

Deltek. | ACUMEN

Session T6

Improving the Reliability and Achievability of the Project Plan

> Phil Shatz Deltek Acumen Business Development philshatz@deltek.com



Agenda

Acumen Market and Version 5 Features Technip Case Study Demo, if time allows



// DNA of Project-Led Organizations

Our Target Audience

Two key factors

- "Doing right projects..."
- "Doing projects right..."

Acumen has focused on enabling projects to better plan and hence execute CAPEX spend

Prevent unforeseen contingency drawdown.



// Acumen Fuse[®] Initial Product

Launched

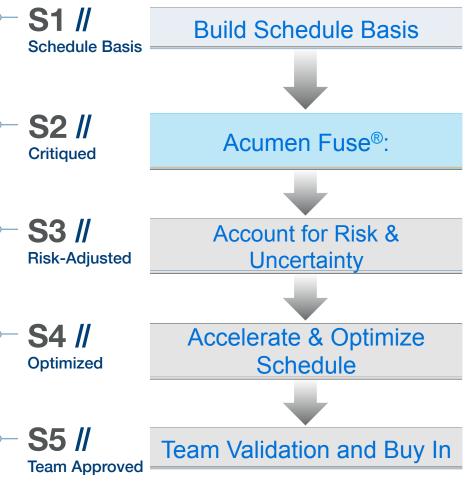
• 1 January 2010

Given Focus

Project diagnostics

Objective

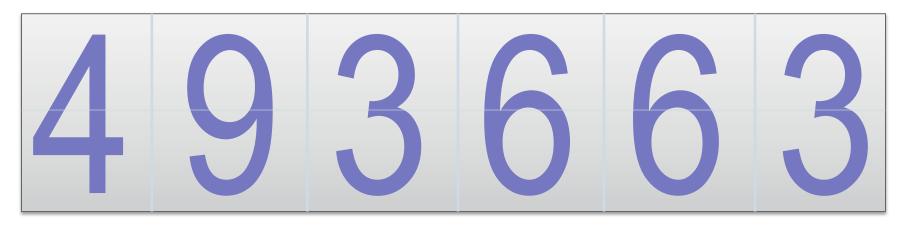
Structural integrity



// Acumen Fuse[®] Analyses

Industry Adoption

... and counting

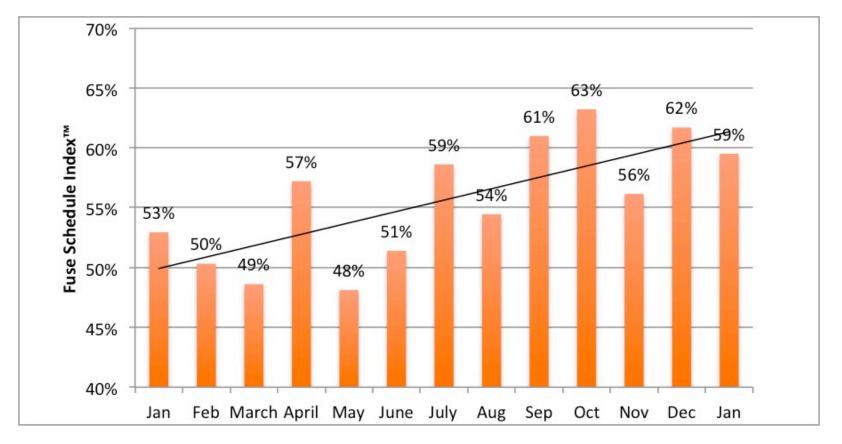


| Schedule Inc and File Converte | dex [™] Calculatoı ¤ | e 🔒 |
|-----------------------------------|---|------------------------------------|
| | er of Fuse diagnosti full Fuse capabilitie | |
| Click to add file | / | Analyze Project |
| Fuse Index Score | Percentile Ranking | Success Probability |
| | | JN/CEFACT XML 🕨 ummary report 🕨 |

