

"YOU HAVE BEEN ASSIGNED TO CONDUCT THE TRAINING FOR THE START-UP OF A NEW FACILITY. HERE ARE SOME WAYS TO INSURE YOUR SUCCESS."

STARTING A NEW FACILITY

BY BOB
O'BRIEN

One of the most critical management jobs in starting a new facility or expanding a present one, is to plan well in advance. Planning in advance insures that employees at all levels will be fully trained to meet the launch schedule. Unfortunately, it is too often the case that most of the effort is focused on engineering, design, construction and placement of equipment. However, the most efficiently built facility will not produce unless people know how to perform their jobs.

A master training plan (MTP), like a road map, must be established which allows sufficient time to provide required training. In addition, a method for information and control should be designed which keeps management apprised of progress and shortfalls. Accordingly, a highly organized and results-oriented evaluation system is required.

The MTP must also be examined on a frequent basis to detect potential problems that may affect

the start-up schedule. Also, contingencies should be built into the plan so that additional people can be hired and trained if the original plan proves to be unrealistic. The additional people also serve to protect against attrition.

The MTP includes the hiring schedule, as well as every activity, projected completion, sequence, instructors, trainees, length of programs, dates, place of instruction, evaluation techniques, etc. The plan should be reviewed and updated frequently to insure that it is implemented as developed and approved. A plan in the form of a Gantt chart will give a visual view of the entire program and its progress.

Once the MTP has been established, it must be approved by upper management, accountabilities assigned, and budget money allocated. In a recent CertainTeed plant start-up, the training budget for a multi-million dollar facility was three percent of the entire cost.

Accountability establishes interest, commitment and ownership. As program development and im-

plementation progress, weekly reports, including objective evaluations of performance, can serve as a barometer to the timing and effectiveness of training. Frequent evaluations can provide the opportunity to make modifications and corrections when needed. I have found that feedback to accountable staff members has shortened response time which resulted in solving problems before they became crises.

Building the Master Training Plan

One of the first steps is to specify in detail what the fully trained employee must be able to do — from the manager of the facility to the janitor. The skill and knowledge criteria required to qualify for different classifications in traditional maintenance trades are quite thorough. However, even more careful analysis is necessary to specify requirements in jobs unique to a particular operation.

Employee sources from within the organization can be reviewed when the number of people required in each classification has

been determined, and skills have been identified. If a sufficient number of employees with needed skills are available, then training time can be shortened. Conversely, some basic skills training may be required which might affect the timing of the hiring schedule. The best assumption to make when hiring people from the outside is that new employees know nothing about your company, the job, the process and the equipment.

Once the numbers and source levels of employees are established, the hiring and personnel schedule can be developed — and the level of detail required in training programs can be determined.

With this information, the MTP can be started. An effective method is to back-up from the start-up target and fill in dates when particular jobs must be filled and when training programs must be ready. In a first attempt at a start-up, it might be advisable to add 20 percent to your original timing to insure that your training objectives will be met on schedule.

A procedure which is quite suitable in specifying job requirements and building results-oriented training is the four-step method of job description, task listing, task analysis and lesson-plan development.

The first step is to state in general terms what the individual does as distinguished from what other people do; i.e., what are the unique qualities in the performance of *this* job?

Next, develop a list of the tasks that comprise the job to be learned. The degree to which individual jobs are broken down into tasks will depend upon the complexity of the work involved. Job breakdown should represent tasks or skills that can be taught and performed separately, and learned as individual items. Some examples in the fiberglass insulation industry would be: measure glass-stream temperature, calculate resistance in the furnace, adjust slitter blades, install fiberizing units. Please note that each task starts with an "action" verb. The

task states what the individual is required to do. The degree to which the individual can perform the tasks can be objectively measured by performance observation, written or oral testing. The action statements will later be used to define specific learning and performance objectives when instruction is developed.

Task listings can be very time-consuming and frustrating. However, the time spent in preparation of task listings will later help both instructor and trainee to know exactly what the job is and when it is being performed correctly.

The third step, task analysis, places the tasks in the order in which they are performed. During the task analysis stage, units of instruction are developed along with appropriate evaluation methods so that on-the-job performance can be measured and corrected. The instructor should also note "key points" such as special instructions, tricks of the trade and safety precautions. For example, in order to measure glass-stream temperatures, the trainee must be taught to use an optical pyrometer, and where in the glass stream to make the measurement. Also noted would be the necessity to wear eye protection. Key points must be noted at this step as they could easily be forgotten during actual instruction.

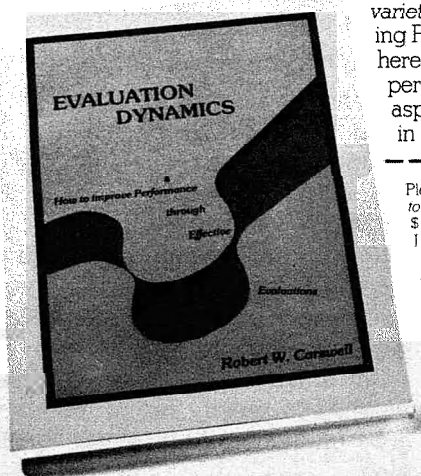
The lesson plan, the fourth step, is the instructor's guide, and specifies training objectives, time allocation, sequence, key points, demonstration techniques and evaluation methods. If appropriate, operator manuals, visual aids, prints, drawings and physical pieces of equipment necessary for instruction are included. Lesson plans should be developed and used so that the trainee does not progress to the next phase of instruction until the previous one has been mastered.

