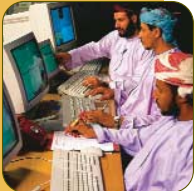


PAYBACK PROFILE:

Training Pays Big Dividends For Petroleum Development Oman

Better-trained employees at PDO use new condition monitoring skills to deliver over 1.3MM USD in savings



The Need

Faced with fierce competition, Petroleum Development Oman (PDO) had to grow. A decline in production over several years had created a critical need in the business to operate more efficiently, requiring many of its internal processes and procedures to be upgraded. Our leadership provided clear vision and directives, making it clear what had to be done, and even established pre-determined schedules for achieving our goals, among them an “Omanisation” initiative to transition our workforce to 100% Omani peoples rather than ex-patriots. They also required that we set and achieve competency levels for each of the many disciplines needed in a large, multi-faceted petroleum operation. And, of course, we had to do this amidst the overriding business objective of improved financial results.

The Condition Monitoring Team at PDO is responsible for approximately 1000 different machines throughout our operations. While we regularly strive for excellence, it was clear that the skills of our local Omani technicians and supervisors needed to be enhanced. Not only are we dependent upon these individuals to keep our operations running today, but these are our leaders of tomorrow. Thus, it was important for us to identify and retain the right talent, providing them with the training they needed to keep them “up front” for assuming key challenges and leadership roles in the future.

Saad Al Harrasy

Manager – Rotating Machinery
and Reliability Services Cell (TTO5)
Petroleum Development Oman
saad.ssa.harrasy@pdo.co.om



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Initial Steps

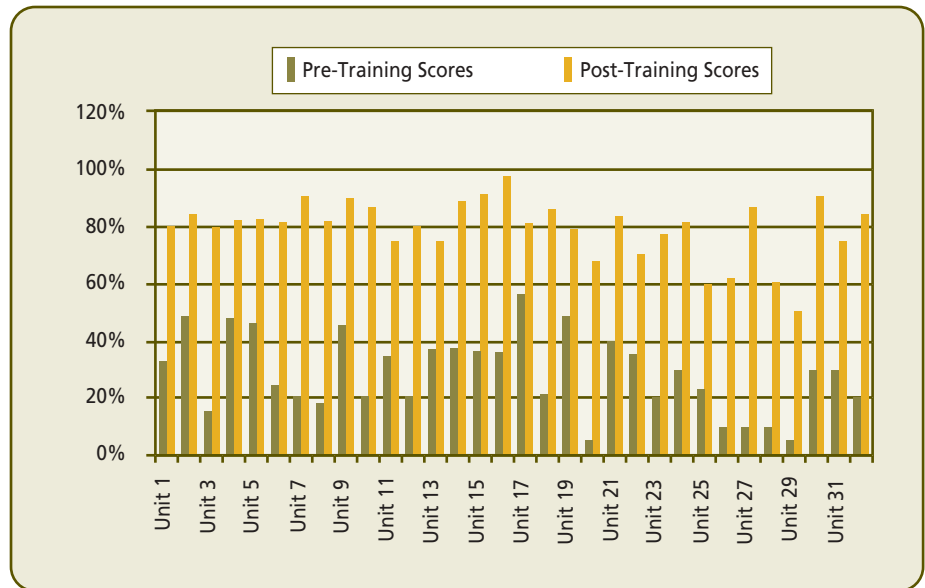
With these objectives in mind, we assembled a Skills Development Initiative – a methodical plan to further develop the skills of our team. This plan had the active support of higher management and was articulated in our vision statement for the initiative:

“To create a competence assessment standard for the condition monitoring group and to ensure all team members are trained to meet or exceed this competency level. This will allow us to reliably manage our machinery with effective and timely diagnostics, by local talent, ultimately leading to immense savings from unplanned outages, reduced downtime, contributions in improved maintenance performance, and reduced maintenance costs.”

Our first step was to develop a competence standard for the team. The next step was to qualify and select an appropriate company to assist us in training our people to this new competence standard. PDO selected GE Energy’s Bently Nevada team, a world leader in machinery management and condition monitoring, awarding them a one-year skills development contract. The site manager for the Bently Nevada team, along with PDO management, developed a set of mutually agreed objectives that were clear and well-defined:

- 1 To benchmark and assess the current performance of each PDO employee;
- 2 To develop custom training sessions as necessary;
- 3 To conduct this customized training to increase the condition monitoring skills of PDO’s technicians and supervisory staff from their current performance levels to meet or exceed the new competency requirements we had established;
- 4 To correlate classroom instruction with actual hands-on training;
- 5 To review existing condition monitoring practices at PDO and suggest best practices / improvements where applicable;
- 6 To provide regular, ongoing assessments (verbal, written, and field practices) of PDO personnel, and to have these assessments verified by PDO management.

**BASELINE
VERSUS POST-
TRAINING TEST
SCORES | FIG. 1**



CANDID AND REGULAR ASSESSMENTS

WERE PART OF THE PROCESS,

WITH FEEDBACK SESSIONS FOR EACH PARTICIPANT.

The Baseline

As stated above, our first task was to assess the existing skill levels of the condition monitoring team against the recently implemented PDO Competency Standards in over 30 different categories. The measurement process and system to assess this was developed by the Bently Nevada site lead. The results of this assessment showed us what we suspected: that very few employees met the minimum competency levels established. Also, even though some of the employees were able to pass a few of the assessment units, none had clear mastery of *all* required subject matter, and even if they passed the test, this showed only that they had the theoretical knowledge – not necessarily the hands-on knowledge that we were seeking. It was decided that the best approach was to present a unified series of hands-on courses for the entire team, rather than trying to individually tailor a series of different courses for each participant. This would allow us to raise not only the competency of each employee, but the team as a whole, by being together and undergoing the same training at the same time, would benefit. This training curriculum was jointly prepared by the Bently Nevada technical training teams in both the Middle East and in Minden, Nevada.

