The main objective of this research is to study the possibility of employing chemical precipitation to treat wastewater from an environmental laboratory. Level of heavy metal contamination in wastewater samples was examined. The effectiveness of three chemicals under different conditions in metal removal, as well as cost of each treatment was observed and compared.

For the precipitation studies, Na_2CO_3, $Ca(OH)_2$ and Na_2SiO_3 were utilized. Wastewater samples from DO, BOD, COD, NH_3-N and NO_3-N analysis were collected and mixed in the proportion of 7.5, 27, 7.5, 1.5 and 1.5 liters, respectively. The mixture sample was found to comprise 0.03 mg Ag / L, 49.99 mg Hg / L, 50.47 mg Cr / L, 152.60 mg Fe / L, 361.23 mg Mn / L, and 0.72 mg Cd / L ,which were much higher than acceptable standards. In order to facilitate chemical precipitation, the pH level of the sample were adjusted. The results showed that at pH 9.0 the removal of the concerned heavy metals in the water sample with 10 g precipitants could be maximized. Up to 99 % of the original concentrations of the above heavy metals were reduced. Except for Mercury, concentration of other metals fell below standard levels for effluent water.

In comparison to other two chemicals, $Ca(OH)_2$ generated the highest heavy metal removal rate $(p = 0.05)$ at the lowest expenditure. The cost of treatment was found to be 7.54 Baht/ L.