// We're Making a Difference

Fuse Schedule Index™

Average gone from 50's to low 60's

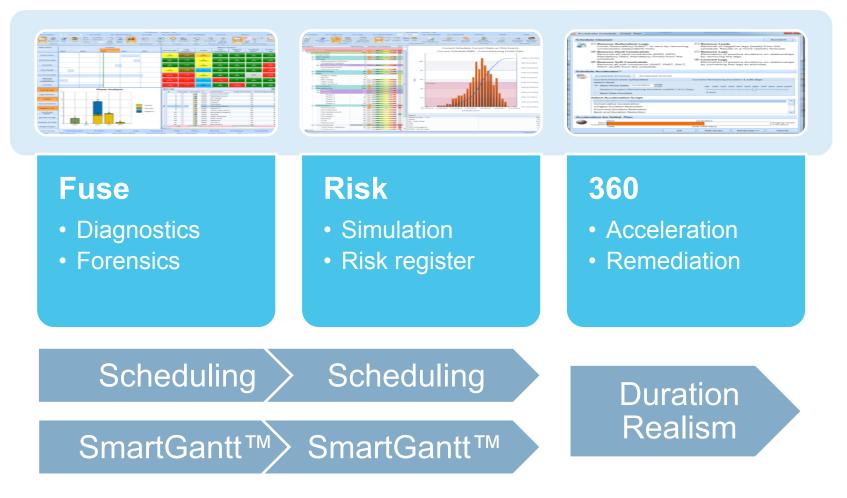


Acumen Fuse®

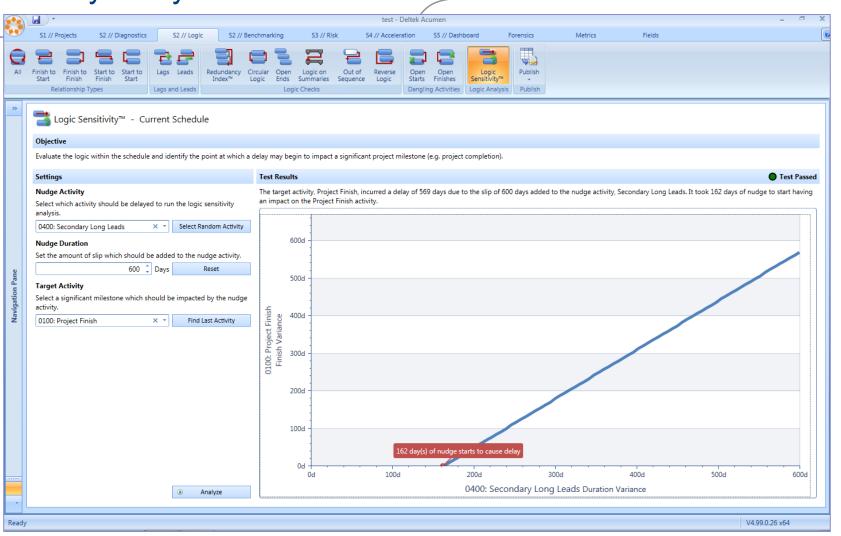
Project Diagnostics



// Acumen 5.0 Headline Features



// Logic Sensitivity Delay Analysis



Deltek ACUMEN

True insight into 'pressure points' in your schedule

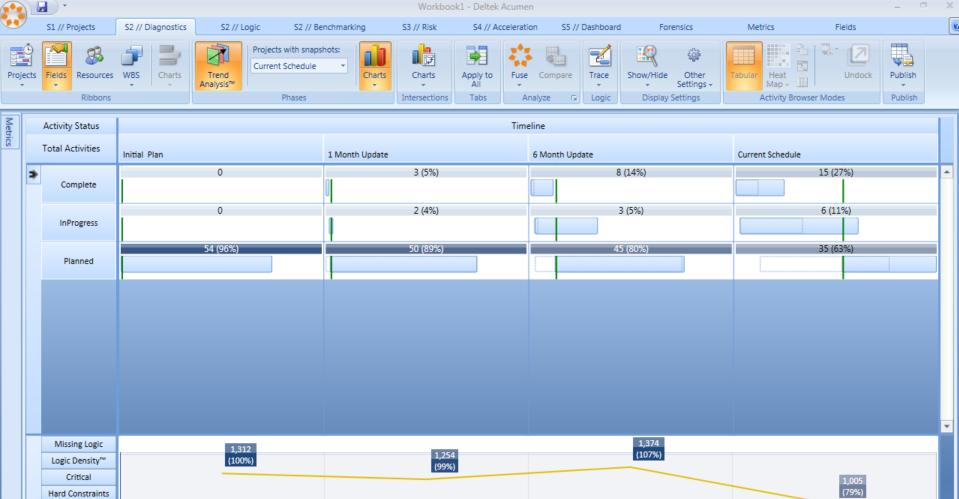
// 3D-Schedule Analysis

- Trend Analysis
- Horizontal ribbons
 Excellent for drill down
 Single project trending
 Not designed to visualize

trending between updates...

