



## US ARMY CHEMICAL MATERIALS AGENCY

U.S Army Chemical Materials Agency  
Scheduling and Risk Management

Presented: Chemical Weapons Demilitarization Conference

Presented: Mr. Gary Goldsmith

Date: May 2007

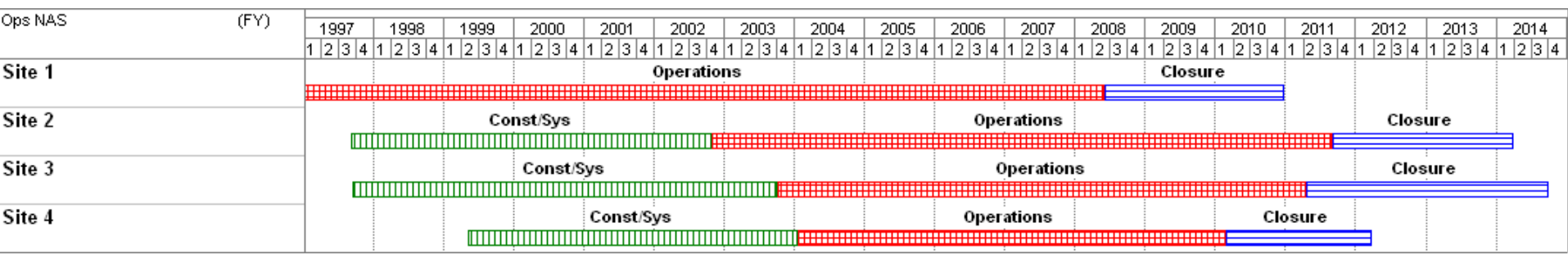


## US ARMY CHEMICAL MATERIALS AGENCY

- Chemical Weapons Facilities:
  - Daily operations managed by private contractors
  - Maintain detailed project schedules
  
- Chemical Materials Agency:
  - Managing the incinerator/neutralization facilities
  - Not working-level schedules
  - Historical based estimates, not the programmatic plan
  - Programmatic historic used for all facilities
  - Schedules used to:
    - » Establish achievable schedule/cost estimates,
    - » Identify schedule risk and opportunities,
    - » Facilitate contract schedule negotiations,
    - » Gauge performance,
    - » Set expectations of programmatic milestones with external stakeholders



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Previous Estimate

- Based on the Systems Contractor's estimate
- Included aggressive processing rates
- Included minimal time for downtimes
- Did not include risks

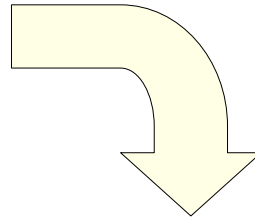


# New Schedule Estimate Methodology

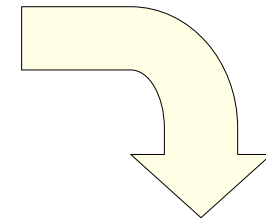
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- Components of new schedule methodology:

