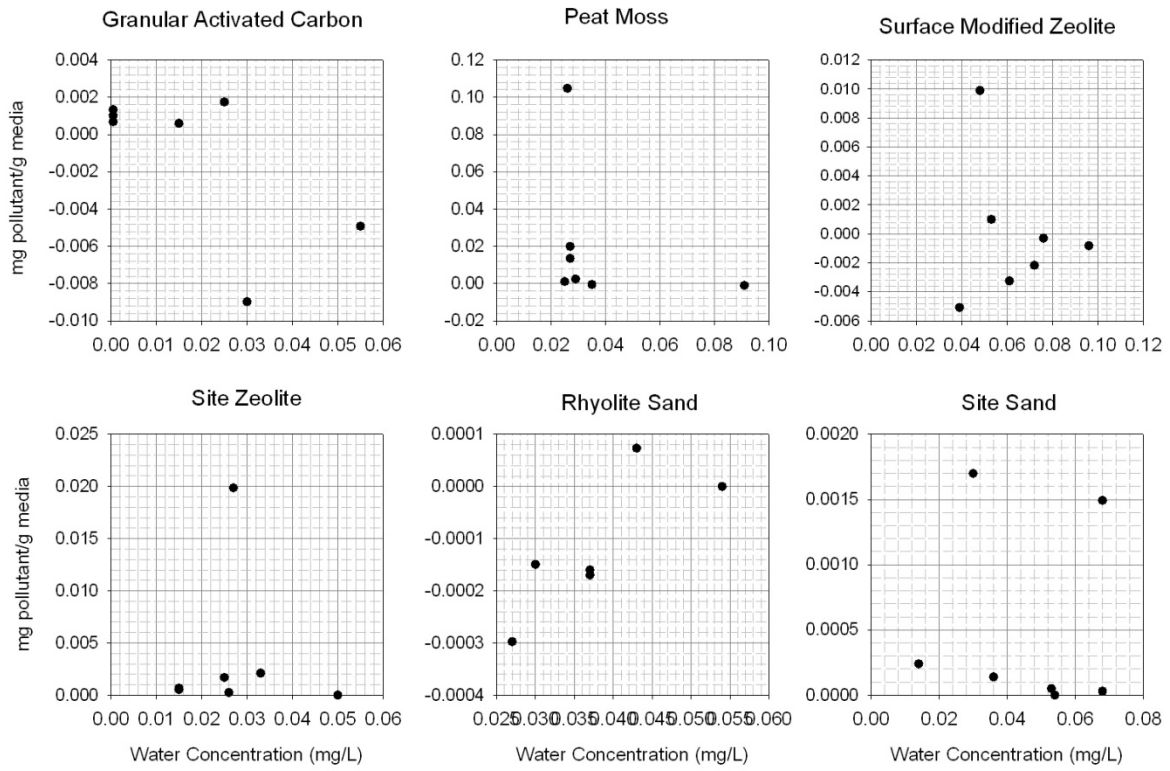
Lead

Figure C2-13. Lead Capacity Testing



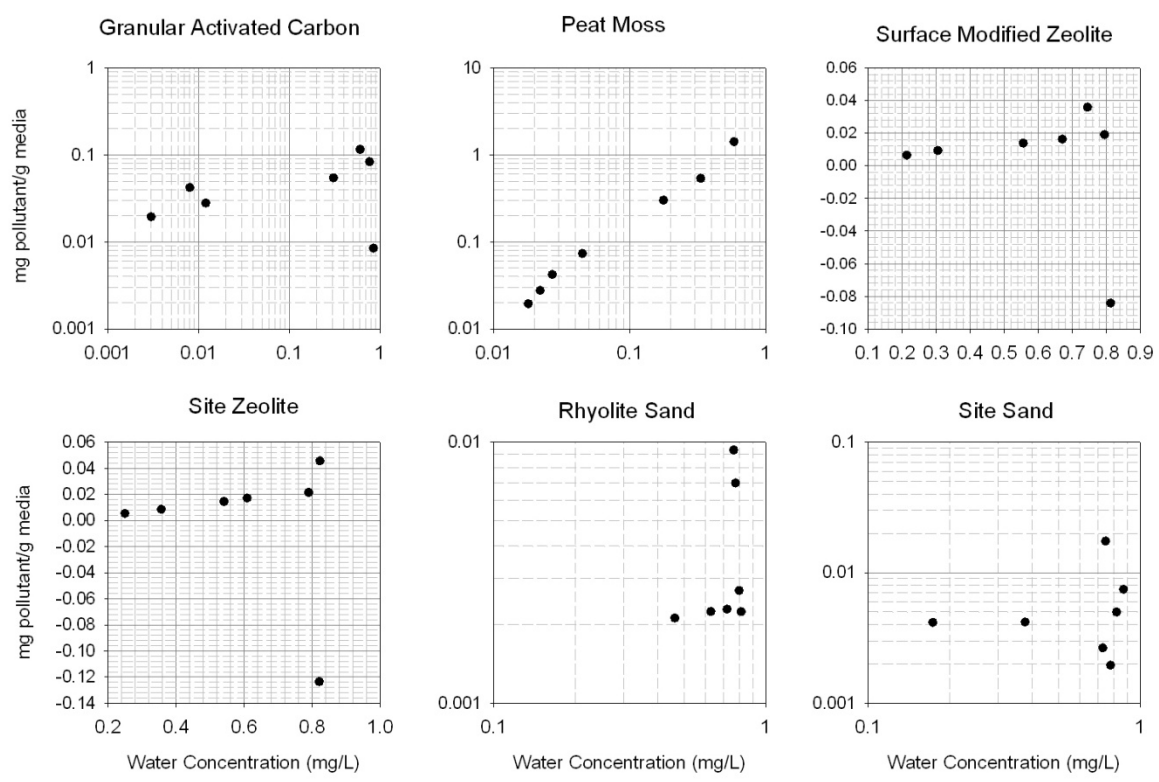
Magnesium

