CHAPTER V

CONCLUSION

Diatomite is a sedimentary rock made of microscopic porous shells of silica. Diatomite is a useful rock. Its principal use is as a filtering material other diverse uses fillers, insulating material, etc.

Various species of diatom thrive in either a marine or a lacustrine environment. Some forms live in brackish waters. The association of forms or the diatom assemblage, as seen by means of the microscope, not only serves to differentiate marine origin from fresh water, but, also in many cases, to identify the deposit location from which an unknown sample may have come. Diatom assemblages, like fingerprints, are specific to individual locations. Numerically, most of the unknown deposits, in the world are of lacustrine origin. Generally however, those of marine origin although less numerous, tend to be larger. The commercial deposits are generally restricted to sedimentary formations of Tertiary and of later age.

In future the demand of diatomite would be increasing of industry market. Diatomite becomes an important part of mineral resources. Studies on the relationships of diatomite and geological setting, history of depositional environment, lithostratigraphy of diatomite sequence and properties of the rocks can help locate important undeveloped deposits and develop the deposits to support the future demand.

In a commercial diatomite, silica makes up the bulk of the chemical composition; usually over 86% and as high as 94%. Alumina and iron generally are at least 1.5 and 0.2% respectively (Kadey, 1975).

Present world reserves are estimated to be adequate beyond the year 2 000. Presently known deposits are stretching beyond forecasted depletion through the efforts of research and development in finding methods to process lower grade crude. Other deposits that are currently considered marginal by virtue of quality, minability, or accessibility

with undoubtedly take on new importance should the present reserves begin to dwindle.

Keeping in mind the previously described limiting criteria for formation, prospecting for diatomite entails reconnaisance of potentially suitable terrain. Because it is usually soft and easily eroded, while "showing" in stream banks or in road cut should be investigated. The gravimetric surveying would be fruitful in the search for diatomite horizons in conjunction with higher density beds. So far, however, no successful operations of this kind have been reported. Geochemical methods have not so far been adapted to the prospecting for, or exploration of, diatomite. However, narrow pass-band infrared imagery (3-4 and 4.5-5.5 micrometers) has been used to recognize diatomite from aircraft by its thermal characteristics.

Finally, the present study has led to the following conclusions:

1.) The study area is in the Mae Tha Sub-basin adjacent in the southeastern part of Lampang Basin.

2.) Basement of an area are pre-Tertiary rocks which underlie the Tertiary Sequence by the unconformity.

3.) The lithostratigraphy of Mae Tha Sub-basin down to the depth of 450 m. below the ground surface can be tentatively classified into two informal groups and further subdivided into four formations.

4.) The Mae Moh group which is the lower part composes of two formations, notably, Mae Sot formation and Ko Kha formation in ascending order.

5.) Mae Sot formation composes of mostly fine-grained clastic rocks and interbedded with coal seam and oil shale of at least three cycles, and fish fossil remains indicated Miocene age. The depositional environment of this formation was lacustrine and swamp. The thickness of this formation exceeds 280 m.

6.) Tha Mae Sot formation grades upward to Ko Kha formation which composes of subhorizon bed of diatomaceous claystone with lamination to massive beds. The thickness of this formation varies from 15 to 35 m.

7.) The evidences from diatoms fossil and lithostratigraphy position of Ko Kha formation indicate that the formation are ranging in age from upper Miocene to Pleiestocene (?) and the environment of deposition was fresh-water lake.

8.) The upper group in the study area is the Quaternary deposits tentatively referred to as "Q" group which lies unconformable on Mae Moh Group. This group composes of Mae Taeng formation and "Top Soil" formation in ascending order.

9.) Mae Taeng formation composed of unconsolidated sediments of fluvial origin. The distribution of this formation is thicker in the central area trending approximately in the N/S direction and thinner in the eastern and western sides.

10.) The result of erosional and filling up of fluvial sediments of Mae Taeng formation caused the diatomaceous claystone of Ko Kha formation to be separated into three deposits.

11.) The uppermost sequences of the study area is "Top Soil" formation which cover all area as thin veneer of varying thickness.

12.) Diatomite deposited in the study area yields unsatisfactory properties to meet the requirement of commercial grade for specific uses. This is basically due to high impurities especially clay minerals and iron oxide contents. Further studies are needed for advanced technology in the economic up-grade processing.

13.) From exploration drill-holes which are irregularly spaced the probable reserves of diatomaceous claystone in the study area is 229.32×10^6 metric tons.

The scope of the study is also limited by the availability of systematic and detailed data, financial support including technical assistance in many aspects. Therefore, conclusion on any geological aspects cannot be completely and perfectly drawn from the limited data and information obtained. However, the present study has already paved way for further detailed study. Besides, the findings of the investigation is not only beneficial for the academic point of view but also can be served for further exploratory and development models of diatomite.