Historic Processing  
& Historic  
Downtime



Known Risks

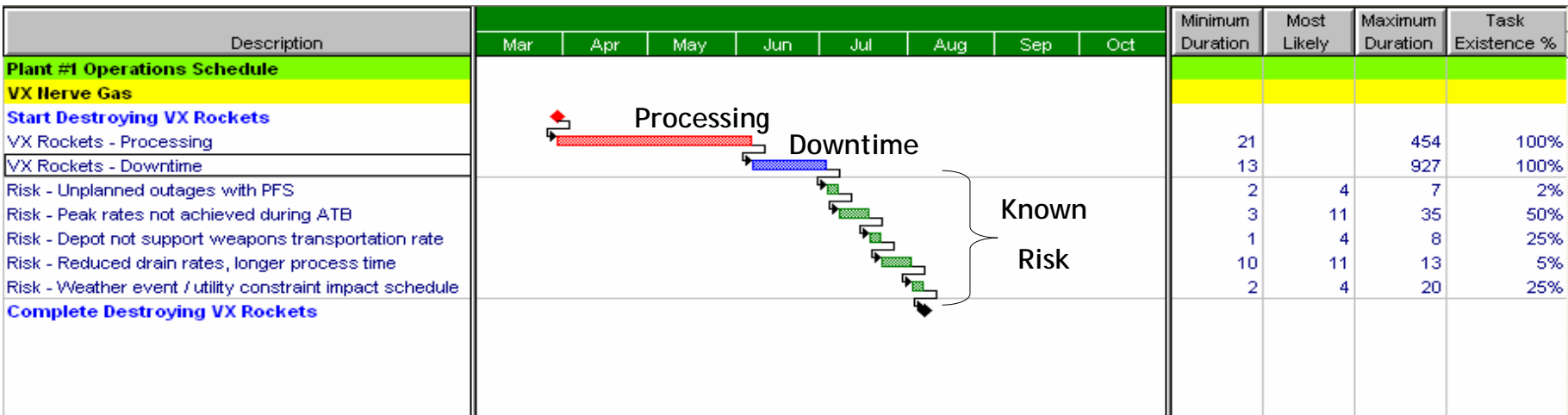


Schedule Logic



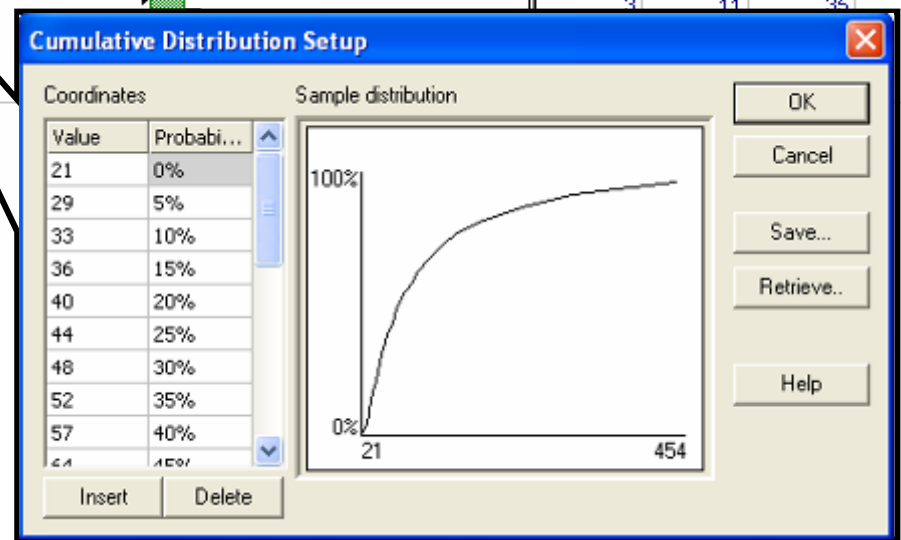
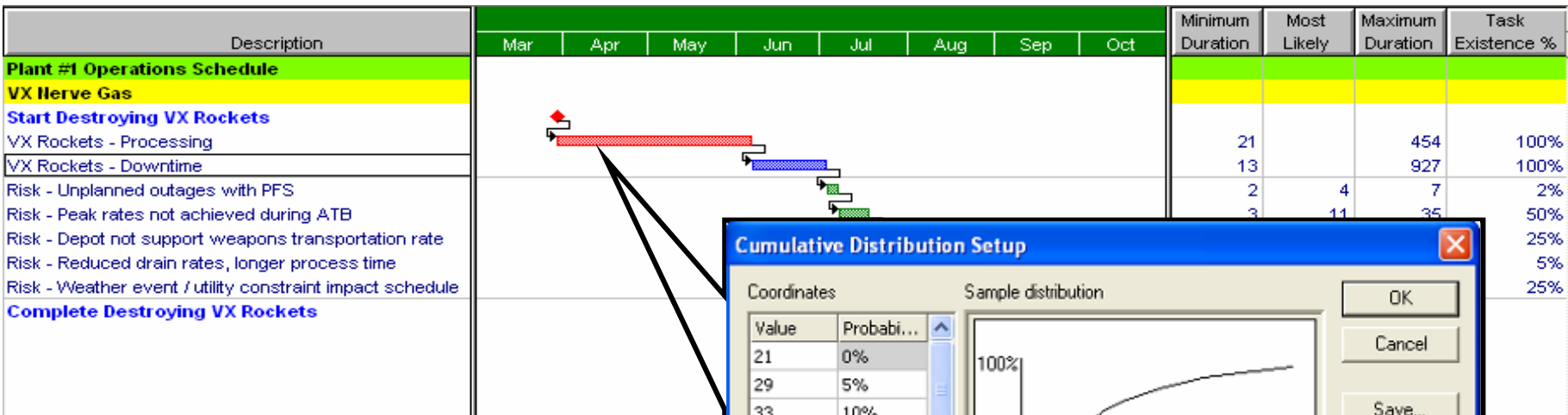
# Schedule Components