Figure C2-14. Magnesium Capacity Testing



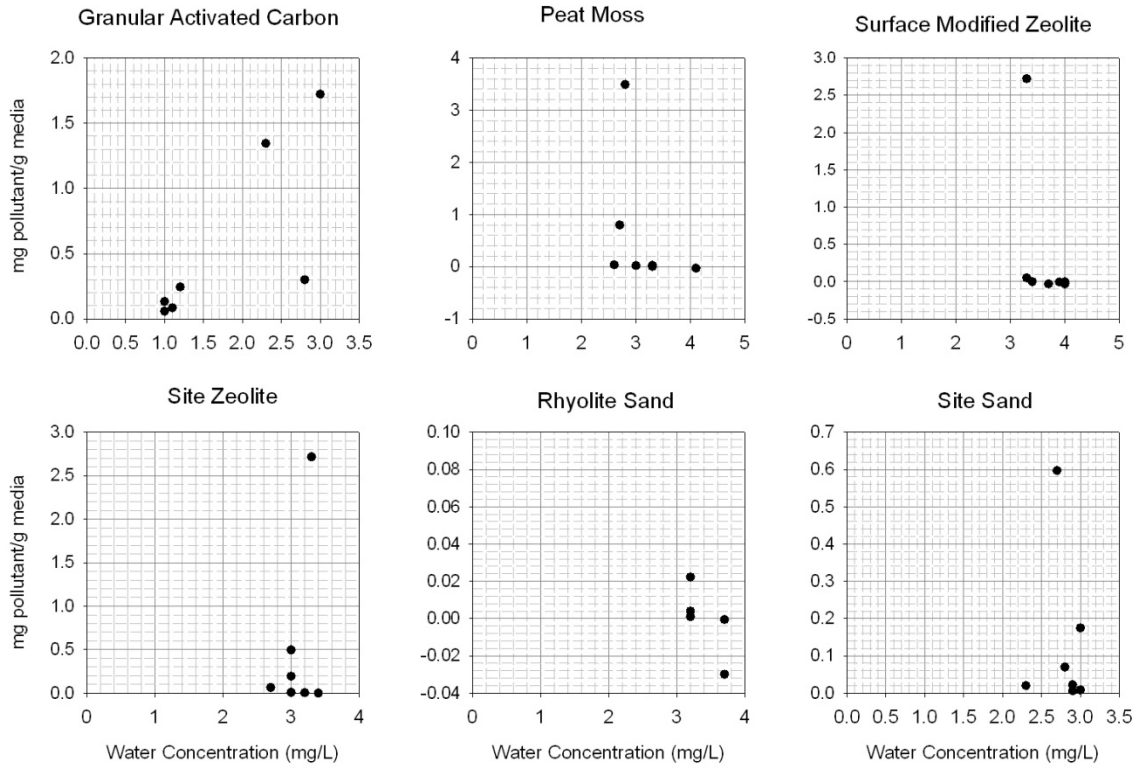
Manganese

Figure C2-15. Manganese Capacity Testing



