

CHAPTER III

TANK FARMS IN THAILAND

This chapter presents the background information on tank farms in Thailand. Tank farms are used in petroleum-, petrochemical-, and chemical business. Most tank farms are located along Chao Pra Ya river but they are small scale and shallow. Consequently, they can accommodate ship not more than about 10000 DWT ship. There are some tank farms located at sea side in eastern- and southern Thailand. Some of them have deep sea port that can accommodate big ship, up to 45000 DWT. Some tank farms are for rent. Examples of tank farm services are receiving, storing, delivering. The customers of renting tank farm in Map Ta Phut, eastern Thailand, are companies at the industrial estate and potential customers are chemical trading companies in Bangkok.

Tank Farm Usage

Tank farms in Thailand are in several business sectors, for example, petrochemical, chemical, petroleum (refinery, oil & gas). There are three types of usage of tank farms as follows:

1. Use as buffer in the plant : Some companies have tank farms in their factories. The tank farms are used as a buffer to ensure having enough raw materials to support production or distribution, we call buffer tank farm (BTF).

2. Use for service other companies (customers) : This type of tank farms do not possess their own factory. They may have more facilities to operate more subjects such as jetty for loading and unloading from ship, pipeline for

transportation to customers, drumming, and blending. The tank farms charge for service to their customers, we call independent tank farm or commercial tank farm.

3. Use as BTF and service other company : Some plants located at suitable site. They use tank farm for their plant and they can service other companies too.

Tank Farm Facilities

Tank farm facilities are very important to their services. Because the type and the feature of tank farm service depend on facilities. The facility which concern transportation is the most important. The transportation of bulk liquid to and from the tank farm can done in several ways, such as by ship, pipeline, train, truck. Other facilities of typical tank farms are storage, blending, drumming, and sampling test facility.

Tank farms for import and export goods have to be established at seaside or riverside with jetty to be able to transport by ship. The draft can range from 7 to 12.5 meters (in Thailand). More draft is better. The deepest port is 22 meters deep, and located in Netherlands. Main port is at least 12.5 meters, it can accommodate ship up to 45,000 DWT. Tank farms which have a draft of less than 12.5 meters are mostly located along Chao Pra Ya river. They can import and export by small ship. They have a draft of 7.0 to 8.0 meters which can accommodate ship 6,500 to 10,000 DWT. Small ships charge high price for transportation. Some trading firms transport in two stages to reduce transportation cost. In the first stage, goods are transported by big ships, called parcel tankers, in far distance to the main port near the destination port. For Thailand, the nearest main port is in Singapore, but in the near future some ports at Map Ta Phut, Thailand, will be developed to be main ports. The second stage, transported by small ship from main port to destination port.

There are many tank farms in Thailand. They are in several types of businesses include petroleum business (e.g. refinery and oil & gas), petrochemical business, and chemical business. Some tank farms are in both petrochemical and chemical businesses because they can operate similarly and these business types are closely related to each other. Examples of companies which possess their own tank farms with jetties are listed below ;

1. Heart Oil Co.,Ltd.
2. Unitank Co.,Ltd.
3. Charoen Mankong Co.,Ltd.
4. Siam Land and Sea Service Co.,Ltd.
5. Cosmo Oil Co.,Ltd.
6. Mobile Oil Co.,Ltd.
7. Bang Chak Petroleum (Public) Co.,Ltd.
8. Petroleum Authority of Thailand
9. Shell (Thailand) Co.,Ltd.
10. Esso Standard Thailand Co.,Ltd.
11. Caltex Thai Co.,Ltd.
12. Sukhothai Petroleum Co.,Ltd.
13. Siam Gas Industry Co.,Ltd.
14. Siam Union Service Co.,Ltd.
15. Sin Ake Commerce Co.,Ltd.
16. Sri Thep Thai Co.,Ltd.
17. Thai Plastic and Chemical Co.,Ltd.
18. Saxon (Thailand) Co.,Ltd.
19. Pacific Plastic Co.,Ltd.
20. Thai Asahi Chemical Co.,Ltd.
21. Mae Nam Chemical Co.,Ltd.

22. M.C. Siam Logistics Co.,Ltd.
23. Siam Chemical Co.,Ltd.
24. Chemical Warehouse Co.,Ltd.
25. Siam Tank Terminal Co.,Ltd.
26. Thai Central Chemical Co.,Ltd.
27. Thai Polypropylene Co.,Ltd.
28. Thai Tank Terminal Co.,Ltd.
29. Phadaeng Property Co.,Ltd.
30. Union Carbide Thailand Co.,Ltd.
31. Unique Gas and Petrochemical Co.,Ltd.
32. Sri Racha Harbor Co.,Ltd.
33. Thai Petrochemical Industry Co.,Ltd.
34. National Petrochemical Co.,Ltd.
35. C.R.C. Wharf Co.,Ltd.



Tank farm number 1 to 16 operate mainly in petroleum business. Tank farm number 17 to 35 operate mainly in petrochemical and chemical business.

In petrochemical business, main tank farms are located at Map Ta Phut. At present, only two independent tank farms are operated, National Petrochemical Public Co.,Ltd. and Thai Tank Terminal Co.,Ltd.. They have jetties for loading and unloading from ship which are essential for independent tank farm (commercial tank farm) because bulk liquid suitable to transport in long distance by ship. The other tank farms are being constructed is of refineries which will be used in their own purposes and also willing to rent out.

