

Arkema Inc./Jacobs Sulfox Project Safety Program

No accidents...not by accident!

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Sulfox Project Overview

- **Scope**

- \$100+ million facility co-located at the Beaumont Plant.
- Two chemical production units plus OSBL.
- Schedule: Construction started with site development in January 2003. Mechanical completion 12/04.

- **Project Execution Strategy**

- EPC contract with Jacobs
- Construction: Competitively-bid lump sum sub-contracts for major activities: civil, mechanical, electrical and instrumentation...
- Site supervision: One Arkema construction manager with Jacobs construction management team, included an integrated safety team.

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Sulfox Project Safety Program - Design

- FEL Phase: Preliminary Hazard Review.
- Detailed Design: HAZOP.
- Changes after HAZOP underwent MOC (management of change) procedure.
- Plant siting study.
- Safety Instrumentation System (SIS).
- Constructability reviews.
- Individual studies as needed.

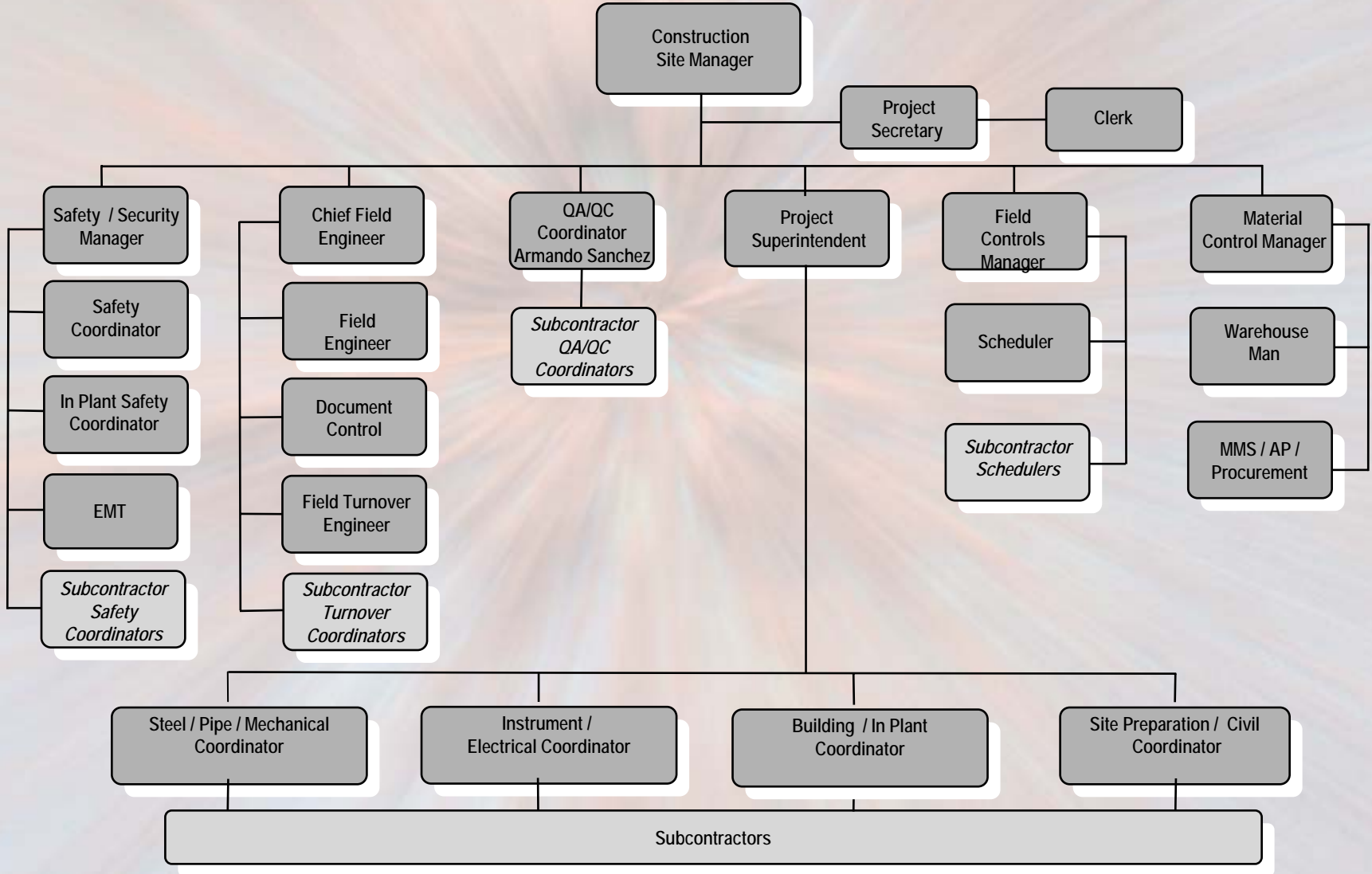
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Sulfox Project Safety Program - Construction

- **Contractor Pre-Qualifications**
 - EMR had to be ≤ 1.0 to bid.
 - Evaluation of Contractor Safety Program.
- **Pre-Task Planning**
 - Site Safety Manual Written.
 - Hazards Assessment and Safety Action Plans.
 - Safety Execution Plan.
 - Job Safety Analyses.
- **Safety Evaluations**
 - Random audits.
- **Accident Investigations and Reports**
- **Training (general and plant specific)**

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SULFOX PROJECT CONSTRUCTION MANAGEMENT



Sulfox Project Safety Program – Safety Drivers

- Two thousand workers were employed over the course of the project and required safety indoctrinations.
- At its peak there were over 400 workers onsite.
- Safety bulletins (Alerts) were distributed on a bi-weekly basis.
- To maintain the high level of safety awareness:
 - 294 safety meetings were held.
 - 2,530 safe plans of action were prepared.
 - 21,000 safety learning observations were recorded.
 - 31,000 safety observation reports were written.

