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TRIP REPORT MUZAFFARGARH THERMAL POWER STATION

SEPTEMBER 30 – OCTOBER 3, 2014

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TRIP REPORT

MUZAFFARGARH THERMAL POWER STATION

SEPTEMBER 30 – OCTOBER 3, 2014

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MUZAFFARGARH THERMAL POWER STATION TRIP REPORT

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In an effort to know how the participants are implementing newly-acquired skills as a result of the EPP's Operations and Maintenance training series conducted between March to June 2014, EPP's Cross-Cutting Activities department travelled to Multan to meet with O&M training participants from Muzaffargarh Thermal Power Station to conduct two days focus group discussions. The discussions also aimed to follow on the assignments received during the EPP's Best Practices in Operations and Maintenance training courses held this year. The total 14 of the 20 participants (listed below) were present on focus group discussion.

Wednesday, October 1, 2014

Venue:

Muzaffargarh Thermal Power Station

Participants:

First Name	Last Name	Job Title	Gender
Muhammad Aslam	Ghani	Junior Engineer (Phase II)	Male
Shahid	Pervaiz	Junior Shift Engineer	Male
Faisal	Abbas	Junior Engineer (Mech.)	Male
Amjad Ali	Shah	Senior Engineer (Phase I)	Male
Haider	Ali	Electrical Engineer	Male
Altaf	Hussain	Director MMS	Male
Arsalan	Abbas	Assistant Director MMS	Male

Thursday, October 2, 2014

Venue:

Muzaffargarh Thermal Power Station

Participants:

First Name	Last Name	Job Title	Gender
Muhammad	Ali	Senior engineer Shift	Male
Muhammad Saleem	Shaikh	Senior Engineer	Male
Munir Ahmed	Abbasi	Senior Engineer(Electrical)	Male
Manzoor Hussain	Channa	Senior Engineer	Male
Muhammad	Usman	Junior Shift Engineer	Male
Javed	Iqbal	Junior Engineer	Male
Ali	Jafar	Deputy Director Technical	Male

Day I (October 1st, 2014)

EPP Cross Cutting Activities Coordinator Ms. Asma Usmani and Cross Cutting Activities Assistant Ms. Memona Naseer travelled to Muzaffargarh from Multan on Oct 1st to lead the discussions with the first group. The total 7 senior and mid-level engineers attended the discussions. The participants were asked specific questions such as: In what ways has your organization's performance changed as a result of O&M training? , challenges that they and their organization faced in implementing best practices in O&M, how the O&M training equip them to undertake improved power plant modeling, measurement, tariff strategies and fuel management? How has O&M training improved their organization's understanding of industrial standards when working on power plants?

The responses were ordered in to following three categories.

- 1) Skills learned and Implementation
- 2) Challenges
- 3) Suggestions

Skills learned and Implementation:

The focus group discussions revealed that the participants had a good perception of O&M training in general, they shared that they had a good learning experience and have learned techniques leading to bring best practices in plant culture, maintenance management techniques and performance of cooling tower. They said:

"I have learned the techniques used in Computerized Maintenance Management System (CMMS). Prior to the training, many of the participants were unfamiliar with these techniques. Following the training course, we are now able to identify obstacles in CMMS implementation, learned the proper guidelines on its implementation and utilization"

"I was a Director Management Maintenance Systems (MMS) when I attended the training, but now I am resident engineer I am now trying to implement the change of plant culture that I have learned during the training, here staff usually works less in duty hours and pend the work for over time I am trying to discontinue these practices and succeeded in it so far. We are motivating the staff to work more on duty hours to increase the efficiency of plant and I am checking the status of duties from staff on daily basis"

"My assignment was focusing on "Performance of Cooling tower", main reason to carry out the assignment was to diagnose reasons for poor performance of cooling towers especially during summer season and to suggests ways to improve plant efficiency. Following the newly-learned skills, I was able to decrease in inlet temperature of water entering into the condenser for proper condensation of steam exhausted from LP turbine. As a result of which I am able to decrease I.C decrease in temperature of water"

"The O&M training course has broadened our vision of Operation and Maintenance"

Across the discussion, respondents discussed a number of experiences in which they exercised persistence, as a means of facilitating their needs being met like their communication skills have been improved, parameters of heat rate and increase the efficiency of plant.