| | | | Workt | book1 - Deltek Acume | n | | | | | | |
|---------------|--|---|------------------|----------------------------------|------------------|------------------|--------------------|-------------------|---------------------|--------------------|-----------------------------|
| / Diagnostics | S2 // Logic | S2 // Benchmarking | s S3 // Risk | S4 // Accelerati | on S5 | // Dashboard | d I | Forensics | | Metrics | |
| Charts | Trend Analysis ⁷⁴ Start Finish Interva | 1/1/2010* 2/4/2014* Years Add Phases | Reset Charts | Charts Apply to All Interse Tabs | Fuse (| Compare /ZE G | Trace Logic | Show/His Displ | Se Other Setting | Tab | ular Hea Map Activity |
| | | Timeline | | | | | | | Ribbon / | Analyzer | _ |
| | | | | | Missing | Logic | Critical | Hard | Negative | Insufficie | |
| | 2011 | 2012 | 2013 | 2014 | Logic | Density"" | 0.000 | Constra | Float | nt Deta | of Lags |
| | | | | | 11 (20%) | 2.21 | 22 (54%) | 4 (7%) | 16 (39%) | 0 (0%) | 30 (54%) |
| | | | | | 12 (23%) | 2.15 | 24 (45%) | 4 (8%) | 2 (456) | 0 (0%) | 29 (55%) |
| | | | | | 11 (20%) | 2.18 | 33 (63%) | 4 (7%) | 11 (21%) | 0 (0%) | 30 (55%) |
| | | | | | 11 (20%) | 2.21 | 34 (71%) | 4 (7%) | 11 (23%) | 0 (0%) | 30 (54%) |
| | | | | | | | | | | | |
| 7 (33%) | 0 | 2 (8%) | 1 (7%) | 1 (100%) | Missing L | ogic in 201 | 10 (7) | | | | |
| 2.14 | 2.17 | 2.27 | 2.27 | 1.00 | | Excluded | d Annotate | ld | | Des | scription |
| 0 (0%) | 0 (0%) | 10 (38%) | 12 (80%) | 1 (100%) | | 1 🗉 | | 0110 | | Pro | ect Start |
| 2 (10%) | N/A 0 | 2 (10%) 16 (54%) | 0 (0%) 0 (0%) | 0 (0%) 0 (0%) | | 2 🔟 | | 0140 | | | uirements |
| 0 (0%) | N/A | 0 (0%) | 0 (0%) | N/A | - | 3 1 | | 0170 | | | A review |
| 11 (52%) | 0 | 15 (75%) | 3 (21%) | 1 (100%) | | 5 | | 0150 | | | louse scen hnical revie |
| 0 (0%) | • | 1 (5%) | 1 (7%) | 0 (0%) | | 6 | 5 | 0190 | | | nmerical re |
| 0 (0%) | N/A | 1 (5%) | 0 (0%) | 0 (0%) | 7 | | The state | | | | |
| | 0% cs Duration Comparison nt w/EV Method | | | | oat med Value | Status Ea | Plan smed Value | | | ogress med Sche | Con |

Deltek ACUMEN



| | | (99%) | |
|----------|---------------------|---|-------------------------------------|
| | Critical | | 1,005 (79%) |
| | Hard Constraints | | (79%) |
| Phase | Negative Float | | |
| Ise A | Insufficie | | |
| Analyzer | Number of Lags | | |
| Zer | Number of Leads | | |
| | Merge Hotspot | | |
| | Days Remaining | | |
| | Days Completed | Initial Plan 1 Month Update 6 Month Update | Current Schedule |
| | Score | | |
| | Schedule Quality | Characteristics Duration Logic Lags Constraints Float Status Planned | In-Progress Completed |
| | Baseline Compliance | e Scenario Comparison Cost Risk Inputs Risk Exposure Earned Value Earned Value Wo | rk Earned Schedule Work / Resources |
| | DCMA 14 Point | DCMA 14 Point w/EV Method 7 Float 🛅 | |

November 29, 2013 13

// S1 Scheduling

- □Not re-inventing CPM
- □Scheduling/analysis synergy
- Providing one-stop shop
 - Analysis
 - Schedule manipulation



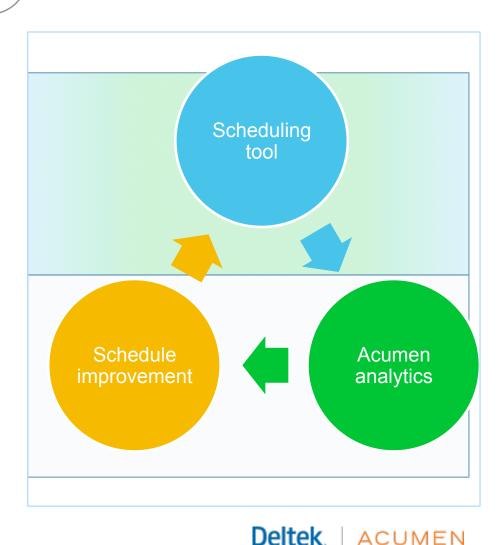


// Benefit of Having S1 in Acumen

Closing the Loop

- Diagnose shortcomings and improve schedule realism
 - Fuse cleansed
 - 360 accelerated
 - Risk-adjusted (E.G. P75)
 - Re-calibrated
 - User-updated