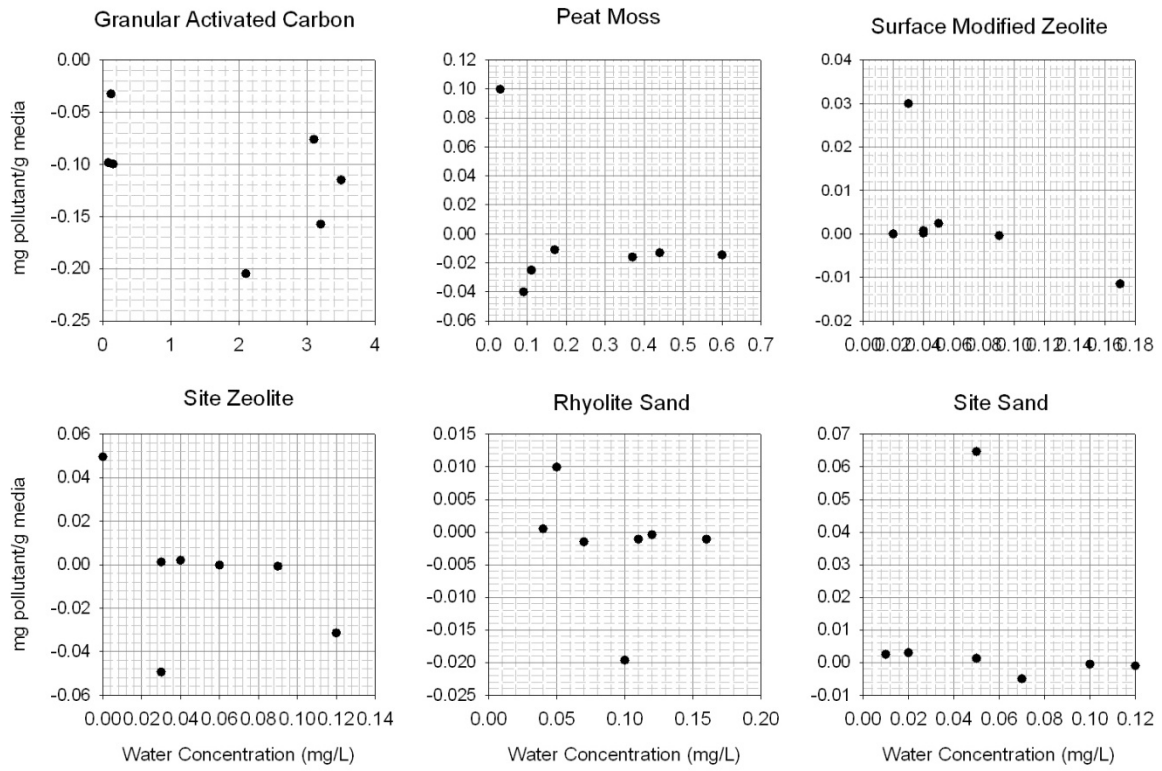
Nickel

Figure C2-16. Nickel Capacity Testing



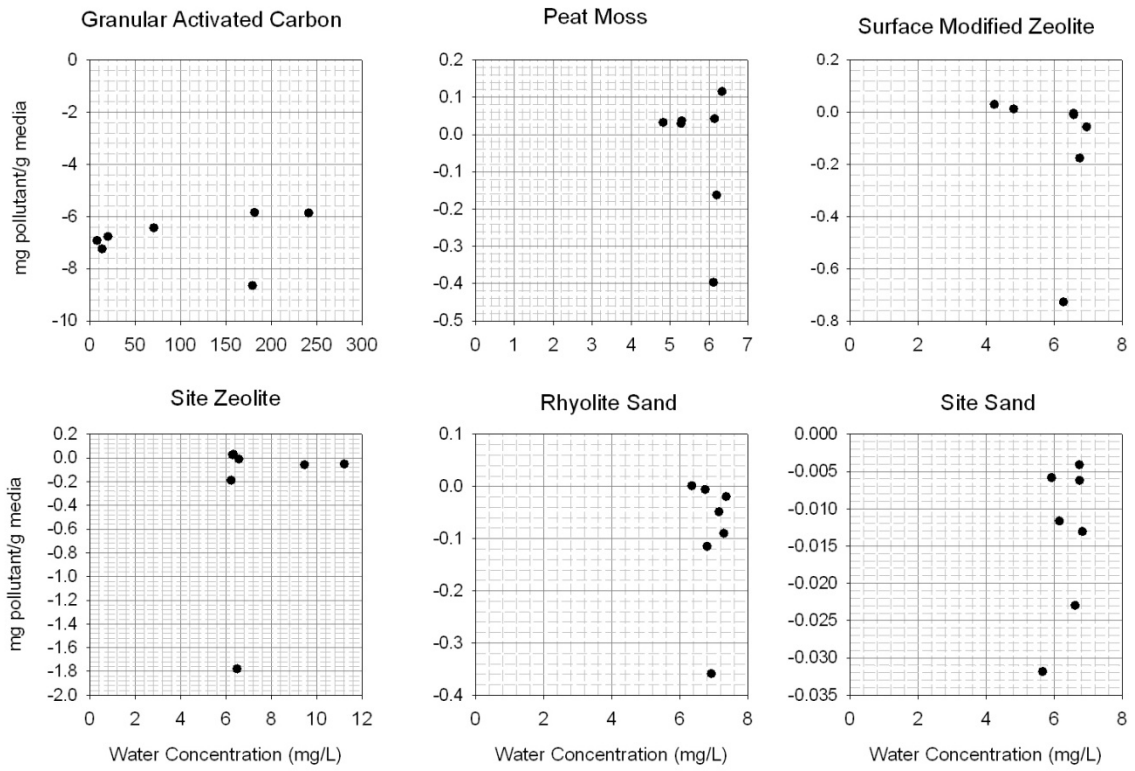
Nitrate

Figure C2-17. Nitrate Capacity Testing



