Independent Study Title	:	A Study on Clean Technological Production Practice, Re: Production Efficiency Increase and Pollution Prevention. A Case Study of: Kong Kitcharoen Factory Co., Ltd.
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ABSTRACT

This Independent Research Work tends to have the objective on the study on the cause and the area where a loss has occurred as a result of nickel-chromium coating in order to assess and analyze the environmental impact arising from a production process in order that the clean technology can be applied in nickel-chromium coating as well as recommending the way in reducing a loss by applying the principle of clean technology where Kong Kitcharoen Factory Co., Ltd., is selected as the place for the study.

As a result of the study, 6 points on the environmental losses as a result of a production process have been found. They are: the uses of water, electric energy, fuel oils, industrial wastes, disturbing noises and smells. When making a thorough assessment on the environmental impact, investment value, opportunity or possibility on the making of clean technology and interest and co-operation of the staffs in such process, the significant point of the loss is the production process in the area of the metal coating well. The loss which has occurred is the temperature in the nickel coating well that increases to the extent of higher than the prescribed goal (50-70 degree Celsius) which consequently resulting in an unnecessary consumption of electric energy during the stage of warming up the solution in the metal coating well and the use of aluminum as the electric conductor material from the rectifier to the coating well instead

of using the copper because the cost is lower. The use of aluminum as the electric conductor will cause the loss of too much electric energy in the form of the thermal, thus, consequently resulting in the simultaneous use of too much electric current quantity in coating the work pieces and that on the part of the use of an acid various steps: such as; eradications of rust off the surface of work pieces by using sulfuric acid or salt acid, the use of chromium to cling onto the surface of work piece by chromic acid during the operations, the acid in the well will vaporize up to the atmosphere which will adversely affect the health of work performers.

As a result of thorough assessment, 3 ways on the relevant improvement are found:

1. The installation of Electric Thermal Generator Temperature Open-Close Control Device will help the Electric Thermal Generator cut down the work when the temperature in the well soars up in excess of the prescribed temperature and then begin to function once again when the temperature in the coating well drops to the level lower than the prescribed temperature. The opening-closing of the Electric Thermal Generator will definitely help reduce the quantity on the use of electricity when comparing with the running of the Electric Thermal Generator at all times where expenses in the amount of THB.15,088.00 can be saved per year with cost recovery within 2 years.
2. The use of metal material of copper category with resistivity lower than aluminum as the electric conductor will make the resistivity of the electric conductor lower than when the equal cross-section area and the length of the electric conductor are used and will consequently result in the loss of the electric energy to reduce and expenses saved up to THB.10,698.00 per year with cost recovery within 3 years and 8 months.
3. The use of a plastic ball to be placed over the surface of the acid in the well will help reduce the size of the space of the acid surface in the well that directly contacting the outer atmosphere, thus, resulting in the rate of vaporizing of the acid into the atmosphere to reduce, as well, which will

result in the good to working efficiency of the staffs including their health while at work.

Therefore, the total value of saving is THB.25,777.00 per year. Even the way on the improvement of some aspect of clean technology may involve high investment with a long cost recovery period, however, when an investment is put down to improve the equipments, the better will be for the working efficiency of the staffs including their heath while at work as well as good effect on the environmental conservation which is indeed the economics benefits. The investments on those improvements will, therefore, be deemed rather as the investments for the overall worthwhile returns.