□Reduces cycles



| • | | | | | | | | | W | orkbook1 - Delt | ek Acumen | | | | | | | | | - | . • | Х |
|-----------------|-----|------------------|-----------|------------|---------------|-------------|-------------|-------------|---------|-----------------|--------------|----------|---------|-------------|---------------|---------|------------|------|----------|------|------|----|
| | | S1 // Projects | S2 // | Diagnostic | s 52 // | Logic | S2 // Ben | chmarking | S3 // R | isk S4 // | Acceleration | S5 // D | ashboar | rd | Forensics | | Metrics | | Fields | | | C |
| » | Ac | tivities - Workt | book1 | | | | | | | | | | | | | | | | | | | |
| | Fil | ters | | | | | | | | | | | | | | | | | | | 1 | × |
| | 7 | Timeline | | Id | | Descriptio | n | Start | | Finish | A Re | emaining | Ţ | Calibrat | ion | G | antt Chart | | | | | |
| | т | | | | | | | | | | | | | | | | | | | | | |
| | | - | | 1 | Workbook1 | Workbook | đ | 1 | /1/2010 | 2 | /4/2014 | 706d | L. | | | | 2010 | 2011 | 2012 | 2013 | 2014 | 1 |
| | | ē | | Cur | rent Schedule | Current So | hedule: | 1 | /1/2010 | 2 | /4/2014 | 504d | Ţ | % (1 | | - 3 | | | | | 2 | |
| | | 8 | | Cur | rent Schedule | Current So | hedule: | 1 | /1/2010 | 2 | /4/2014 | 504d | Ţ | % (1 | | | | | | | 2 | 4 |
| | | | | | | Project Sta | | 1 | /1/2010 | 1 | /1/2010 | 0d | | | | | | | | | | |
| | | Đ | | Curren | t Schedule.0 | Early Desig | gn | 6/. | 14/2010 | 9/ | 28/2010 | 0d | | | | | <u> </u> | | | | | 4 |
| | | 9 | | Curren | t Schedule.0 | Concept | | 1 | /1/2010 | 3 | /1/2012 | 0d | Ţ | % (1 | | | | | Ϋ́ | | | 4 |
| | | | | | 0140 | Requireme | ents Defi | 1 | /1/2010 | 1/ | 14/2010 | 0d | | | | | | | | | | _ |
| | | | |] | 0130 | Competiti | ve Analysis | 1/. | 15/2010 | 1/ | 21/2010 | 0d | | | | | | | | | | |
| | | | • | Curren | t Schedule.0 | Alternate | scenario | 1/. | 22/2010 | e | /7/2010 | b0 | | | | | τ. | | | | | 1 |
| | • | | | | 0190 | Commeric | al review | 6/. | 17/2010 | 6/ | 20/2010 | 0d | | | | | 0 | | | | | 4 |
| | | | | - | | Technical | | | 10/2010 | | /1/2012 | 0d | | | | | | | | | | |
| e | | 9 | | | t Schedule.0 | Detailed D | Design | | /9/2010 | | /7/2012 | 48d | Ţ | 6 | | | ě | | - | | | 1 |
| n Pa | | | | | 0290 | | | | /9/2010 | | /6/2010 | 0d | | | | | i | | | | | - |
| atio | | | | | | Communi | cations | | /1/2012 | | /7/2012 | 5d | | | | | | | | | | - |
| Navigation Pane | | | | | | Support | | | 14/2010 | | /8/2012 | 6d | | | | | | | | | | - |
| z | | | | | | Topside | | | 15/2012 | | 24/2012 | 30d | | | | _ | _ | | | | | - |
| | | | | | | Electrical | | | 22/2010 | | 30/2012 | 20d | | <u>a</u> | | _ | | • | | | | - |
| | | | | - | | Interfaces | | | 28/2010 | | /7/2012 | 25d | | <u>6</u> | | | | 0 | | | | |
| | | E | | | t Schedule.0 | FEED | | | 12/2010 | | /8/2012 | 48d | | | | | <u> </u> | | | | | |
| | | ÷ | | Curren | t Schedule.0 | Procureme | ent | 2 | /1/2010 | 10 | /4/2012 | 155d | Ţ | | | | - | | | • | | - |
| | • | | | | | | | | | | | | | | | | | | | | • | _ |
| | 01 | .90 - Commerica | al review | | | | | | | | | | | | | | | | | | 1 | * |
| | G | General Status | Relation | onships | Duration Unc | ertainty | Costs Ris | sk Events | | | | | | | | | | | | | | |
| | ſ | Duration | | | | | | Status | | | | | | | Constraints | | | | | | | |
| | | | _ | | | | | 1 | | | | | | | | | | | | | | 11 |
| | | Remaining | | | | | 0d | Status | Comp | | | | | | Primary | Nor | ie | | | | ~ | |
| | | Remaining (Ela | psed) | | | | 0w | Start | | 6/17/2010 - | Finish | 6/2 | 0/2010 |) ~ | Primary Date | | | | | | ~ | |
| | | Total Float | | | | | 0d | Early Start | | 3/1/2012 - | Early Finish | 3/ | 1/2012 | 2 - | Secondary | Nor | ie | | | | ~ | |
| | | Free Float | | | | | 0d | Late Start | | 2/4/2014 - | Late Finish | 2/ | 4/2014 | | Secondary Dat | e | | | | | - | |
| | | | | | | | | Actual Star | t | 6/17/2010 - | Actual Finis | h 6/2 | 0/2010 | | | | | | | | | |
| | | | | | | | | Suspend | | ~ | Resume | | | - | | | | | | | | |
| | | | | | | | | | · | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

