Appendix A

```
# generating a master calibration curve
model
        {
            for( i in 1 : n ) {
                Y[i] ~ dnorm(mu[i],tau[run[i]])
                mu[i] <- alpha[run[i]]  + beta[run[i]] * (log(X[i]) )/log(10)  }
            for (i in 1 : m) {
                beta[i]  ~ dnorm(beta_bar,taub)
               alpha[i] ~ dnorm(alpha_bar, taua)   }
# non_informative priors
# σ^2 [i] =1/tau[i],  σ^2a =1/taua , σ^2_b =1/taub
            for ( i in 1:m)  {
              tau[i] ~ dgamma(.001,.001)  }
             taua ~ dgamma(0.001,0.001)
             taub ~ dgamma(0.001,0.001)
            alpha_bar ~ dnorm(0,1.0E-4)
            beta_bar ~ dnorm(0,1.E-4)
#predict copy no. (= log10(X0)) for given ct
            for (i in 1:6)  {
                copy[i]  <- (ct[i] -alpha_bar)/beta_bar    }
        }
Data
list( n=50, m=5)
run[]   X[]       Y[]

1         40000     22.30
1         40000     22.16
.           .         .
.           .         .

1         400       29.04
.           .         .
.           .         .

5         100       31.84
END;
ct[]
22
24
26
28
30
32
END;
```