Training the Trainer

As potential instructors work through task listings and analyses, a frequently asked question is, "Why go to all this bother? Just give me my people and I will teach them my way." Such comments are not unusual, since most super-

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visors aren't trained instructors. Supervisors generally know little about the training process, and they have difficulty organizing training tasks. In addition, they aren't particularly motivated to conduct formal training sessions because they probably didn't receive any themselves in their former positions. Therefore, the most comfortable method would be to put trainees on the job and let them learn as they did. In other words, they don't feel comfortable doing training because they don't know how. An effective instructor training program will give supervisors the necessary tools to accomplish learning objectives and a sense of "know-how."

In a new facility start-up, "winging" the training can be deadly. If objectives are not established, and a planned approach to training is not specified and followed, disaster can be predicted.

Alternatively, by getting the supervisors interested and actively involved in the development of training for *their* people, they will own the program, and with some further convincing, they will be willing to conduct programs themselves. I have also found that supervisors increase their knowledge about jobs they supervise by going through the detail, and sometimes agony, of the four-step method.

Program implementation is different from program development. To help develop instructor skills, supervisors must be given the opportunity to participate in a program which focuses on why and how people learn, the supervisor's role in training, how to perform the four steps, developing learning and performance objectives, and designing training. In addition, presentation techniques, using visual aids, and evaluating performance are essential. The best instructional material to use is that which the supervisors have prepared to instruct their own people.

It has been my experience that many supervisors have further expanded lesson plans and designed additional evaluations. Accordingly, the supervisors showed interest and pride in their own

progress, and wanted to insure that learning took place, primarily because their own success as supervisors was dependent upon the performance of their people.

Evaluation *must* be an integral part of training design. Evaluation must be considered early in program development and it should be used to monitor and modify programs on a continuing basis.

If the four steps are performed correctly, questions such as "What should be taught," "What methods should be used to evaluate achievement," "How can we be sure that what is taught will be transferred to the job," and "How can we measure results" will be answered.

Evaluating performance after each unit of instruction provides feedback on both student achievement and instructor effectiveness. If the trainees do poorly, then retraining and retesting should take place. When trainees perform at an acceptable level, the next level of instruction can be conducted.

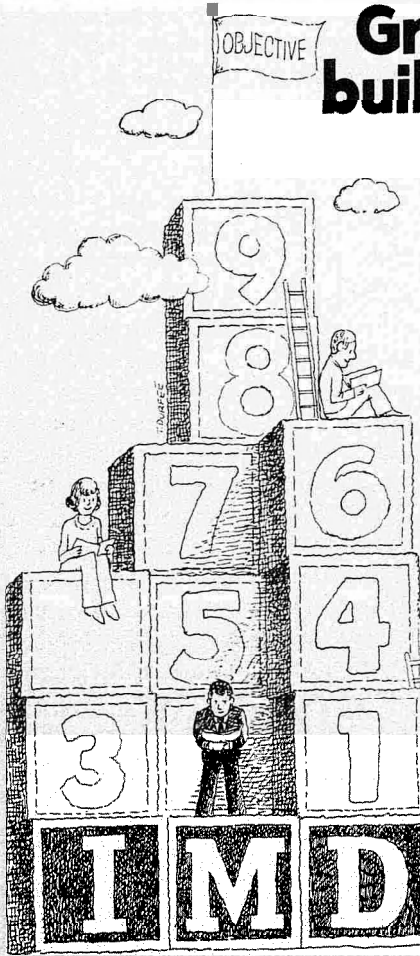
The ultimate evaluation of the

entire training program will be the success of the start-up. However, proper evaluation during the various phases of training will prove to be the best predictor of success.

Implementing the Program

The MTP will serve as a guide throughout the entire start-up training process. A weekly training schedule should be published, and a copy given to each participant based upon the MTP. Another effective method is to develop a calendar of all activities planned for the start-up period. The calendar should be displayed in a prominent place for all to see. Everyone will know, well in advance, training scheduled for them. The other activities of the trainees can be arranged accordingly. If conflicts occur, they can be readily resolved.

A cushion should be built into the MTP. For example, we scheduled four days of instruction per week, with Friday reserved as evaluation and catch-up day. On several occasions, outside contrac-




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tors and vendors were required to postpone or reschedule their training programs. The contingency plan helped us to work around these scheduling problems.

In some cases, we underestimated the amount of training time required to learn particular skills. Some areas in the manufacturing process are very complex, and required one-third more training time. Again, the contingency plan allowed us to have the necessary training time available.

