Chapter V

DISCUSSION AND CONCLUSION

The results of the concentration of 10 elements in 40 fresh-water samples from the Chao Phya River are given in Table 5-1 in comparison to data reported by other authors.

The imprecision of the results is due to the errors involved in the counting statistics, on account of the low gamma-counting rate. Particularly in the case of the long-lived nuclides, a much better result can be obtained with a longer counting time. The results reported were obtained with gamma-measurements which never exceeded 4000 seconds. This was due to the routine work charge on the gamme-spectrometer.

With the present available facility the contents of the elements Al, Sr, Cu, Br, Mn, Cr, Sb, Sc, Fe and Co in fresh water could be determined instrumentally within a reasonable period of time. A total of 21 elements were quantitatively analyzed by Bhagat, S.K. etal[8]. Their neutron flux was, however, approximately 10 times higher than that of the TRR-I. Many more elements can be analyzed if chemical procedures were performed.

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8 Bhagat, S.K., Funk, W.H., Filby, R.H., and Shah, K.R., "Trace Element Analysis of Environmental Samples by Neutron Activation Method" Journal of the Water Pollution Control Federation. 43(1971), p. 2414-2423.

Table 5-1 Trace element concentrations in fresh-waters (ppb)

Element	Concentrations					
	Ref. 1		Ref. 2	Ref. 3	Ref. 4	This work
	Range	Mean	Mean	Mean	Range	Range
Al	-	-	-	-	0.1 -10	6.1 - 64.2
Sr	-	-	-	-	70 -120	10.2 -171.6
Cu	-	-	-	-	1.7 -10	6.2 -128.7
Br	2 -150	70	20	20	21 -30	13.1 -165.4
Mn	-	-	-	-	11 -1000	10.7 -126.2
Cr	2 -30	5	1	5	1.6 -12	1.4 - 10.5
Sb	0.05-0.6	0.1	1	0.5	0.31-1.2	0.08- 1.6
Sc	0.01-0.18	0.015	0.004	0.05	0.03-0.05	0.01- 0.18
Fe	80-1000	250	670	100	90-1080	8.6 -190
Co	0.2 -5.4	0.5	0.2	0.1	0.2 -1.0	0.08- 1.1

1. Clements, G.F. and Mastinu, G.G. J. Radioanal. Chem. 20 (1974), 707-714
2. Turekian, K.K., Year book of Science and Technology. McGraw-Hill, New York, 1969, p.161
3. Chapman, W., Fisher, H.L. and Pratt, M.A., UCRL-50564, 1968, p12
4. Bhagat, S.K., Funk, W.H., Filby, R.H., and Shah, K.R. J. of the Water Pollution Control Federation. 43 (1971), p.2420.