In chemical business, many chemical trading firms have their own tank farm mostly established along Chao Pra Ya river in Bangkok and Samutprakan. They import chemicals by ship and distribute to their customers by tanktruck. Some executive managers said that demand of tank farm would exceed supply within five

years, because expansion of tank farm in Greater Bangkok Metropolitan Area (GBMA) is prohibited. So, tank farm at Map Ta Phut will be another choice.

Independent Tank Farm

The tank farm in the study is an independent tank farm, located at Map Ta Phut, Rayong. The independent tank farm can service everybody who need it even in short period only one year or long period up to 15 years. Companies which are located inland or which are not economical to invest in their own tank farm can ask for tank farm services. An independent tank farm provides services related to storage of liquid petroleum or petrochemical products, liquid chemicals, and liquefied gasses in bulk, and subsequent or adjacent businesses. These services include :

1. Receiving of products from ships, tanktrucks, tankcontainers, pipelines : A jetty is used for receiving of products from ship. For example, a company located inland at the Map Ta Phut Estate wants to import product it can unload from ship through independent tank farm to its plant without storing at the independent tank farm. The independent tank farm can charge for throughput only, exclude storing fee. If a draft is more than 12.5 meters it can be a main port, so neighbor countries can use it to transfer products from big ship to small ship for reducing transportation cost as mentioned. Figure 3.1 is an example of receiving products which are transported by ship and pipeline.

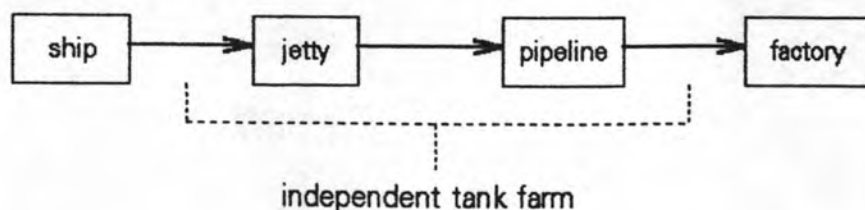


Figure 3.1 Receiving and Throughput

2. Storage of such products in tanks or spheres : Factories in the estate can be operated without possess their own tank farm to store raw materials or products. They can rent from independent tank farms. Another example, a merchant can import products to stock and wait for the price going up and then sell it. Figure 3.2 is an example of receiving and storing products which are transported by ship and pipeline.

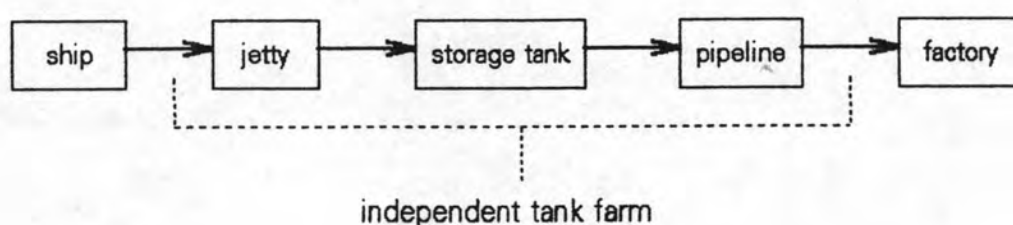


Figure 3.2 Receiving and Storing

3. Redelivery into vehicles which are mentioned above.
4. Documentation, stock reports to owner or government.
5. Sampling for lab testing : The company who need to control the quality of imported products can asked the independent tank farm to test the products.
6. Adding additives : independent tank farm can add the additives in the order of customers to adapt the quality suitable for local usage.
7. Circulation to blend the products.

The independent tank farm in the study is located at Map Ta Phut on a plot of 76 Rai with two jetties. It can accommodate ships with a capacity of 45,000 DWT each and a draft of 12.5 meters. The independent tank farm has control over a pipeline corridor, leading from the jetties to the terminal and from the terminal to

the shore about 3.5 kms., where it is connected to the public pipeline corridors at the Map Ta Phut Industrial Estate, e.g. at the boundary of port area and the estate.

The storage tanks can be classified by the type of contractual period. For long period contract, the independent tank farm will invest in storage tanks, calls "dedicated tank", particularly for contractual company. In some cases, the contractual companies join in investment. Dedicated tanks is suitable for the companies established within the estate. The tanks can be considered as a part of companies plants because they are connected by pipelines and the products flow all the time when the factory being operated. Another type of storage tank is "spot tank", it rented out in short period contract. Therefore, tank farm have to construct spot tanks in its own. Spot tanks is suitable for chemical trading companies because these companies rent for distribution of chemicals to their customers so they are not necessary to have long period contract.

The Customers of the Independent Tank Farm

The customers of the independent tank farm located at Map Ta Phut can be classified into two groups :

- a) the companies at the Estate and its vicinity.
- b) the chemical trading companies: They import or export by small cargoes of chemicals. At present, this segment is served by small terminals (tank farms) in Bangkok, all tank farms related to product owners (traders or producers) therefore they are not independent tank farm. In the future, trading companies will use independent tank farm to distribute products to small shallow ports such as Bangkok Port. Freight rates of large ship is much lower than small ship. Therefore some companies, products would be transported by large ships (parcel tankers) to deep sea port (such as Singapore Port) and unload to barges (small ships) to distribute to small shallow port. If Thailand have such deep sea port and enough

cargo to distribute to small shallow port in Thailand along Chao Pra Ya river or may be also in neighbor countries, it is interesting for parcel tankers to come to the port in Thailand.

It can be concluded that most tank farms in Thailand are located along Chao Pra Ya river but they are small scale. A few tank farms are big scale located at eastern seaboard. Examples of tank farm services are receiving, storing, transportation, circulating, drumming, documentation.