

# Environmental Regulatory Challenges and New Construction

**Terracon**

# Introduction



## **Chris Hurst, PE, CSP**

*Senior Environmental Engineering  
Consultant, Atlanta*

Chris Hurst has over 23 years of EHS experience and has worked as state regulator in the areas of air protection, waste water engineering, hazardous waste compliance, and federal (RCRA/CERCLA) site cleanup. In addition to providing environmental consulting services, Chris has served as the corporate EHS manager for a private specialty chemical manufacturer.

## **EDUCATION**

Master of Engineering, Chemical Engineering,  
University of Louisville, 1995

Bachelor of Science, Chemical Engineering,  
University of Louisville, 1994

## **REGISTRATIONS**

Professional Engineer:  
Georgia, No. PE034637  
Alabama, No. 35361  
Mississippi, No. 28006

## **CERTIFICATIONS**

40-Hour HAZWOPER  
CSP – Certified Safety Professional

# Presentation Objectives

- This presentation will cover lessons learned and observations pertaining to project management challenges related to project teams, communications, schedule changes, and project changes
- Considerations will be presented as they pertain to the project planning, implementation, and the start-up periods
- Primary objective is to share these experiences and personal observations with hope that there may be opportunities for others to be better prepared for their next new construction challenge

# Presentation Topics

- Background and Overview
- Project Management Challenges
- Schedule Changes and Flexibility
- Communications
- Prioritization and Competing Goals
- Integrating Project Teams



# Background and Overview

- There often seem to be a “ground hog day” effect when working on new construction projects
- These observations and thoughts draw upon the following types of common projects and situations
  - New facility construction (industrial and commercial clients)
  - Expansions at existing facilities
  - Implementation of large nationwide environmental programs
  - Installation of new production lines
- **The challenges discussed here are focused on those with environmental perspective**

# Background and Overview

- During periods of substantial growth there are many competing needs and obligations
- This heightened level of activity requires management teams to constantly track schedules, milestones, budgets, and quality.
- During this accelerated period of activity there is often mishaps and missed opportunities
- Changes to project team, client staff, project timeline, project scope all result in creating a dynamic situation

# Project Management Challenges

- Project timeline
  - Include environmental goals, all requirements, benchmarks
- Identification of all Project needs
  - Identify overall client, client rep
  - Identify staffing and project team
  - Resources and background information/data
  - Whom will receive and review drafts and deliverables
- Identifying all environmental obligations
  - Environmental Aspects and impacts review
  - What are the Significant Impacts
  - Are there considerations related to existing operations