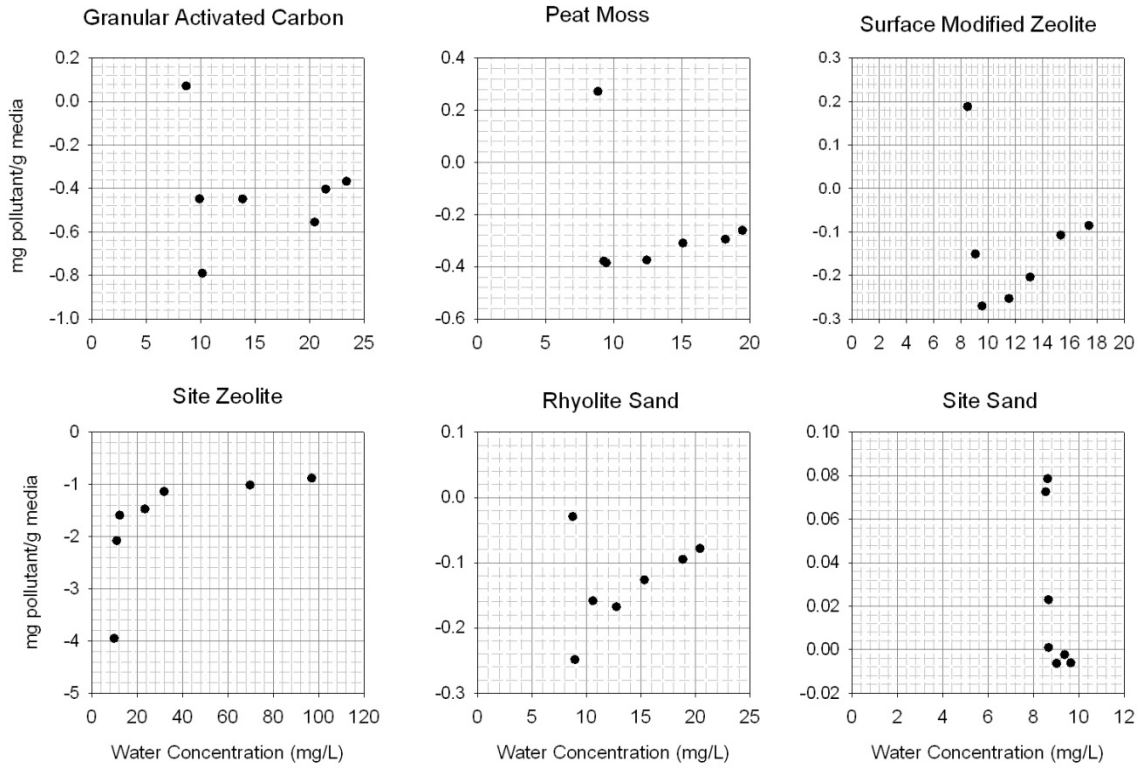
Phosphate

Figure C2-18. Phosphate Capacity Testing



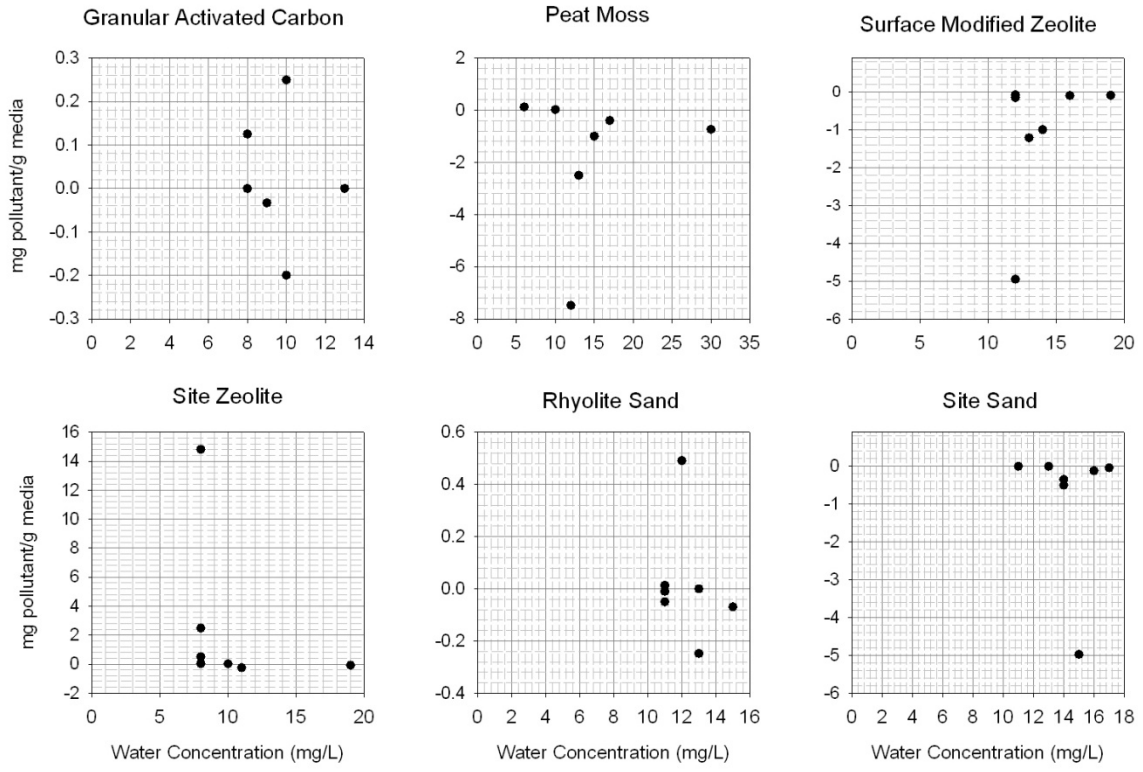