// SmartGantt[™] Less Effort, More Insight

Traditional Gantt Chart

- □ Huge amounts of data
- □ Excessive scrolling
- □ Manual color coding
- □ Tedious filter creation

SmartGantt

□ Analysis consumption

Automatic Analysis Filters

- Metrics
- Forensics
- Risk exposure

□ Predictive Visualization

Acumen Risk[™]

Breaking the Mold



<mark>// Acumen Risk</mark>™

Integrated Cost/Schedule Analysis

- Integrated risk register
- □Very fast analysis
- □Uncertainty Factor™
- □Uses native schedule
- □Intuitive reporting

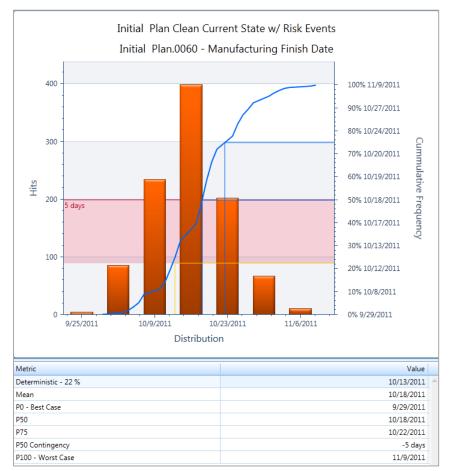
Designed for collaborative project risk workshops

| | Description | Remaining | Duration Uncertainty | | Gantt Chart |
|----|--------------------|-----------|----------------------|-----|-------------|
| e | Initial Plan Clean | 1,043 | | Ē | 2010 2011 |
| in | Initial Plan | 1.043 | | | 2010 2011 |
| | Project Start | 0 | | | |
| I | Concept | 250 | | | · |
| I | Early Design | 175 | | | |
| I | FEED | 81 | | | |
| I | Detailed Design | 140 | | | |
| 0 | Base | 20 | 7 05 | | |
| 0 | Support | 20 | | | |
| 0 | Electrical | 45 | | | |
| 0 | Topside | 30 | | | |
| 0 | Interfaces | 35 | | | |
| 0 | Communications | 5 | | | |
| I | Procurement | 159 | | | |
| I | Manufacturing | 104 | | | |
| I | Construction | 393 | | | |
| 0 | Preliminaries | 20 | | ∎ ⊞ | |
| 0 | Site Clearance | 20 | | | |
| 0 | Site Establishme | 30 | | | |
| 0 | First Wave | 40 | 6 | | |
| 0 | Foundation | 20 | · | | |
| 0 | Electrical | 40 | | | |
| 0 | Civils | 100 | | | |
| 0 | Mechanical | 50 | | | |
| I | Commissioning | 119 | | | |
| | Handover | 0 | | ⊞ | |
| | Project Finish | 0 | | | |