"We have learned "best practices to run plant efficiently" we have learned the parameters to increase the reliability of machine from breaker side. The course has enhanced our skills requisite for breaker maintenance. I am now able to deal with gas leakages from circuit breaker leakage, the improper function of compressor was causing moisture content at moving mechanism. It has increased knowledge

of moisturizer control mechanism and by using the newly-acquired skills we are able to repair existing breakers.

“During O&M training, it was learned that the power plant performance is mainly depend on the efficient combustion with minimum controllable losses. This has enabled the GENCO to save the fuel consumption in improved combustion system. Because of the training program, we are now able to reduced maintenance cost i.e. cleaned heating surface areas and less choking of air preheater and flue gas area (ducts).”

“During training we learned the ways to improve communication between different departments so to operate plant more safely and to improve the results of operation. Following the training course, I have placed intercom numbers of the concerned staff at different places so to communicate any problem swiftly.”

Challenges:

Respondents anticipated that the numbers of challenges are being faced by them during their assignments, they shared the following challenges experienced by them and the ways how they are able to resolve it, they said:

“We are facing the issue of procurement we cannot procure the items ourselves, we can just recommend to the concerned person”

“We are facing issue in our air block circuit breaker that air has moisture in it even after drying, it includes moisture due to pressure , we are now replacing the breaker with spring breakers where needed to avoid the major problems, we have learned this during the training”

“I have faced two major problems while working on my 220 kv circuit breaker, 1) it was stuck due to marshal content because it was pneumatically operated and having compressor with it but we had overcome this issue with the help of instructions given by Mr. Ken and he also shared his experience regarding this. 2) Another fault we faced in the circuit breaker was the less gas pressure, the circuit breaker stops functioning and blocked if gas pressure is low and we resolve the issue by observing the gas pressure, we are practically applying the things that we learned during the training”

“I was given an assignment of auxiliary consumption of power plant, it took too much time and hard work to complete the assignment because I had to calculate the value and load of plant, the plant designed by Chinese had less load even cooling tower were less in Chinese designed plant, I have learned during the training to calculate these load”

One of the respondent shared that the topic given to him was not even discussed in the training, but he is trying to study the case regarding his assignment, He said:

“Both trainers Mr. Ilyas and Mr. Ken was from mechanical side, there was no other trainer from electrical or instrument side even I asked few questions from them but I was not satisfied and then they gave me the same assignment, I am now studying the case, they taught us very good on mechanical aspects but we did not learn much regarding electrical and instrument”

Suggestions:

Some suggestions were found for improving the future trainings. In general, other opportunities of on-site workshops should be created for both management and lower staff by EPP energy experts, as the purpose of these workshops should rather mechanical and more focused on technical and instrument

aspects to change the culture of plant. The main comments and suggestions given by participants according to the evaluation questions are presented below:

“We have already raised the issue in the O&M training that specific sample has been trained, our management and lower staff were not trained, and there should be on-site training organized on monthly basis so the plant culture can be changed, we want some overall change of management in the plant”

“There should be a field visit to Independent power plants station as well to see their plant culture”

“There should be brief training regarding Electrical and Instrument side, the O&M was majorly based on mechanical and operational aspects”

“Only sample size was trained as we have more than 3 thousand staff members working in the plant, On-site Monthly local Workshops should be delivered to management staff instead of trainings”

“Computerized Management Maintenance System (CMMS) training should be delivered to the management staff”

Day 2 (October 2nd, 2014)

Ms. Asma Usmani-Cross Cutting Activities Coordinator and Ms. Memona Naseer - Cross Cutting Activities Assistant visited Muzaffargarh Thermal Power Plant on 2nd October to lead the discussion with the remaining participants. The total of 7 participants attended the second day discussion. Similarly to Day 1, the participants were asked to give their feedbacks based on the following categories.

