Southern Company

GPC Hydro – PM Call 2/25

Lessons Learned and Best Practices:

Safety

1. The Terrora hydro facility was designed and built when safety was not a primary concern so there were some areas that needed to be made safety ready before construction could begin. Items that needed attention were things such as handrails, ladders, and tank access. In order to mitigate these risks a pre-construction checklist was created and will be used for projects moving forwards.

2. The Hydro Safety Manual that was created to cover all hydro construction work has been a success and has all groups working under the same set up guidelines.

Schedule

1. Identifying what activities have the highest risk to increase or decrease duration is key so that the impacts can be communicated with other contractors i.e. turbine rotational alignment duration can vary, and it can be a long or short activity.

Cost

1. Project Controls created a white paper that details how hydro accounting is different from our normal capital accounting which can be used across the hydro projects. There is a great level detail required in the beginning which may increase the number of cost analysts that are needed to create the Cost Breakdown Structure and set up the projects. There must be an understanding what charges go to removal accounts versus what charges get charged to capital.

Estimating

1. Historically, Turbine Estimates have been difficult in part because even quick estimates require a certain amount of design work to be completed. Utilize 30% contingency for this scope until it is awarded.

2. The Hydro group is moving forward with new replacement of components versus refurbish because there are too many unknowns and a requirement for discovery that can't be accomplished due to the operating schedules of the facilities.

Environmental

1. There were no environmental incidents to which the team attributes to a high degree of focus on spill prevention and lead and asbestos abatement.

Scope

1. The age and condition of the equipment was an issue while construction was underway so the team recommends to have a mitigation and risk register entries to address the discovery work.

2. Electrical Design - create as-build drawings and to capture any missing drawings and create them if necessary.

3. Survey the reach of the cranes at each facility because at Terrora it was found that the existing overhead crane could not reach all the required areas.

Staffing Levels

1. The Terrora team successfully used plant resources to cover night shift.

2. A best practice that was adopted was to have an on-site Field Engineer toward the end of construction and the beginning of startup.

Supply Chain Management

1. The hydro team standardized templates for Turbine and Generator scope contract documents.

2. The Project Manager should bid and award Turbine and Generator scope as early as possible.

Owner Engagement / Timeliness of Decisions

1. A water conduit P&ID needs to be developed early in the project to help with dam operation and control.

Design

1. The team recommends field routing small bore piping to reduce costs and improve construction schedules.

2. A best practice during Covid was to have virtual design approval for any changes.