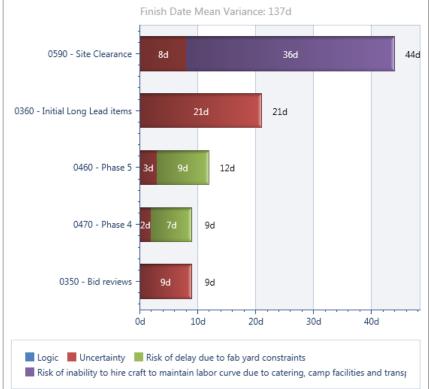
Deltek ACUMEN

// Risk Reporting Done Properly

Risk Exposure

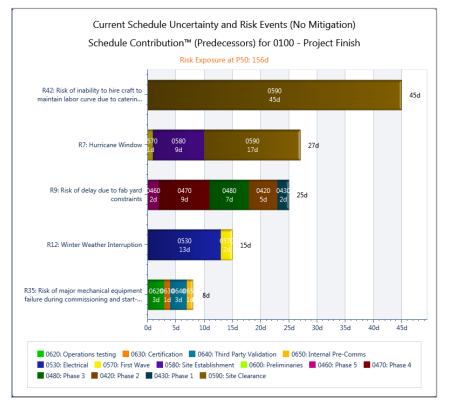


Risk Contribution Factor™



// Other Reports

Risk-Based Tornadoes



| | | | | | | | | Workt | book1 | - Acumen F | use | | | | | | |
|------------|----------|---------|-------|-------------|---------------------------------------|----------------|-------|--------------------|-------|------------|---|-------------------------|-----------|----------|-------------|------------|-----------|
| 52 // Dia | gnostics | | S2 // | Logic | S2 // Benchr | narking | | S3 // Risk | | S4 // Acc | eleration | S5 // Dash | board | Forensic | s | Metric | 5 |
| | | - | | 3 | - | 9 | 8 | 4 | | | | 1000 | | | | | |
| | | ock Al | | Santt C | hart Risk eme - Adviser** | Run I Analy | | Build cenario + | | | sk Matrix emplate | Create Cost Estimate | Publish | | | | |
| | | ctiviti | | | enter Portaer | Printing | Analy | | | Templat | | Risk Model | s Publish | | | | |
| 1 | Remaini. | I | | Durati | on Uncertainty | Type | | % | CLT | 1 | | | | | | | |
| | | | - | | | Jps | | | | | Cur | rent Sch | edule Ur | ncertair | nty and | Risk Ev | ents (N |
| le | 70 | 6 | | 0 | | | | | | - | Cu. | 51% | cuure e. | | ing and | | |
| hedule | 70 | 6 | | . 0 | 1 | 1 | | | | | | 21% | | | | | |
| pt | | 0 | | . 0 | | | | | | | | | | | | | |
| Design | | 0 | | | | | | | | | | | | | | | |
| | 6 | 9 | | 2 10 | i i i i i i i i i i i i i i i i i i i | | | | | | \$5.008 | 3 | | | | | |
| ed Design | 6 | 8 | | 6 | | | | | | | | | | | | • | |
| ase | | 0 | | | | | | 100 % | | | 8) | | 150 | | | | L day |
| ommuni | | 5 | | 6 | | | ⊞ | 100 % | | | JS (| | | | | | |
| terfaces | 2 | 5 | | a 10 | | | ⊞ | 100 % | | | S4.806 | 3 | | | | • | |
| ectrical | 2 | D | | | | | = | 100 % | | | 8 | | | | . 7 | | 2.0 |
| opside | 3 | 0 | | 2 BS | | | ⊞ | 100 % | | | ST II | | | | | • • • | |
| upport | | 6 | | | | | 曲 | 100 % | | | S | | | | | | |
| rement | 21 | 7 | | 6 | | | | | | | に む よ 54.608 | | | | | -8 ; | - |
| facturing | 10 | 6 | | 3 10 | | | | | | | 2 34.000 | , <u> </u> | | | | | |
| omestic | 10 | 6 | | | | | | | | | šisk | | | | | 8 | |
| ffshore | 6 | 3 | 21 | . 0 | | | | | | | osti | | | | | | |
| Phas | 2 | 0 | | 60 | | | | 100 % | | | õ | | | | | | |
| Phas | 1 | 5 | | 6 | | | | 100 % | | | 9 \$4.408 | 3 - | • | | . 8. | 2 9 | |
| Phas | 1 | 0 | | 6 | | | | 100 % | | | 8 | | | | | 24 | 111 |
| Phas | | 5 [| | b E | | | | 100 % | | 3 | LostRiskSheet-CostRiskSheet: Cost in Billions (B) 00975 00975 | | | | | | |
| Phas | | 5 | | 6 | | | | 100 % | | | COS | | | | E al | 1 | 199 |
| ruction | 31 | 5 | | 3 10 | | 1 | | | | | \$4.206 | 3- | • | 50 | . 8 | 1 | 100 |
| lectrical | 4 | 0 | | b 83 | | | ⊞ | 100 % | | | | • | | | | | 155 |
| lechanical | 5 | - | | 6 | | | ⊞ | 100 % | | | | 1 | | | | | 13 8 |
| ivils | 4 | 0 | | 8 10 | | | = | 100 % | | | | 1 | • | | 00 00 | 28 | - |
| oundation | 2 | 0 | | b 85 | | | ⊞ | 100 % | | | \$4.008 | | | | • • | | |
| rst Wave | 4 | D | | 6 | | | ⊞ | 100 % | | | 34.000 | 10% | | | | | |
| te Establ | 3 | 0 | | a 163 | | | ⊞ | 100 % | | | 11 | /25/2013 | 12/25/20 | 13 | 1/24/2014 | 2/. | 23/2014 |
| te Clear | 2 | 0 | | a 10 | | | | 100 % | | | | | Cu | rent Sch | hedule-C | urrent | Schedule |
| reliminar | 4 | 0 | | 6 | | | 田 | 100 % | | | | | | | | | |
| issioning | 10 | 5 | | 3 10 | | | | 18 A | | * 17 D | eterministi | value (P10) | V Ourd | rants 🕅 | Inint Confi | idence I e | vel (JCL) |