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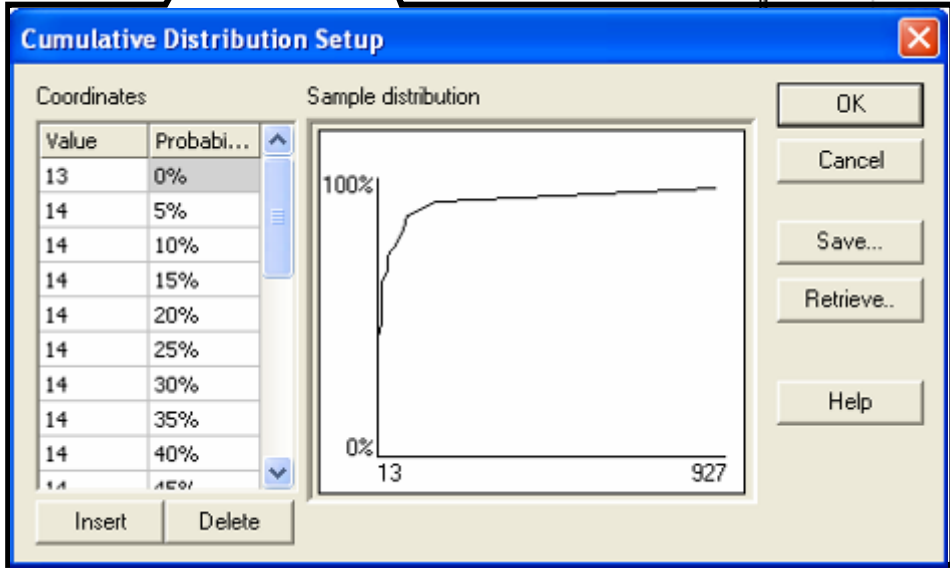
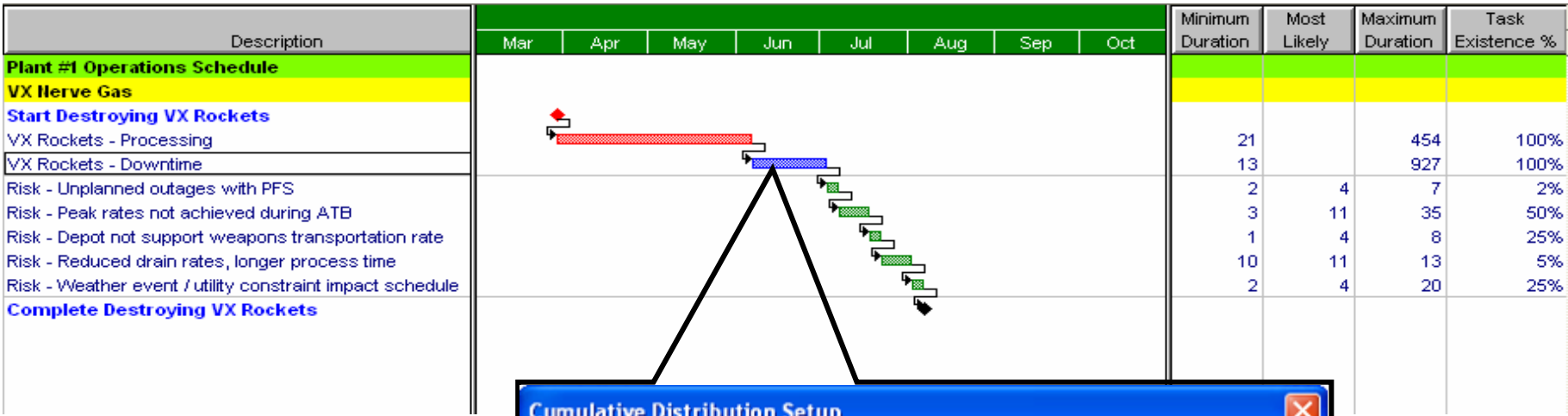


