

# Lean Management Technique in Power Plant Engineering

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**Abstract**— The lean management technique is one of the recent trends in the management system. Where the lean management is stated as the system increases the customer value and reduces the wastage process in an industry or in an organization. In this paper the lean management describes about the in the field of power plant engineering. The power plant system is one of the necessary needs to the environment for the production of power sources such as electricity. This approach is to reduce the wastage involved in the plant and increase the production activity in an efficient manner.

**Keywords:** Lean Management, Power Plant, Electricity, Wastage Reducing.

## I.INTRODUCTION:

Lean Management mainly focuses the reduction of wastages and turns the wastages into the valuable points. Such that in an organization or industries can have different wastages in the way of production or other matter which related to the minimizing the reduction of wastages. Also it defined as the over production of the industry in the manner of producing too much and too soon and inventory process which would have remaining product in a buffer variability.



## 1. Lean Discipline

In the figure 1 the lean discipline is stated as identify the value that is extra production and map the value of stream and the flow has to created where it has to be established and finally attempt to find something where it is known as seek perfection this discipline has to be applied in the

field of power plant engineering scheme to produce effectively.

## II.WASTES:

The wastage reduction is the important term in the lean management where this covers the various sectors which involved in this technique. Let us the waste process can be occurred in the both area of construction and processing as well as the wastage can be occurred in different sectors in the different ways. Hence it is classified into eight categories. They are,

- Over Production
- Defect Correction
- Rework
- Inventory
- Transportation
- Waiting
- Movement
- Over Processing

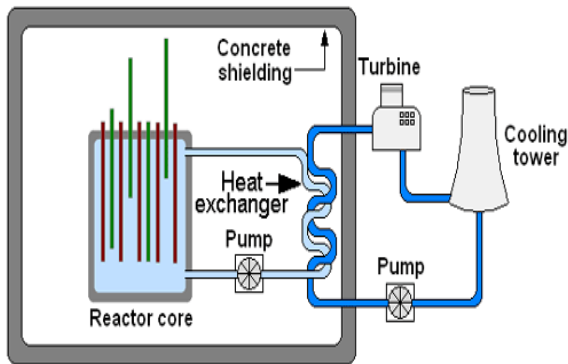
Where these are the main categories of the wastes involve in the lean management. These eight categories states the different explanation was proposed by the OHNO in the year of 1998 and WOMAK classified with the other category in the year of 1996.

After implementation of these methodology to the various industries / organization that they would reduce and minimize the wastages completely and produce an effective and efficient product in the system. The main scope of this method is to reduce the complexity completely and also there are some hidden wastages are involved such as communication and breakdown are yet to be discovered.

## III.OVER PRODUCTION:

Product production is the important work flow in industries where this product has to be manufactured continuously such that the industries management have to be focusing the extra production that should not be occurred while production. By producing more in number of product it leads to wastages so without any order there should not be any production occurred. Let it

is to be discussed in the case of power plant engineering.



## 2. Nuclear Power Plant

While in the case of nuclear power plant as shown in the figure 2 it describes that the power source is generated which is to be in the thick concrete shield and further it moves to the heat exchanger and finally it runs the turbine with the cooling water. This cooling water produces an enormous amount of energy and finally it produces the electricity. Where after the production the nuclear wastages are stored in the thick concrete shield and buried in the water this activity is very harmful to the environment so the nuclear wastages have to be removed by applying lean process in the needed source have to be produced by the day and no extra production involved.

### IV.DEFECT CORRECTION:

The defect correction is the second term which has to be reduces the faults which are not to be done again and again. The defect correction is involved in the machineries and other equipment does not get damage or any other defect has to be occurred. Where these machineries have to be maintained regularly by the way of inspecting the equipments and machine by the technicians.

Whenever there is the any fault or machine failure occurs it should have to be solved immediately so there will be no later problems will not be occurred. The main aim is to reduce the burden which should be occurred at any cost.

### V.REWORK:

The rework is the other term which has to be correct the process and to be avoid the unnecessary term which involved in the process. For example let us take that the machine gets failure and the technicians are solved the machine faults and after it should not noted by any one. Later it may be get fault again so it should have to regularly maintain by the technicians.

Unnecessary terms are to be removed regularly then and there also depends on the correcting the incorrect work it could be applied in the any case of the nuclear power plant management. Rework is the best process in the power plant engineering system where it would completely clear all the unnecessary problems involved.

### VI.INVENTORY:

Inventory is one of the complexity enriched activities where the new approaches or ideas are to be innovated in this method. A separate team has to be recruited for these activities and they have to analyse each and every process which is to be followed over. The necessary need is to be invented in the power plant sector and has to be producing in the effective manner. Possession and unnecessary production of raw materials are to be reduced completely.

As the new approach has to be followed over in any stage of the process and it is the endeavour process as must the new technique has to be innovated out then and there by the group of people.

### VII.TRANSPORTATION:

Where the transportation is the important vital role of the lean management technique where this takes the transferring of important data and information. Any mobility that do not add the values of the product at any cost. There should be multiple types of data and information is to be processed to increase the value of streams.

As this the transportation processes where to be achieved and to transfer the data and information in an effective manner and to process. Sometimes the transportation waste is too occurred when there is a unmanaged process are to be followed over change into the managed manner.

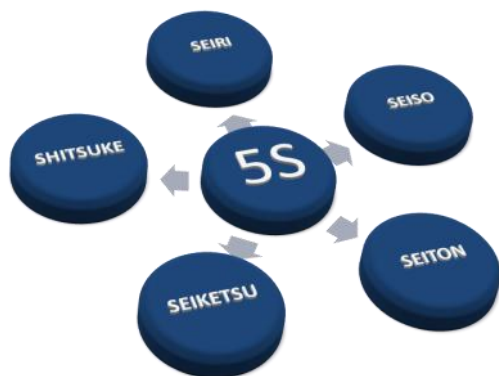
### VIII.WAITING:

The waiting process in the lean management is to waiting time where the process can be delayed in two ways by the employee or machine. These activities should be reduced in the way of interference between the worker and the machines. For example in the power plant engineering the waiting should be occurred in the different ways. Source production and passing of product from one sector to the other sector is the difficult and complex state so it should be avoided with the proper scheduled manner.

## IX.MOVEMENT:

The movement is the task which involves in the lean management technique where it is to be regards the physical movements of machine or other tools which requires the employee who works under machine where it could make some delay of the process. In some of the industry the machines are to be activated by the computer system which could be easier of moving of machine from one place to other.

The 5S technique are also applied in any part of the movement wastage such that the sorting of the machines at right places also it is to be set in order it have to be sustain the method and also there should be a standardized should be present in a technique. For example moving a heavy weight by a person form one place to other will make slower activities instead of that it should be moved with the trolley wheel quickly.



### 3. 5S in Lean Management

## X.OVER PROCESSING:

The needed product have to be produced in the lean management there should not be over process have to be produced. And unnecessary inspection are should not be conducted in the over processing system. Over processing system is the knowledge of producing the additional steps and divide the complexity into various steps so it could be easier to solve the wastages.

The nuclear power plant over processing will lead to the nuclear waste and it would emit radiation and this radiation will cause harmful to the human beings. So this over processing system has to be completely avoided as it is dangerous waste.

## XI.CONCLUSION:

Thus the lean management process system is to applied in the power plant engineering and to make the effective and efficient plant in order to not waste the nuclear sources and not to damage

the equipments and defect are also to be reduced in the system and there should be only continuous improvement.

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