

preprocessinc

Chemical Engineering for Entrepreneurs

Equipment Procurement and Contract Development

Many projects require an iterative development for certain complex pieces of equipment that make up the major unit operations for the system. At some point an engineered specification must be developed to enough detail that the various vendors bidding the job can understand the request for proposal, but also have enough flexibility to understand that the effort is iterative depending upon certain technology applications that each may be able to bring to the table to enable a different cost structure or better performance of the overall system. In these efforts, it is advantageous to have early scope sessions with prospective vendors so that information is clear and the best possible solution can be developed. Preprocess is brought in to may early chemical start-ups to act as the owner's chief engineer in these development efforts. The ability to guide the discussions and evaluate the development data presented on the various options for equipment is critical to an early stage project.

Having a rigorous and well organized contracting and procurement work flow enables the commercial exchanges to be timely and efficient. It is not so much the particular software that is used for the B2B transactions, but the way they are configured for use. Simplification is the rule to keep the system from becoming the butt of all jokes on the project. Keep the number of transactions low and insure that the approval limits are pushed to the lowest levels and the system will be successful. Tactically, legal, the procurement agents, and the engineers must work in a well-structured team built on trust to ensure that all aspects of the work flow are completed. Procurement can become one of the pain points on any project as there are many aspects and many fingers in the pie. Organization and simplicity insures success.

Types of Contracts

- NDA – Non-Disclosure Agreement
 - Ticket to the dance
- CSA – Consulting Services Agreement
 - Advice, guidance, “visitor on site” liability protection
- ESA – Engineering Services Agreement
 - Design work product, stamped drawings, errors and omission liability
- VSA – Vendor Services Agreement
 - Warrantee of delivered product
- TSA – Construction Services Agreement
 - Site safety and installation QA/QC
- MSA – Master Services Agreement
 - Combination of any of above

PO – Purchase Order

- Cover document pointing to all types with default terms and conditions

Types of Procurement Systems

On Owner Paper

1. Owner controls all cash flow
2. Owner delays are an excuse external firms will use
3. Need ERP fully functional to B2B transactions
4. Owner takes title from supplier of equipment or work
5. Numerous small POs

EPCM

1. Owner approves functional specifications or scope
2. External firm controls cash flow
3. Owner funds external firm accounts for purchase on our behalf
4. Owner takes title from supplier of equipment or work
5. Small number of small to large value component POs

Turn-key

1. Technology Provider specifies and procures
2. Technology Provider delivers functional system
3. Technology Provider transfers title after performance run
4. Owner takes title from Technology Provider as system
5. Single large value PO to Technology Provider
6. Owner must integrate at Technology provider boundary limits

Typical Procurement Work Flows

Each vendor shall submit requested documents throughout the commercial engagement for the fabrication and delivery of the specified equipment or system.

Approval drawings shall be the guiding dimensional specification. Approval drawings are to contain sufficient information to allow engineers to proceed with detailed design of the surrounding system. The vendor must conform to the approval drawing requirements as the engineers engaged in the integration of the equipment or system shall be using the approval drawings as the data for the rest of the design of the system.

The schedule and the practical realities of the entrepreneurial pace at which the project is being delivered makes it impossible to wait for each suppliers certified drawings in order to insure that dimensions are verified as per the approval drawings. The equipment and system supplier, along with any system integration engineer will work as a team using the approval drawings, not the certified drawings as the guiding data for design.

Certified drawings shall be delivered as soon as practical into the build, however the ability to move forward on the overall design shall not be hindered by the excuse of not having certified drawings from various sub-suppliers.

The vendor commercial relationship shall be defined by the following document set. It shall be the vendor's responsibility to receive, compile and deliver all system documentation. All documentation shall be delivered as per project schedule. The following are the typical submittals required:

1. Specifications (Including equipment and motor data sheets if applicable)
2. POs (Purchase Orders)
3. SOWs (Statements of Work)
4. Approval Documents
 - Drawings
 - Component Specifications
 - Functional Requirements
5. VQPs (Vendor Quality Plan)
 - As per the VQP Form
6. FAT Reports (Factory Acceptance Tests)
7. O&M Documentation (Operations and Maintenance)
8. Certified Documents
 - Final "As Built" Drawing Set

Simplified Procurement Documentation Work Flow

Prior to PO Award

1. The VDR (Vendor Document Requirements) and VQP (Vendor Quality Plan) Form shall be submitted to Supplier with a Request for Quote (RFQ).
2. The specifying engineer shall indicate the required quality plan items on the VDR VQP Form by placing an "X" in the appropriate inspector review columns. Any questions regarding quality plan requirements are to be resolved with the engineer prior to PO award.
3. Supplier shall quote drawing submittal dates directly on VDR Form. The dates appearing on the VDR VQP Form are the dates that the documents shall be properly posted at on the Document Control system. Posting on the document control system is the deliverable.
4. Prior to Purchase Order being issued, the agreement on what documents are required is contractually binding by the identification of the deliverable date or the identification of N/A on the VDR form.

After PO Award

1. Vendor must submit all data requirements by the pre-established due dates. The supply of goods will not be considered complete if all required documents have not been submitted.
2. All submittals must contain the PO number (Purchase Order) and the P&ID tag number in the subject line.
3. Vendor must include a copy of the completed VDR Form as a transmittal sheet to cross-reference P&ID tag numbers with the vendor's document names/numbers.
4. The vendor must indicate the Model Number or Drawing Number in the "Supplier's Number" column and the revision on the completed VDR Form prior to sending it back to the buyer.
5. All documents are to be sent electronically. If source documents from the vendor's sub-supplier are not available to the vendor electronically, it is the vendor's responsibility to scan hard copies into PDF format and deliver them electronically.
6. All final drawings must bear suppliers "certified" stamp when applicable.
7. Normal turnaround time for documents is 14 calendar days. If there is no response or no interaction in the 14 calendar days, then the vendor is to issue an email stamped "Proceeding on 14 Day Notice" with the appropriate submittal and build to the submitted documents.
8. Vendors must highlight any changes or revisions on subsequent submittals.