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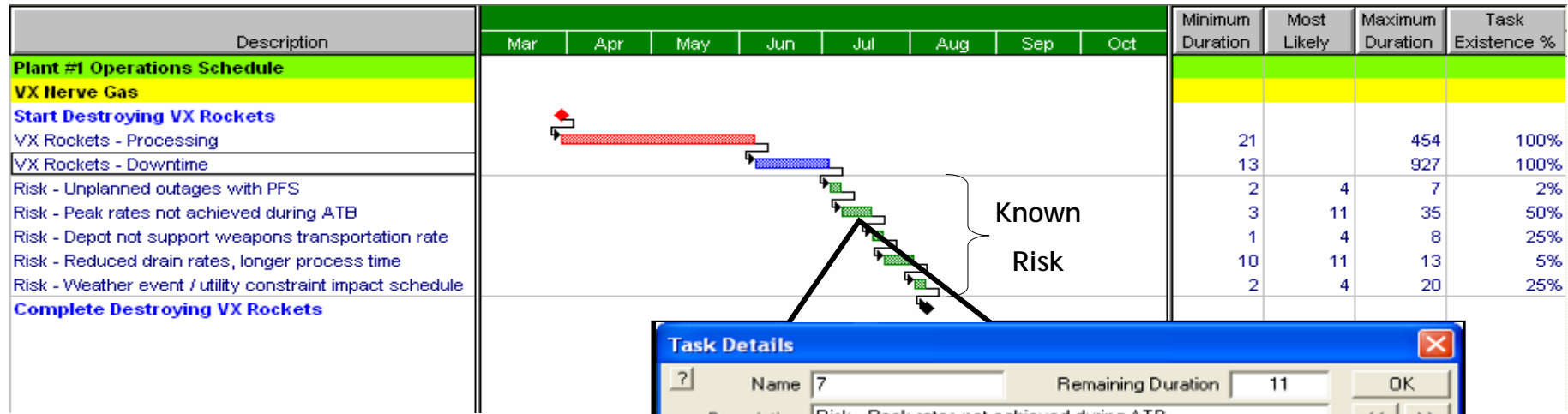


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**Task Details** ✖

Name: 7 Remaining Duration: 11 OK

Description: Risk - Peak rates not achieved during ATB << >>

General | Dates | Links | Resources | Costs | Risks | User Fields | Splits

Duration | Existence | Resources | Probabilistic Branch | Probabilistic Links

Sample Distribution

Triangle(3,11,35)