- 1) Skills learned and Implementation
- 2) Challenges
- 3) Suggestions

Skills learned and Implementation:

The focus group discussion assessed the outcomes of O&M training, the responses described the factors which contributed to sustaining high numbers of apprentices completing their tasks, and to help them working efficiently and resolving issues rapidly, few of the respondents shared that following the O&M training we are now able to monitor and notice the efficiency of heat rate and checking the plant regularly. They learned to improve the efficiency of overall plant. They said:

“We were not continuously monitoring the heat rate, but after attending the training we are noticing the efficiency of heat rate. There are different components of plant, like boiler and condenser, we are checking them regularly and if there is fault then we try to resolve it so quickly. Like we experienced that a cooler have tubes in it and we were observing the inputs of tubes but it did not get the output correctly then we concluded the cause that there was high scaling in the tubes then we use methods we learned during the training course for cleaning the tubes and it resolved and giving the accurate heat rate”

“The training was very helpful for us, we learned many things especially to identify the steam leakages, and how to improve the efficiency of plant. We are now become more vigilant to observe the steam leakages so swiftly to increase the efficiency of our plant”

“We have been brain stormed from training by sharing experiences with instructor, we learned not to take minor faults lightly and to take actions against each minor and major fault to improve the overall efficiency of heat rate”

“Being a plant engineer we learned all the aspects of training to monitor all the things from fuel consumption to exhaust temperature, all the things are countable, we learned to focus overall efficiency of plant”

Two of the participants shared that they learned that appropriate coordination between departments to resolve the issues simply, they said that their communication skills have been improved, they shared:

“Basically the training was about best practices in Operational and Maintenance, we got overall knowledge to maintain efficiency of heat rate and how to run the plant efficiently and follow best practices. During the training we also learned about Cultural change, that includes work ethics, coordination between departments and efficient communications skills. We just started developing it slowly. Previously, we were not conscious about efficiency of plant but we are trying to develop it in our plant but it requires coordination of high management”

“We are now more conscious regarding the efficiency of plant, efficiency is a broad term in one word we can say efficient running of plant, it involves huge engineering it, planning and coordination”

One of the participant shared that the problem they were facing at their plant, was discussed by them in the O&M training and suggestions from the trainer and other colleagues helped them to resolve the issue after completing the training and applying it in the plant, he said:

“We were facing the problem of variation in temperature so we discussed this issue in training with the trainers they gave us some suggestions and after following those suggestions we are now able to remove those issues of variation in temperatures, like if the temperature is high then we minimize the load to control the temperature”

Challenges:

Participants shared a range of challenges and barriers that they are facing recently and also during their assignments. They shared their experiences:

“We are facing challenges in coordination and communication, being a middle management staff member, we require coordination with higher management staff and also with junior level staff, no doubt senior management staff are very cooperative but they have some limitations and as junior level staff are not experienced so it's taking time to explicate them, these communication and coordination between staff members are challenges for us”

“We are facing some challenges like we do not have proper instrumentations for on-line or offline recording, secondly the staff working in our plant is not as much trained, there is a tensed environment within the plant and everyone have work load, so there is some lack of coordination amongst staff members. Other than this we do not have laboratories or reporting mechanism for analysis SOPs”

“Our plants are overburdened and there is no proper shutdown of these”

Two of the participants complained that due to our budget constraints we cannot shift to latest technologies as our plant technology is too old and creates many issues, they said:

“We are going through a common and healthy issue of financial constraint”

“The technology we are using in our plant is almost 35 years old, while other IPPs are benefited with new technologies, but we can’t afford new technologies”

No doubt, In Pakistan there is a shortage of gas but on the other side gas is the cheaper fuel to consume, one of the participants shared that we cannot take advantage of this cheaper fuel, he said:

“We learned to run a plant through a gas, because gas is a cheaper than other fuel but this is impossible in our country where there is a huge shortage of gas”

Suggestions:

With regards to focus group discussion, participants were asked to give their suggestions to improve further O&M training courses, participants presented a range of suggestions that cluster in different areas including “training for senior level”, “duration of training”, “field visit to IPPs” and “On-site training in plant”, they shared:

“Similar trainings should be continue for high level and low level management”

“The training period was less, we suggest that there should be a specified training for efficiency of heat rate and ASME PTC 40 code to monitor plant efficiency”

“We want a tour to IPPs to discuss their plant situations and problems to share things with each other”

“We were taught to change the plant culture, but there should be a separate training for change of plant culture, like other countries, we should develop procedures or SOPs within our plant”

“The training was more about theory, it would be better if we get exposure to well-known plant which are already aware of O&M objectives, it will be great learning for us to observe such plants”

“There should be more exposure visits to other plants so to share experiences with each other and to learn practically”

“These sort of trainings should be continued by USAID”

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