Scatter Chart (JCL)

// Risk Adviser™

Artificial Intelligence

- Assigning uncertainties is inherently difficult
- Solved complexity with uncertainty sliders
- Advice based on
 - Schedule quality
 - Historical performance
 - Value of user defined field

| | | Description | | Remaining | Ţ | Duration | Uncertainty | Туре |
|--------------------|-----------|--------------------|---------|-----------------|--------|---------------|-------------|------|
| | | | | | | | | |
| | 0370 | Vendor B | | 15d | Ţ | A OFF | | |
| | 0680 | Vendor C | | 20d | | A OFF | | |
| | 0350 | Bid reviews | | 30d | Ţ | A OFF | | |
| Current Sche | | Manufacturing | | | | A OFF | | |
| 🕒 Current Schedu | ıle.0060 | Offshore | | | Ţ | A OFF | | |
| Current Schedu | ıle.0060 | Domestic | | 236d | Ţ | A OFF | | |
| | 0430 | Phase 1 | | 4d | Ţ | A OFF | | |
| | 0420 | Phase 2 | | 10d | Ţ | A OFF | | |
| | 0480 | Phase 3 | | 5d | | A OFF | | |
| | 0470 | Phase 4 | | 15d | Ţ | A OFF | | |
| | 0460 | Phase 5 | | 20d | | A OFF | | |
| Current Sche | dule.0070 | Construction | | 460d | | <u>A</u> 1055 | | |
| | 0600 | Preliminaries | | 40d | | A OFF | | |
| | 0590 | Site Clearance | | 20d | | A OFF | | |
| | | Site Establishme | nt | | | <u>A</u> [055 | | |
| | | | | | | | | |
| blishment | | | | | | | | |
| | _ | | | | _ | | | |
| tatus Relationship | os Durat | ion Uncertainty | Cost | s Risk Events | 5 | | | |
| Duration | | 30d Pro | babili | ty of Existence | | | 100 % | |
| tion Uncertainty | v | Dis | tributi | on Type | Triang | gle | - | |
| emaining Duration | | | | | | 30d | 100 % | |
| Remaining Duration | | | | | | 30d | 100 % | |
| emaining Duration | | | | | | 45d | 150 % | |
| | Uncertain | ty set to very ago | pressiv | e due to poor s | chedu | le quality | | |
| | | | | | | | | |

Deltek ACUMEN

// SmartGantt[™] Intelligent Risk Reporting

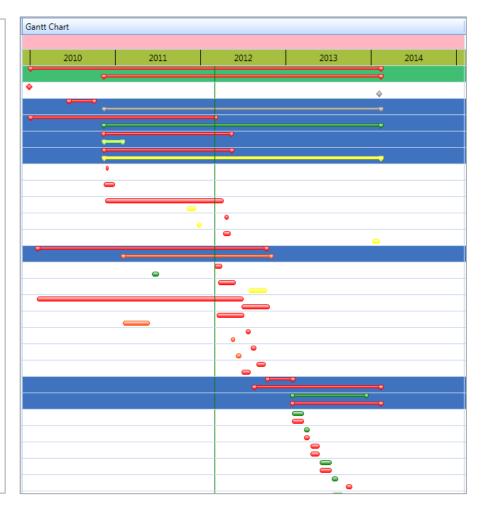
□Show risk dates

Compare risk & deterministic schedules

□Show hot spots

□Show true drivers vs

perceived risk



Acumen 360[™]



// Acumen 360[™] Acceleration & Remediation

October 2011

Focus

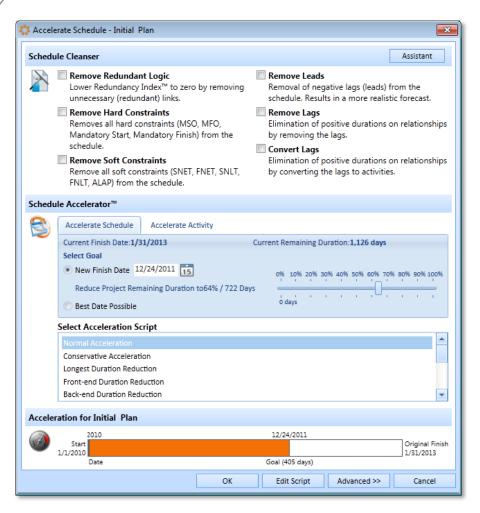
- Acceleration
- Decision Support



// Acumen 360[™]