Risk On

Distribution: Triangle

Minimum: 3

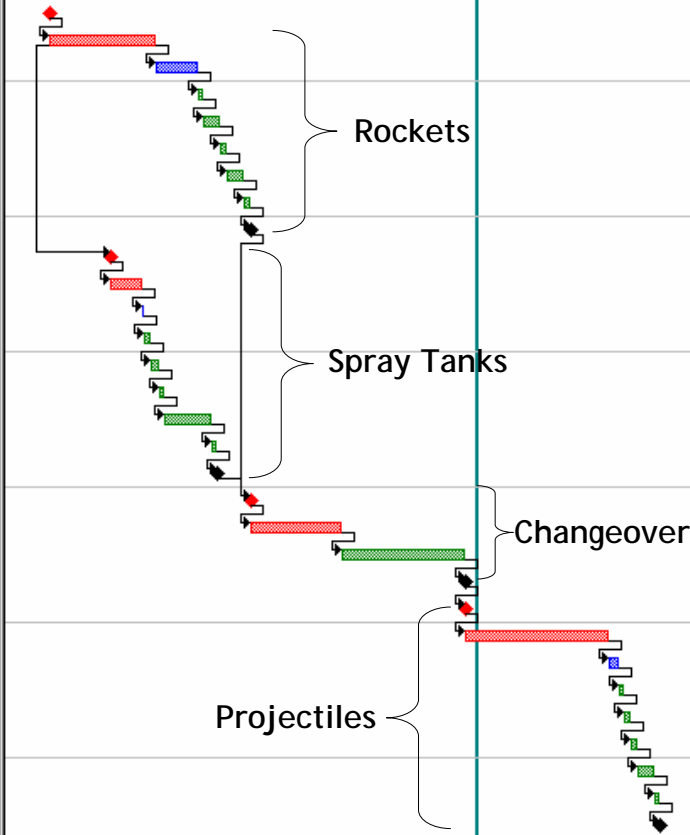
Most Likely: 11

Maximum: 35



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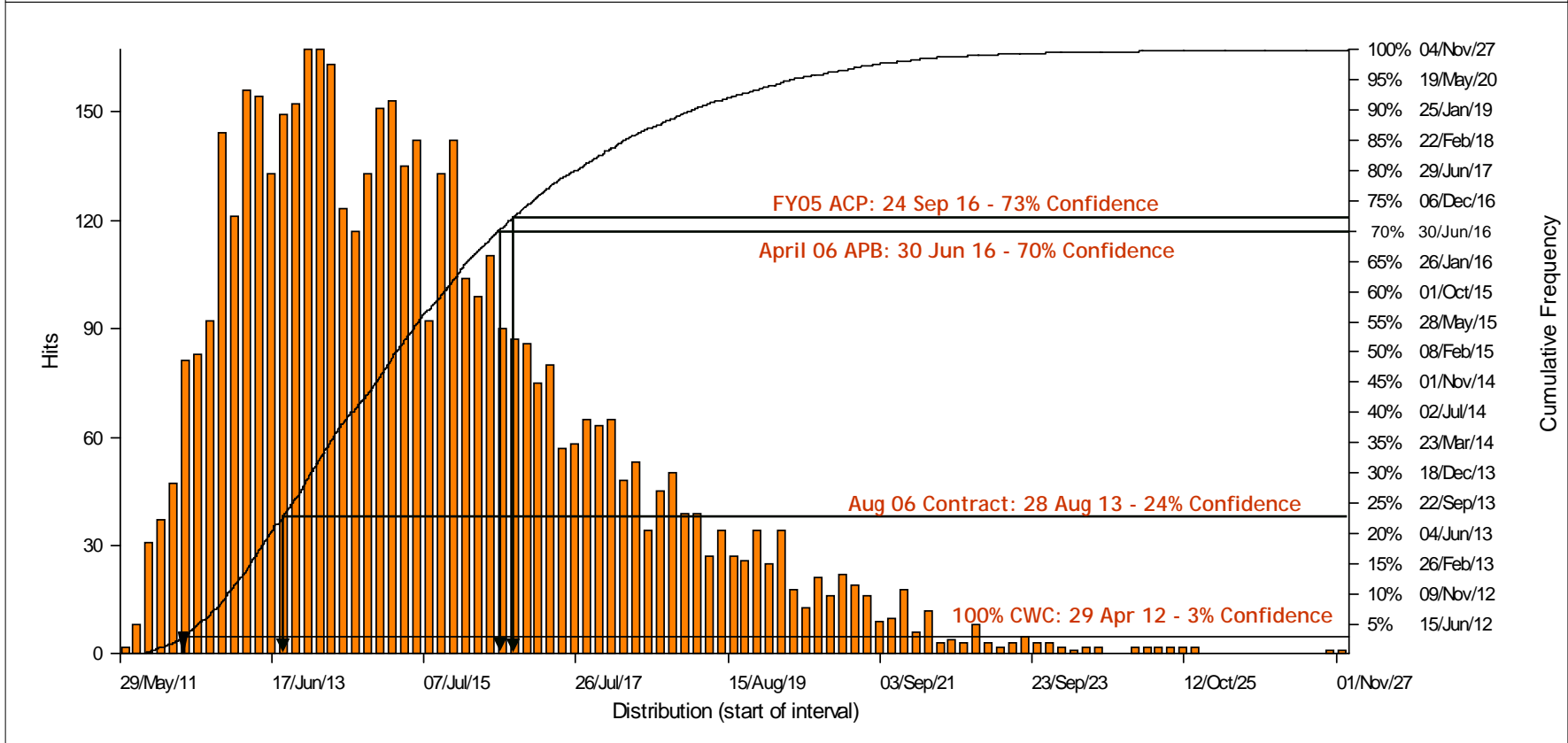
Name	Description	2009												Minimum Duration	Most Likely	Maximum Duration	% Iterations Existed
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb				
<b>1</b>	<b>Plant #1 Operations Schedule</b>																<b>100%</b>
<b>2</b>	<b>VX Nerve Gas</b>																<b>100%</b>
<b>3</b>	<b>Start Destroying VX Rockets</b>																<b>100%</b>
4	VX Rockets - Processing													21		454	100%
5	VX Rockets - Downtime													13		927	100%
6	Risk - Unplanned outages with PFS													2	4	7	2%
7	Risk - Peak rates not achieved during ATB													3	11	35	50%
8	Risk - Depot not support weapons transportation rate													1	4	8	25%
9	Risk - Reduced drain rates, longer process time													10	11	13	5%
10	Risk - Weather event / utility constraint impact schedule													2	4	20	19%
<b>11</b>	<b>Complete Destroying VX Rockets</b>																<b>75%</b>
<b>12</b>	<b>Start Destroying VX Spray Tanks</b>																<b>0%</b>
13	VX Spray Tanks - Processing													9		156	100%
14	VX Spray Tanks - Downtime													1		26	100%
15	Risk - Unplanned outages with PFS													2	4	7	2%