The Results

Once the benchmarking process was done, formal unified training was started in accordance with our competency standards. Candid and regular assessments were part of the process, with feedback sessions for each participant.

The results of the training are shown in the graph of Figure 1. While everyone was very impressed with the dramatic improvements in test scores, and while each employee had now passed our competency requirements for these units, a key measure of success still remained to be seen: how would this new-found competency translate to the financial picture for PDO? After all, if the end result of all this training was simply higher test scores – and not lower maintenance costs and a reduction in process downtime through more reliable machinery – then the entire exercise had missed the fundamental business objective: more profitable operation.

IF THE **END RESULT** OF ALL THIS TRAINING
 WAS SIMPLY **HIGHER TEST SCORES...**
 THEN THE ENTIRE **EXERCISE** HAD **MISSED** THE FUNDAMENTAL
 BUSINESS OBJECTIVE: **MORE PROFITABLE OPERATION.**

The Value Story: A True Return On Investment

During the first nine months that the Skills Development Initiative was in place, the team was called upon to assist in 25 separate incidents for critical machinery diagnostics support. The ability to conduct better and more timely machinery diagnostics over this nine-month period has resulted in more than 1.38MM USD in savings through a reduction in downtime and lost production, thus fulfilling the original vision for a condition monitoring team that would measurably enhance the profitability of PDO's operations. Management may be impressed with a rising trend of test scores, but there is nothing like a rising trend of money saved to really get management's attention - reinforcing the value of skills development and its ability to impact the bottom line.

While the financial results are phenomenal and have exceeded everyone's expectations, the benefits to PDO by no means stop there, and also include the following:

- ✦ **Strong fundamentals and basic skills achieved, allowing us to demonstrate uniform and consistent competency across the team;**
- ✦ **Identification of the "in-house talent" that can be developed as future coaches;**
- ✦ **Reduced response time for decision making, more reliable diagnostics;**
- ✦ **"Best Practice" sharing and process improvement initiatives;**
- ✦ **Presentation and public speaking skills of team have increased – more than 25 in-house case histories have already been developed and presented by the team (and that number is going to increase!);**
- ✦ **Smoother transition to a fully "Omanised" indigenous workforce;**
- ✦ **Improved safety with high machine reliability;**
- ✦ **A number of long-standing, chronic machinery vibration problems were finally eliminated**

The participants themselves have been among the most outspoken advocates of the training and its results. Salim Alawi, a condition monitoring supervisor and fellow participant, commented: "The effective delivery of training sessions along with the sound technical knowledge of Bently Nevada imparted solid knowledge of rotor dynamics and vibration analysis to our plant technicians. Consequently, the competency of team members has noticeably improved. This was more effective being a blend of classroom instruction and hands-on field training / troubleshooting." His colleague, Adulaziz Al Rawahi, also a supervisor and fellow participant, was equally impressed, noting the team's ability to apply what they have learned to real-world problems: "The radical improvements in our technical expertise in the field of vibration analysis are visible with improved on-site team performance."

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Key Attributes for Success

There were several key ingredients that we believe made our efforts so successful, and are broadly applicable to any organization seeking to increase the skills of their people:

- 1 **We had the active support of upper management.** This is crucial if you are going to succeed. When management is ambivalent about an initiative, people detect this and quickly lose interest, treating it as an administrative requirement to fulfill, rather than a way to enhance their career and increase their value to the organization.
- 2 **We benchmarked performance before and after the training** so we could actually measure improvement and assess employees objectively rather than subjectively.
- 3 **We emphasized hands-on activities,** using real scenarios from our own plant, rather than just classroom instruction. Knowledge, without the ability to properly apply it in the field, is worthless.
- 4 **We measured not just the improvement in knowledge, but the results of applying this knowledge.** Showing management that our new-found competencies resulted in over 1.3MM USD in savings makes the value of training tangible for everyone. It builds the enthusiasm of the team, knowing that their training is relevant and directly increases their value to the organization in a way that can be measured and understood by everyone: financial.
- 5 **We held each participant personally accountable for learning, through face-to-face feedback and assessment.** This helped assure 100% engagement and reinforced that every participant was a valued member of the condition monitoring team and the Skills Development Initiative, eliminating the “haves” and “have nots” friction that inevitably occurs when only selected employees are singled out for training.
- 6 **We chose our vendor carefully and made them a partner,** enlisting their expertise in not just training, but in helping us to identify areas where we could improve our overall condition monitoring practices and activities. They were able to contribute more, and make the training more relevant, because we involved them more fully in our day-to-day operations.

Summary

By virtually any measure, PDO's Skills Development Initiative has been a resounding success. It has allowed us to transition smoothly to a 100% Omani workforce, to build the morale and effectiveness of our team, and to deliver well over one million dollars in financial results to the business.

We achieved this through a methodical, structured approach to training that emphasized the ability to

apply the knowledge, rather than just pass a written test, and we rigorously measured the effects of this training on the business so that its value would be evident.

Training is an investment in our people that has paid off rapidly and will continue paying dividends in the years to come. 📌