

I. PROJECT INITIATION

10 WEEKS

- Generate Feasibility Study per Programmatic Requirements
- Develop Scope for Concept Phase (See Phase II)
- Establish Project Goals and bridge to BD/DD/CM/Qual/GMP
- Identify/Ratify Business drivers, phases, milestones, and budget
- Create Internal Project Core Team / RACI / 2-year Hiring Plan
- Pre-Qual Questionnaire/RFI for CD Report Services
- Generate RFP for CD Scope of work
- Response Review, Clarifications, Score
- Score, Award, Kick-off

DECISION GATE

2. CONCEPTUAL DESIGN

15 WEEKS

- Collection of information
- PFDs with material balances
- Process Model Scenarios
- Facility Layouts and General Arrangements
- Facility Flow Diagrams
- Equipment List / URS Master List & Schedule
- HVAC Design Criteria
- HVAC Classification Drawings
- Structural Assessment
- Evaluate Options: Modular, Podular, stick-built, or combination
- Generate Preliminary Site Design
- Code Review, Early Constructability
- Establish Order of Magnitude Estimate
- Generate Preliminary Schedule
- Project Execution Plan and Risks
- Resource Plan and Schedule (Hire!)
- Develop of scope for BD Phase (Phase 3)

DECISION GATE

3. BASIC DESIGN

15 WEEKS

- Approved Process and Facility Bases of Design
- PFDs (including material balances)
- 80% P+IDs
- Process Model
- Facility Layouts and General Arrangements
- Facility Flow Diagrams
- Utility Studies
- HVAC Design Criteria
- HVAC Classification Drawings
- Utility Study and Equipment Sizing
- Equipment List
- Utility use points and piping mains
- Automation Strategy
- Project Risk Assessment
- Structural Design
- Long lead construction documents (specs)
- Early equipment procurement
- Site Design
- Establish Control Budget (20%)
- Establish Project Schedule
- Finalize Project Execution Plan
- Finalize Resource Plan and Schedule
- Permit Plan, Demo Plan
- Constructability Plan
- Develop Scope for Phase 4
- Project Procedures Manual for Phase 4
- Generate Scope for detailed design/construction

DECISION GATE

4. DETAILED DESIGN, PROCURE, CONSTRUCTION

- Drawings and Specs (IFP & IFC)
- Automation Contract (process and BMS)
- Procurement Packages
- Equipment Procurement/reviews/FATs/Delivery/SAT's
- C&Q plans and protocols
- Installation Verification (I.V.)
- Construction Packages
- I.V. Punchlist Generation and Closure
- Establish Mech. Completion dates for each system
- Construction Management
- Safety Management
- Construction Administration and Field Support
- ETOP Review and Punchlist
- As-built drawings

5. COMMISSIONING / QUALIFICATION

- Development of C&Q plans and protocols
- Plans and Protocols should be completed
- Delivery and SAT Execution
- Validation Protocols Executed / Reports Generated
- New Operator Training
- Transition to GMP (checklist)/ QA Mock Audit
- SOP, Batch Records
- Process Validation Protocol Review
- Master BOM review / SAP
- Plant Economics: COG's and Working Cap
- Engineering Runs