16	Risk - Reduced operating hours from HRA analysis													1	5	11	50%
17	Risk - Depot not support weapons transportation rate													1	4	8	75%
18	Risk - Reduced drain rates, longer process time													27	30	36	5%
19	Risk - Weather event / utility constraint impact schedule													2	4	20	25%
<b>20</b>	<b>Complete Destroying VX Spray Tanks</b>																<b>100%</b>
<b>21</b>	<b>Start Plant Changeover</b>																<b>0%</b>
22	Plant Changeover-VX Rockets to VX 155mm Projectiles													53	59	71	100%
23	Risk - Stakeholders external to program impact schedule													2	80	180	9%
<b>24</b>	<b>Complete Plant Changeover</b>																<b>0%</b>
<b>25</b>	<b>Start Destroying VX 155mm Projectiles</b>																<b>0%</b>
26	VX 155mm Projectiles - Processing													33		758	100%
27	VX 155mm Projectiles - Downtime													5		253	100%
28	Risk - Unplanned outages with PFS													2	4	7	2%
29	Risk - Peak rates not achieved during ATB													4	4	84	25%
30	Risk - Depot not support weapons transportation rate													1	4	8	75%
31	Risk - Reduced drain rates, longer process time													10	11	13	5%
32	Risk - Weather event / utility constraint impact schedule													2	4	20	25%
<b>33</b>	<b>Complete Destroying VX 155mm Projectiles</b>																<b>100%</b>