As front-line supervisors were chosen from the local area, hands-on training at existing facilities was necessary to acquaint them with the process. During this time, supervisors actually performed the jobs of the people they would later supervise. Upon their return, task listings and analyses were begun with the help of experienced personnel transferred from other company locations.

To insure that undivided attention can be focused on new employees, supervisors and professionals should complete all off-site training before lesson plans are started, so that all information is available.

If on-site training is not feasible, another alternative would be to videotape the proper performance of jobs at another facility. The videotapes would then be included at the appropriate places in lesson plans.

Training programs cannot be conducted effectively unless the required material is prepared and practiced well in advance. Otherwise, training could be implemented on a hit or miss basis.

We did send key operators to an existing facility for hands-on training, accompanied by their supervisors. An indoctrination training program was conducted before their departure, and completed lesson plans were used for on-site instruction.

To insure that on-site training is conducted effectively, training responsibility should not be relegated to supervisors at the host facility, as their primary objective is to operate their function profitably. The likelihood exists that trainees might not receive sufficient attention, nor receive training at the quality level desired.

All supervisors participated in a problem-solving / decision-making program. Task groups were then formed to follow construction in four critical areas of the process for a period of three months. Major problem areas were identified, and in cooperation with engineering and construction, they were solved. The purpose of the problem-solving activity was twofold: 1) to obtain in-depth knowledge of equipment and systems, and 2) to prepare for a full-scale simulation of the process before start-up. As new knowledge was obtained, the lesson plans were updated and expanded.

In order to develop rapport and commitment from the outset, supervisors interviewed and selected their own employees. As supervi-

sors are held accountable for the quality and training of their people, much care was taken in selection.

During the first week of employment, the supervisors conducted a departmental orientation. The departmental orientation was separate from the more formal program conducted by the personnel department. New employees were informed what would be expected of them in terms of their performance, and that they would be evaluated during the course of their training. Communication of performance expectations helped to set the stage for the training process.

Supervisors completed a daily training log and performance-evaluation checklist for their employees from the first day of training through start-up. Items on the checklist were extracted from the task listings to insure that all items in the training program were covered. The categories on the checklist were: "does not know," "has partial knowledge," and "knows thoroughly." An individual may be evaluated as not having knowledge or as having only partial knowledge. Accordingly, the supervisor was required to formulate an action plan so that the individual would be taught and evaluated on that skill. Recognizing that people learn at different rates, evaluation proved to be an effective tool to review the progress of each trainee. We found that the trainees looked forward to performance feedback and they were highly motivated to learn.

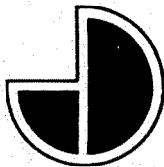
In a highly complex manufacturing operation, there could be a tendency to concentrate more heavily in developing technical ability and less time in developing managerial and administrative skills. Each are equally important, and sufficient effort should be expended in both areas.

In addition to programs on instructor and interviewing skills, supervisors participated in programs on safety, quality control, leadership skills, maintaining non-



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union status, industrial relations, production efficiencies, budget and cost control, and the EDP systems affecting their operations.

Many new programs can become nightmares as key plant people spend ever increasing amounts of time on the technical areas of the operation. Therefore, to help make the start-up more successful, a management / technical back-up team should be established. A knowledgeable back-up team can relieve the new facility personnel

of these pressures so they can spend time teaching and helping their people adjust to the jobs they will be performing for the first time. The back-up team should stay no longer than necessary. Generally, the back-up team should stay only until the new personnel develop the skill level and confidence necessary for them to run the facility independently.

During the first few weeks of the start-up, the key operators should become about 95 percent

proficient in the performance of their new jobs. The remainder of the jobs would be learned when special types of problems occurred on a day-to-day basis for which previous training could not be conducted.

The documents that have been developed for a start-up training program will become valuable tools for people who are upgraded, transferred or hired into new jobs. Each document contains the job knowledge and skills required for all jobs. The checklists and evaluations can serve as criteria to qualify for positions and should be updated when process and equipment changes are made. In a start-up situation, cross training is advisable to insure that trained personnel will be available in key positions should they become open.

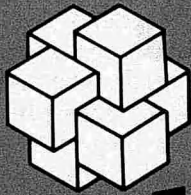
Summary

A successful start-up is not accomplished by chance. The key ingredients are the development and implementation of a training master plan which has management commitment and approval. Also, training objectives must be specifically defined, with programs to meet the objectives, trained people to implement programs, and the entire training process tested with objective evaluations. Finally, a follow-up training procedure is necessary to insure that learning continues.

Starting a new facility is exciting, challenging and hard work. However, performance achievement can be observed and measured on a daily basis as new people become proficient in their jobs. A new organization develops into a team, and the facility evolves from a hole in the ground to a viable, productive organization.

The thrill of it all becomes a reality because you have done the job right!

Bob O'Brien is senior manager, Training and Development, at CertainTeed Corporation, Valley Forge, PA. He has been involved in the development and training for four plant start-ups both in the U.S. and abroad. He has an EdM from Temple University, and has held training positions at RCA and Sperry, New Holland.



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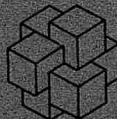
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