Potassium

Figure C2-19. Potassium Capacity Testing



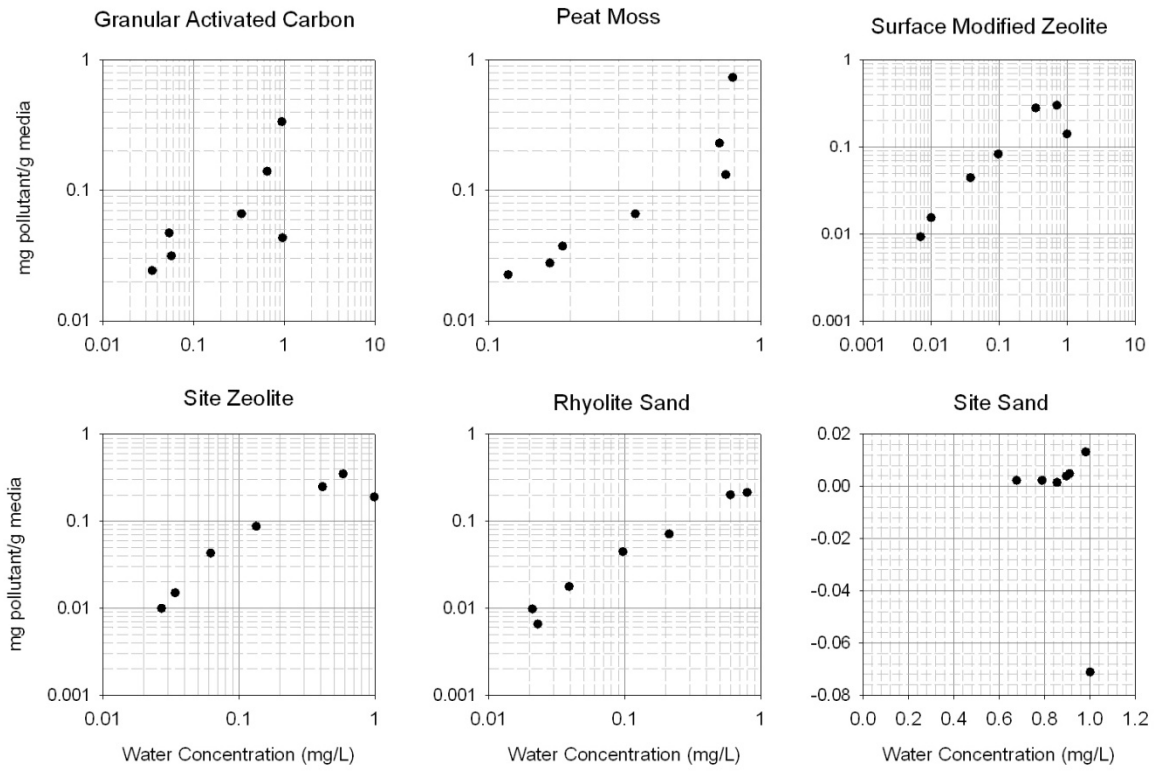
Sodium

Figure C2-20. Sodium Capacity Testing