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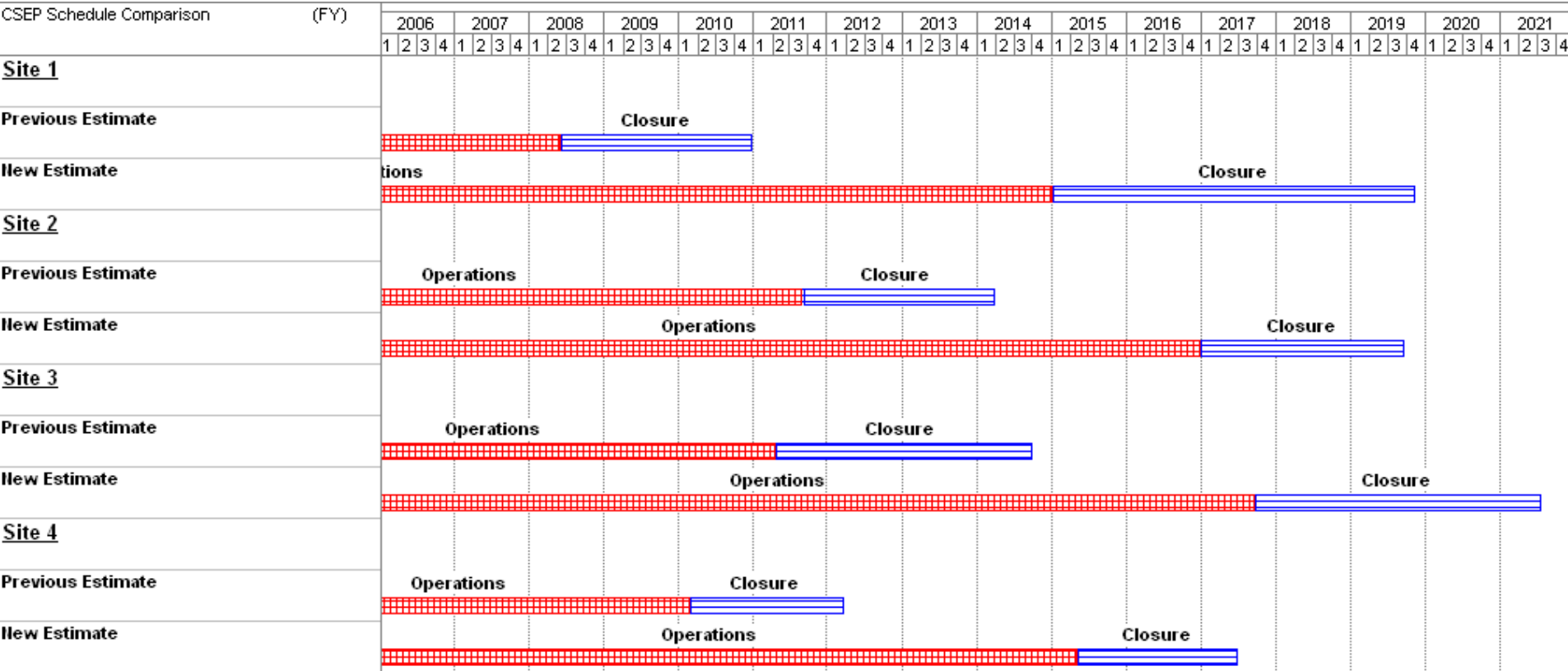
### Complete Mustard Processing/Complete Operations





# Previous Estimate versus New Estimate

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- Risk Pilot Program
  - Developing Risk Register
  - Include Programmatic Level Risk
- Transition from risk loaded schedules to risk management
  - Assigning Risk Ownership
  - Documenting Risk Mitigation Plans
  - Trade Space
  - Improved Risk Analysis
  - Risk Accounting



- Transitioning to an enterprise culture
- Programmatic level risk
- Parallel vs. serial risks
- Assess historic data for continued application to the future
- Using risk-based schedules may falsely set expectations to far in the future (“self-fulfilling” prophecy)
  - Managing the future impact of historical downtimes
- Continue to enhance CMA enterprise’s use of this management tool



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Contact info:

Gary Goldsmith - [Gary.Goldsmith@US.Army.Mil](mailto:Gary.Goldsmith@US.Army.Mil)