

HOW TO ORGANIZE YOUR NEW POWER PLANT-2

Tips on Coordinating Station Construction and Start Ups

If future needs are not anticipated properly, getting a new station under way can be one long tale of woe. Here's some advice from an engineer who has followed up many such jobs

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► Copies of all new plant orders, specifications, instructions, design prints and letters should be sent to the plant operating superintendent promptly. Advising him of your plans in advance of actual construction helps him make suggestions or objections.

Superintendent's records are also more complete with this information. His files aid in settling questions that often arise during starting and testing. Besides they are valuable for future operation and maintenance.

Design Changes. Before and during construction, you are likely to discover a few items that must be changed to assure safe operation. And during construction other worthwhile improvements may become apparent that can be made without additional cost or delay. Usually a job can be laid out a number of ways. Just because the design differs slightly from that most liked by operators, start-up men, service engineers and others is not always reason enough to warrant extensive changes.

Construction Requirements. Assuming proper design, the construction superintendent must build the plant, as designed, in a safe and workmanlike manner. He should do this promptly and at minimum cost to the owner. The manner of construction has a considerable effect on starting, testing and ultimate operation.

Items damaged during shipment or installation should be adequately repaired or else replaced. Faulty equip-

ment causes trouble sooner or later, possibly at a time when a shutdown may be embarrassing and costly. Installed equipment should be clean, level and solidly set. All required connections should be in place and the moving elements lined up, cleaned and lubricated. Preferably, operators should assist in this work to become familiar with the new equipment. Take special pains that grease and debris, such as rags, bottles and welding rods, are not left inside of apparatus.

Construction Completion. It is usually uneconomical to completely finish a new project before placing it in operation. Set up the construction schedule to cause minimum interference with early operation. Locker rooms, floors, stairs and railings should be finished. Remove unnecessary scaffolding, and apply heat insulation where possible. Piping should have been carefully cleaned before erection, then hydrostatically tested and flushed with water or air to clean out refuse.

Well before starting date, expedite installation of instruments, small piping and miscellaneous electrical work, including control wiring and lighting. These items usually take longer than expected and are essential to safe operation.

Start-up Coordination. A month to six weeks before the start-up date, hold conference of key operators, start-up men, contractors, manufacturers' representatives and construction men. A

definite schedule for start-up activities with proposed dates for each step should be set up.

Request for service engineers of various manufacturers should be made far enough in advance to have them at the plant several days before start-up. This gives them time to look over the installation and make necessary changes before actual operation.

Construction to Operation. As each section of the plant is completed it should be turned over to the operators. Thereafter, let construction men do no work on that equipment without obtaining clearance from the operators. What to do and when should be clearly understood. In this way, you avoid accidents to personnel and damage.

Construction men should be excluded from operating areas after equipment is turned over to the operators, except where work items remain to be done. Any construction work in operating areas should cause minimum interference.

When extending an existing plant, it is advisable to install separating partitions to isolate dirt and noise of new construction work from operating sections of the plant. Shop, warehouse and toilet facilities for construction workers should be adequate so there is no need for these workers to be in operating areas. Occasionally, use of existing walks, stairs or elevators by construction personnel is necessary, but it should not interfere with operation.

Power reports on

ATOMIC ENERGY TODAY

Back in July 1940, long before Hiroshima made atomic energy a household term, **POWER** published a pioneer article, "Uranium 235—Power Fuel of the Future?" It concluded, "Uranium 235 gives us the makings of atomic-power plants. In the light of the history of science and engineering, eventual application seems probable—perhaps within our lifetime."

Now, with atom research vastly accelerated by war and threat of war, we may see one or more large-scale plants delivering power by 1958, about 18 years after our quoted forecast. And at some later date, regarding which there can be no agreement today, atomic power may be truly commercial, holding its own in competition with familiar energy sources.

Whatever the date of truly commercial practicality, industry is ready and willing to carry development forward. Aware of this interest and desirous of stimulating industrial activity in this field, the Atomic Energy Commission has just released declassified portions of studies made by four industry teams. Given access to AEC data, engineer members of these teams

examined the feasibility of designing, constructing and operating dual-purpose reactors to produce electric power and fissionable material.

For security reasons many details, particularly of reactor design, cannot be given. Yet here, for the first time, the "look" of practical atomic-power plants emerges—we see how the plants may be built, get some idea how much they may cost. We learn in what respects they will use conventional steam equipment and methods. And we glimpse some of the unusual ways they will differ from familiar practices.

As our condensations of these studies reveal, atomic power brings a new technology—one that power engineers must dig into and master. To make this as easy as possible, we preface the summaries of the engineering studies with our own boiled-down review of the facts of atomic fission.

Here, then, is what the busy engineer needs to know about atomic power today—fundamentals on which it rests, engineering proposals for actual plants, estimates of investment and operating costs.

JULY • 1953