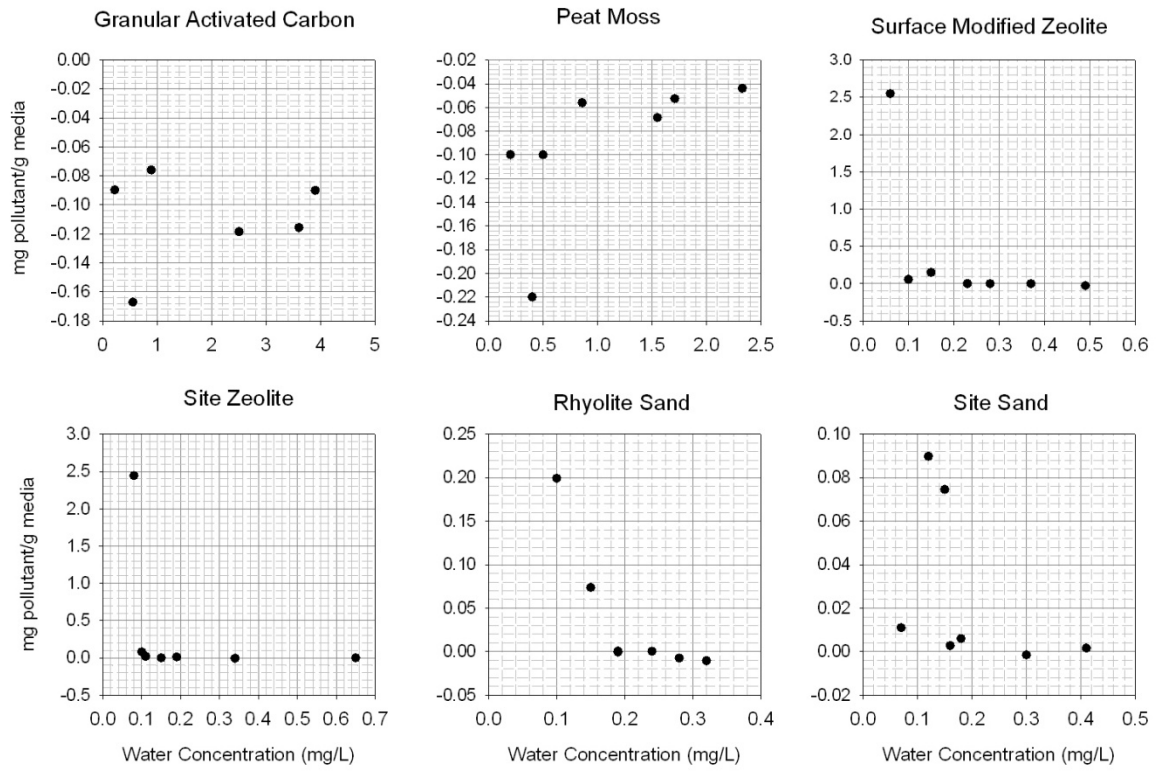
Sulfate

Figure C2-21. Sulfate Capacity Testing



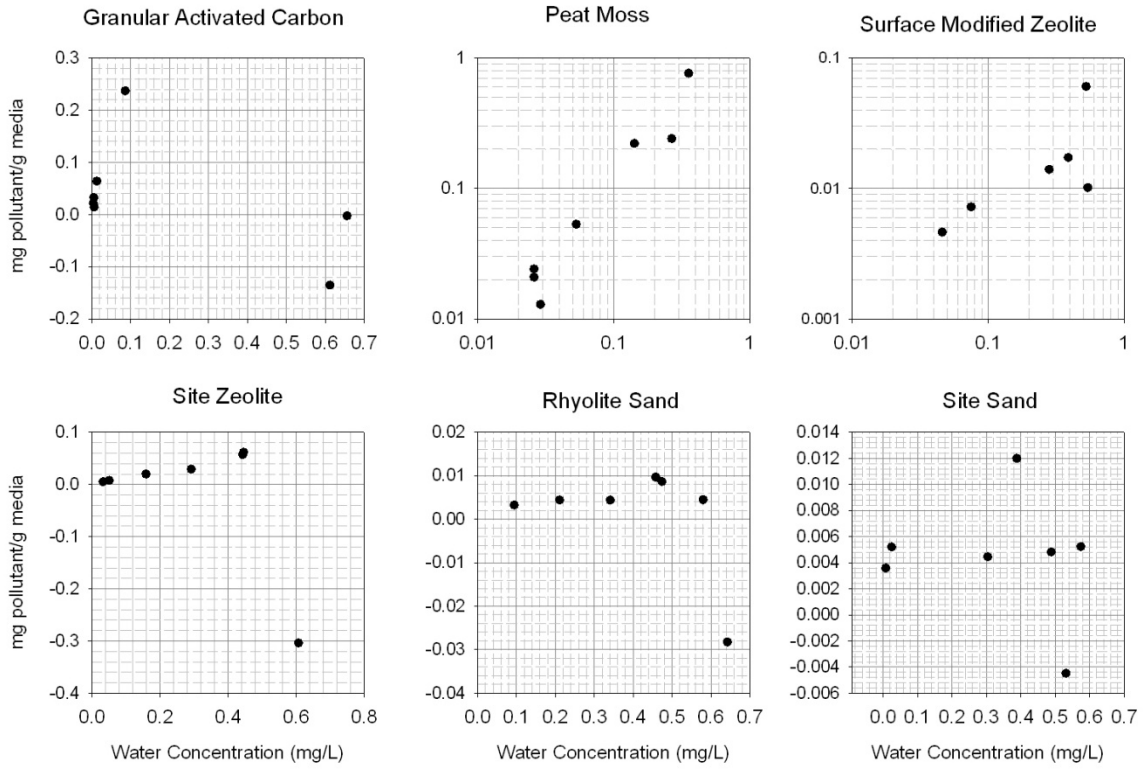
Thallium

Figure C2-22. Thallium Capacity Testing



Total Phosphorus

Figure C2-23. Total Phosphorus Capacity Testing



Zinc

Figure C2-24. Zinc Capacity Testing