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Sulfox Safety Incentive Program

- **Kick-off meeting with each sub-contractor**
 - Commitment board and ball caps.
- **Safety communications**
 - Scoreboard.
 - Newsletters.
 - Alerts.
- **Employee safety recognition**
 - Gifts for crews, individual performance, suggestions, safety meeting participation.
- **Monthly safety meeting breakfasts**
 - Review performance and safety topic.
- **Lunches for milestone achievements**
 - Quarterly for zero sitewide recordables.

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SAFETY ALERT

LADDER SAFETY

ATOFINA Sulfox Project Alert #016

April 8, 2004

A ladder must be used properly and according to the manufacturer's guidelines. When proper precautions are not taken, accidents can happen. Read and follow all instructions and labels accompanying each ladder.

Two factors that deserve particular attention are proper ladder selection and electrical shock precautions:

Pay close attention to the Duty Rating of the ladder and the combined weight of the user and materials. Select a ladder with the proper capacity. Also, be sure to select a ladder of proper height to reach the work area without overextending.

Be aware of wires, electrical devices and live electrical circuits. Metal ladders conduct electricity and can create a danger of electrocution. Failure to read and follow instructions regarding electrical safety could result in serious personal injury or death.



Inspection Before Each Use

1. Inspect upon receipt and before each use. If a ladder limb is damaged, bent or broken, replace; all working parts must be in good working order.
2. Make sure all rivets and joints, nuts and bolts are tight, feet, steps and rungs are secure, spacers and pull shelf function properly on step ladders and rung, hooks, rope and pulley are in good condition (on extension ladders).
3. Keep ladder clean, free from grease, oil, mud, snow, wet paint and other slippery material. Keep your shoes clean. Leather soles should not be used.
4. Never make temporary repairs of damaged or missing parts.
5. Destroy, remove and tag any ladder if damaged, worn or if exposed to fire or chemical corrosion.

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Sulfox Project Safety Program – Safety Record

- Had a two-day stand-down after significant potential events to improve procedures, training and supervision.
- With 700,000+ man-hours, there were no recordable injuries.



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Sulfox OSHA VPP Program



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Sulfox OSHA VPP Construction Pilot Program

- Short Term Construction (>3 mo.)
 - Construction company dependent .
(Phase I Company Qualifies).
 - Can be implemented by construction contractor on any facility performing construction (with client approval).
 - Data accumulation for contractor.
 - Each project gets VPP (Phase II audit).
 - STAR Program.

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VPP Certification Procedure

Phase I

1. Identify Project Eligibility for Participation.

Phase II

2. Ensure commitment for the project is established.
3. Provide detailed information for self evaluation process.
4. Conduct Corporate VPP evaluations.
5. Coordinate OSHA VPP Team to visit projects.
6. Receive VPP Star Demonstration Status!

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OSHA VPP Impact on Project

- Project management is accountable for work site analysis, hazard prevention, and control.
- The safety work process is integrated into the project at every phase (Phases 1-6).
- Project management leads safety commitment and employee ownership.
- Project management ensures the Subcontractor Safety Management Process is implemented prior to awarding subcontracts and followed through during construction.
- Project management ensures employees, subcontractors, and owners are trained, understand and are aligned with our Jacobs/Arkema Project Safety Process.

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Sulfox OSHA VPP Construction Pilot Program

Four areas were audited by OSHA:

- Mgmt. Leadership & Employee Involvement.
 - Worksite Analysis.
 - Hazard Prevention and Control.
 - Safety and Health Training.
- OSHA VPP certification received in February 2004.



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Sulfox OSHA VPP: Management Leadership & Employee Involvement

- Written Safety and Health Plans.
- Management Commitment and Leadership.
- Planning.
- Employee Involvement.

JACOBS		SAFE PLAN OF ACTION	PROJECT NO.

(JVEP-30F1)			
Job/Task	-----		Work
Area	Date	-----	
Task	Hazard/Reaction	Safe Plan	Resources

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Sulfox OSHA VPP: Worksite Analysis

- Management Understanding.
- Baseline Hazard Analysis.
- Pre-Use, Routine and Non-Routine Analyses.
- Routine Inspections.
- Hazard Reporting System.
- Accident/Incident Investigations.

SAFETY OBSERVATION REPORT
(SOR)

Date: _____ Time: _____

Observation: _____

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Sulfox OSHA VPP: Hazard Prevention and Control

- Disciplinary System.
- Emergency Procedures.
- Prevention/Predictive Maintenance.
- PPE.
- Occupational Health Care Program and Record-keeping.
- Process Safety Management.

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Sulfox OSHA VPP: Benefits to Arkema

- Safe and Injury-Free Workplace.
- Enhanced Safety Program.
- Safer Subcontractor Workforce.
- Enhanced Community Relations.
- More Productive Worksite.
- Lower Insurance Premiums.

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