

CHAPTER 8

STARTUP COSTS

1. INTRODUCTION

Many projects will have startup costs associated with the project. Startup is usually a gray area between the time project construction ends and a facility is commissioned and begins its operation. This chapter discusses startup costs for construction and environmental projects, and estimating guidance for startup costs.

2. DEFINITION OF STARTUP

Obviously, different projects will have unique startup costs. This section defines startup costs for conventional and environmental projects.

A. Conventional Projects

Construction projects are usually considered conventional projects. During startup, a facility is tested to ensure that it meets the project's technical performance specifications; however, actual operations at the facility may not have commenced. In fact, construction activities, such as punch lists and corrections, may still be occurring during startup, so it is difficult to separate construction modifications from initial facility operations. A distinction is made between startup and operations because startup costs are usually considered capital costs, while operating costs are charged to the facility's operating budget.

B. Environmental Projects

Startup activities at environmental restoration facilities may commence prior to the completion of the construction phase of the environmental project. For example, contaminated soil may be excavated and stockpiled while startup of an on-site incinerator is occurring. Startup costs will be a function of the types of activities at the site and the remediation/restoration technology used at the site.

3. STARTUP COMPONENTS

Startup activities may include the activities discussed in the following sections.

A. Startup Transition Plan

The development of a startup transition plan for the conventional facility may be essential for smooth startup implementation. Typically, these plans will include test plan procedures, scheduling, security planning, and the associated documentation. A plan provides an excellent opportunity to think ahead to situations that may be encountered at the facility during startup.

B. Startup Organization

Development of a startup organization, including management, administrative, operations, maintenance, and technical support personnel, will be required prior to the actual startup. Employees may have to be relocated to staff the facility while it is being tested, so employee moving costs or employee living costs may also be included in the cost estimate for facility startup.

C. Operating and Maintenance Procedures

Site-specific operating and maintenance procedures will have to be developed for a new facility with special attention paid to equipment startup or initiation procedures. In some cases, as with a nuclear facility, startup operations and their sequence will be strictly regulated.

D. Spare Parts Inventory and Training

The startup cost estimate must include provisions for materials to be used during startup and spare parts for any maintenance that occurs during startup. Training for operations and maintenance personnel will also be required.

E. Testing

Some facilities will require a safety/readiness review before they can be declared operational. Some scheduling may also be involved. For example, a facility may have to demonstrate successful operation at a certain capacity for a specified period of time before it is commissioned. The startup cost estimate must account for the testing schedule.

4. ESTIMATING GUIDANCE FOR STARTUP COSTS

Although startup activities in the field may not begin until construction is almost complete, the planning for startup should occur early in the project. Planning for startup should be an integrated effort with construction personnel and operators to avoid holes or duplication of effort in the startup process. The input from the construction personnel and plant operators should be used when developing the startup cost estimate.

Construction startup costs can range from 0.5 to 10 percent of the installed cost for the conventional construction facility.

The startup cost estimate should be prepared under the guidance of the Program Manager and not an architect/engineer. The work breakdown structure and schedule for startup activities should be developed early. The startup costs are considered other total project cost.