# Project Management Challenges

## ➤ Milestones

- Benchmarks
- Reporting
- Submittal Dates
- Project closeout

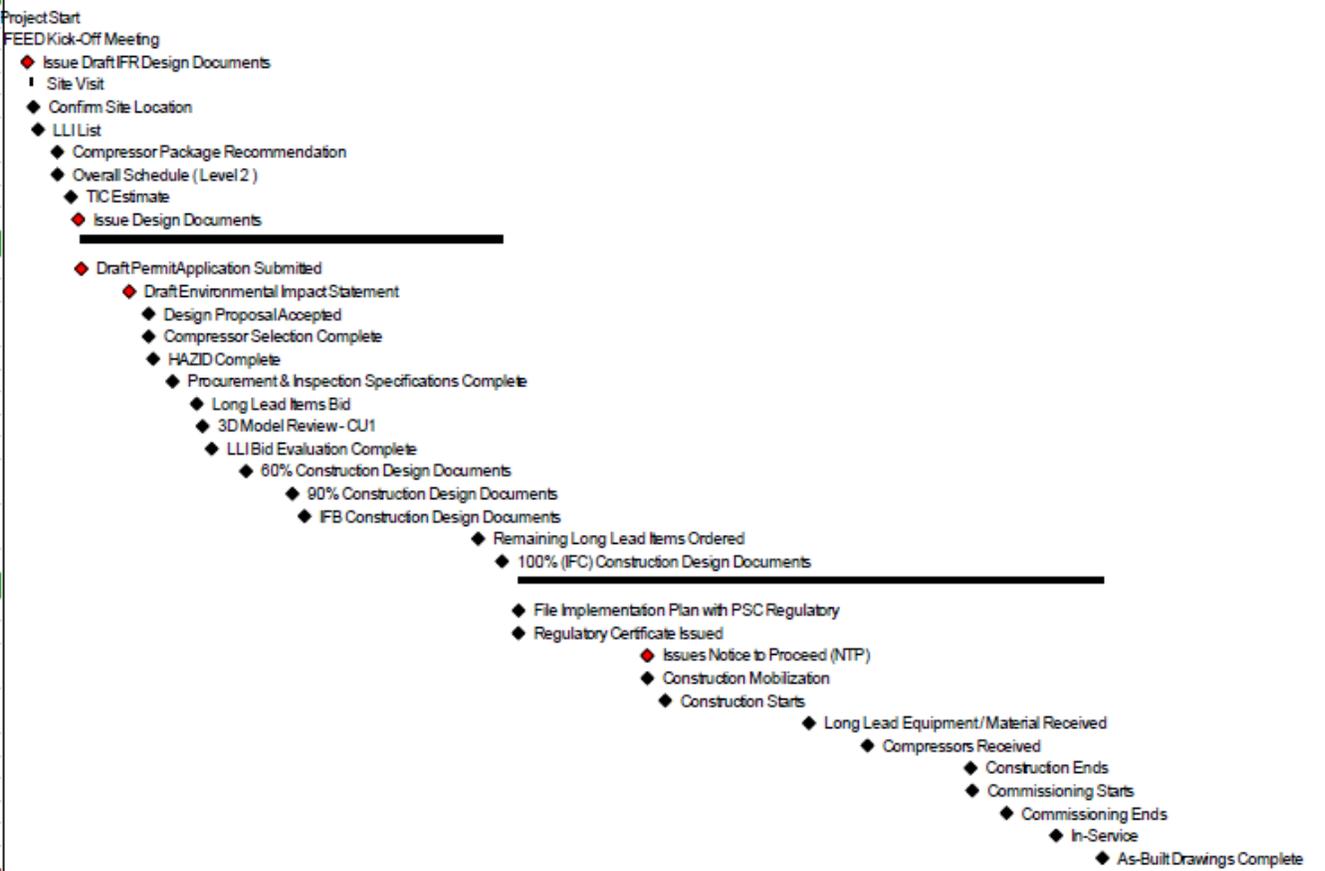
## ➤ Team Composition

- During planning stages (Consultants, GC, Client, Developer, architects, subcontractors, others)
- During construction phases (GC, subcontractors, consultants)
- During turnover/startup
- Teams may be static or dynamic depending on project needs



DETAIL SCHEDULE

Activity ID	Activity Name	Original Duration	Start	Finish	2019												2020												2021					
					May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun				
<b>Major Milestones</b>		464	08-Apr-19	08-Feb-21																														
<b>FEED / PSC Milestones</b>		40	08-Apr-19	03-Jun-19																														
MM105	Project Start	0	08-Apr-19*	08-Apr-19																														
MM120	FEED Kick-Off Meeting	1	10-Apr-19	10-Apr-19																														
MM135	Issue Draft IFR Design Documents	0		03-May-19																														
MM125	Site Visit	1	08-May-19*	08-May-19																														
MM250	Confirm Site Location	0		07-May-19*																														
MM275	LLI List	0		10-May-19																														
MM260	Compressor Package Recommendation	0		21-May-19																														
MM280	Overall Schedule (Level 2)	0		21-May-19																														
MM285	TIC Estimate	0		29-May-19																														
MM145	Issue Design Documents	0		03-Jun-19																														
<b>Detailed Design Milestones</b>		172	05-Jun-19	11-Feb-20																														
MM155	Draft Permit Application Submitted	0		05-Jun-19																														
MM185	Draft Environmental Impact Statement	0		03-Jul-19																														
MM175	Design Proposal Accepted	0		15-Jul-19																														
MM130	Compressor Selection Complete	0		15-Jul-19																														
MM150	HAZID Complete	0		18-Jul-19																														
MM115	Procurement & Inspection Specifications Complete	0		29-Jul-19																														
MM140	Long Lead Items Bid	0		13-Aug-19																														
MM240	3D Model Review - CU1	0		16-Aug-19																														
MM142	LLI Bid Evaluation Complete	0		22-Aug-19																														
MM180	60% Construction Design Documents	0		11-Sep-19																														
MM245	90% Construction Design Documents	0		09-Oct-19																														
MM165	IFB Construction Design Documents	0		16-Oct-19																														
MM180	Remaining Long Lead Items Ordered	0		28-Jan-20																														
MM170	100% (IFC) Construction Design Documents	0		11-Feb-20																														
<b>Construction Milestones</b>		242	21-Feb-20	05-Feb-21																														
MM190	File Implementation Plan with PSC Regulatory	0		21-Feb-20																														
MM195	Regulatory Certificate Issued	0		21-Feb-20																														
MM200	Issues Notice to Proceed (NTP)	0		08-May-20																														
MM210	Construction Mobilization	0	09-May-20	09-May-20																														
MM220	Construction Starts	0	19-May-20	19-May-20																														
MM205	Long Lead Equipment/Material Received	0		13-Aug-20																														
MM255	Compressors Received	0		17-Sep-20																														
MM225	Construction Ends	0		18-Nov-20																														
MM230	Commissioning Starts	0	19-Nov-20	19-Nov-20																														
MM235	Commissioning Ends	0		09-Dec-20																														
MM265	In-Service	0		08-Jan-21																														
MM270	As-Built Drawings Complete	0		05-Feb-21																														
<b>Project Management, Administration &amp; Office Services</b>		214	08-Apr-19	11-Feb-20																														
P1020	Create Project PEP	10	08-Apr-19	19-Apr-19																														
P1035	Project Management (LOE)	214	08-Apr-19	11-Feb-20																														
P1040	Project Controls (LOE)	214	08-Apr-19	11-Feb-20																														
P1045	Project Admin / Document Controls (LOE)	214	08-Apr-19	11-Feb-20																														
P1060	Safety / QA-QC (LOE)	214	08-Apr-19	11-Feb-20																														
P1065	Project Engineering Support (LOE)	214	08-Apr-19	11-Feb-20																														
P1015	Develop Detailed Project Schedule	26	11-Apr-19	16-May-19																														
P1010	Develop Design Basis Memorandum (DBM)	17	22-Apr-19	14-May-19																														
P1025	HAZID	3	16-Jul-19	18-Jul-19																														
<b>Permitting</b>		195	03-Jul-19	10-Apr-20																														
FRC-100	File Regulatory Application	0		03-Jul-19																														
FRC-110	Review Period	195	05-Jul-19	10-Apr-20																														



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# Schedule Changes and Flexibility

## ➤ Project Delays

- Weather impacts (e.g, construction SWPPPs, infrastructure buildout such as containment systems and coverings)
- Change in scope (addition of tanks, process components, emission sources)
- Change in team (new GC, new subcontractors, new team members associated with a particular project/deliverable)
- Supplier/material issues (wrong equipment, off spec items)



## ➤ Project Accelerations

- Business decisions to be ahead of market/customer demands
- Increased/decreased machinery, construction costs

# Schedule Changes and Flexibility

- Attempt to maintain a Dynamic Schedule
  - Build in buffers for allowing slippage of schedule
  - Most environmental deliverables are hinged upon “startup” date
  - Understand each environmental obligation required submittal date
  - Understand what “startup” means under each environmental deliverable (e.g. RMP, stormwater, air permitting, etc)
  - Adapt the various environmental obligations/needs to schedule revisions



# Communications

- Project goals
  - What, when, where, how, who
- Environmental aspects and impacts
  - What are the applicable environmental regulations and whom is responsible
  - Does everyone understand and know this?
- Timeline and Obligations
  - 180 days prior, 90 days prior, 30 days after
  - Make sure team members know target dates for drafts and final deliverables



# Communications

## ➤ Project assignments

- Assign tasks to the correct parties
- Assure there is third party validation and quality control
- IF there are assignments to both internal and outside parties, establish methodology to assure parties come together on periodic basis to assure that there is no major deviations in expectations on deliverables

# Communications

- Team collaboration versus individual assignment
  - If individual, assure that feedback and check-in requirements are established back to PM, project team, etc.
  - If team effort, assure that there is not duplication in efforts and avoid conflicting outputs (e.g. discrepancies in information reported in one area from another such as SPCC and SWPPP)
  - Always allow for and plan for periodic and routine review of assigned tasks/deliverables to overall PM and client representative

# Prioritization

## ➤ Organizing environmental priorities

- What do you tackle first?
- Considerations include:
  - Submittal due date
  - Work involved with effort
  - Resources to start the work
  - Construction schedule



## ➤ Internal versus External Products

- Understand which products/deliverables have priority
- Internal would include items such as SOPs, training docs, compliance calendars
- External would consist of applications, NOIs, agency notifications
- External items may NOT always be higher priority

# Prioritization

- Corporate initiates versus local requirements
  - Will corporate policies/procedures be strictly adhered to (e.g. no outside washing activities, no open bins)
  - Are there site specific requirements/item that must be accommodated (e.g. BMPs, spill response and control procedures)
  
- Recognizing which work/projects should be outsourced or completed internally
  - Third party/consultant efforts (efficiencies, professional expertise, transfer of liability, no capacity for work)
  - Internal efforts (internal staffing with experience, capabilities, cost reduction, capacity for work)

# Integrating Project Teams

- Identify and establish roles
  - Develop a framework of who and what
  - Confirm each persons expectations on the overall project
  - Understand what others are working on
  - Look for synergies on projects (e.g. shared source/background information)
- Communicate effectively
  - Develop mechanisms to encourage information exchange
  - Establish routine check-in and progress updates
  - Solicit and provide confirmation of information delivery
  - Address misunderstandings promptly



# Integrating Project Teams

- Balance work and project load
  - Review project implementation and task completion and rebalance work
  - Review benchmarks and project completion to evaluate if project team needs additional resources
  - Share resources when they become available
  - Be attentive to individual team members carrying too many responsibilities
  - Cross train and share information on projects with others in team to assist as needed
  - Attempt to stay ahead of the work wave

# Closing Thoughts

- Identify all aspects at beginning of project and be prepared to add
- Allow time, then extra time, to pull together drafts and final deliverables
- Be cautious of becoming overly ambitious, some tasks can and should be pursued later in the process
- Information and knowledge is well documented and easily accessible
- Establish a process and project framework and be prepared to change it, and hopefully not abandon it!