□In the US, one in four Fuse users

- □Schedule recovery
- Three modes
 - Automatic: critical path
 - Targeted: user criteria
 - Interactive
 - Real-time analysis
 - Instant schedule changes
 - o Deceleration too!



// Schedule Realism Advisor™

Automatic Schedule Calibration

Fuse ensures structural integrity but doesn't address realism

Realism Advisor takes into account

- Schedule quality
- Historical performance
- Metric e.g. cost overrun
- Field e.g. risk exposure

| 🛟 Sci | hedule Realism Adviser™ | |
|-------|---|--|
| Use | Schedule Realism Adviser™ - Cu the Schedule Realism Adviser™ to suggest adju | irrent Schedule Scenario istments to calibration based on different criteria. |
| M | ode | |
| 0 | Schedule Quality - Fuse Schedule Index™ | |
| ۲ | Historical Performance (Baseline vs Current) | |
| 0 | Metric | Logic Hotspot [™] |
| 0 | Field | Remaining Duration 🔹 |
| Su | Value | Uncertainty |
| Þ | <-0.5 | Requires much more time |
| | <-0.1 | Requires more time |
| | <0.1 | Realistic |
| | | Requires less time |
| | >0.5 | Requires much less time |
| | | |
| | с | Calculate Advice Cancel |

Duration realism

Structural integrity

Scope firmness



| | . | | | | | | Workbook | 1 - Deltek Acume | en | | | | | | × |
|-----------------|--------------|------------------|-------------------------|-------------|----------------------|--------------------|------------------------------|------------------|---------------------|-----------------|-----------------------|---------------|---|-----------|---|
| | S1 // Pro | ojects | 52 | // Diagnost | ics S2 // Logic | S2 // Benchmarking | S3 // Risk | S4 // Accelerati | ion | S5 // Dashboard | Forensics | Metrics | Fields | | |
| Micros Proje | | racle avera + | Micros Excel® Get | oft Deltek | n® 💮 UN/CEFACT | project | Schedule | | enario (port Sc | enario | imartGantt"/ Views | e Display | Delete Project Convert Snaj to Project Editing | | |
| » | Activities - | Curre | nt Sched | lule Scena | rio | | | | | | | | | | |
| | Project Inf | formati | ion | | | | | | | | | | | | - |
| | Filters | | | | | | | | | | | | | | - |
| | Timeline | • | | Id | Description | Start | Finish 🔺 | Remaining | Ţ | Calibration | Gantt Chart | | | | |
| | т | | | | | | | | ~ | | | | | | |
| | | | | Current | Current Schedule | 1/1/2010 | 1/31/2014 | 501d | | | | | | _ | - |
| | | - | | 0110 | Project Start | 1/1/2010 | 1/1/2010 | 0d | | | ٠ | | 4 | | |
| | | • | | Current | Early Design | 6/14/2010 | 9/28/2010 | 0d | | | | | • | | |
| | | • | | Current | Concept | 1/1/2010 | 3/1/2012 | 0d | | A OFF | •••• | | • | | |
| | | • | | Current | Detailed Design | 11/9/2010 | 5/10/2012 | 50d | | A OFF | ••• | | | | |
| | | Ð | | Current | FEED | 11/12/2010 | 5/31/2012 | 66d | | A OFF | ••• | | | | |
| | | | | Current | Procurement | 2/1/2010 | 9/26/2012 | 149d | | A OFF | | ~ | | | |
| | | | | 0380 | Vendor A | 6/6/2011 | 7/6/2011 | 25d | Ţ | | | • | | | |
| Navigation Pane | | | | 0400 | Secondary Long Le | 3/1/2012 | 5/17/2012 | 60d | Ţ | | | - | - | | |
| ion | | | | 0360 | Initial Long Lead it | 3/1/2012 | 6/26/2012 | 90d | Ţ | | | - | _ | | |
| rigat | | | | 0370 | Vendor B | 7/3/2012 | 7/23/2012 | 15d | | | | • | 0 | | |
| Nav | | | | 0680 | Vendor C | 7/23/2012 | 8/17/2012 | 20d | Ţ | | | | | | |
| | • | | | 0390 | Long Lead | 2/1/2010 | 9/3/2012 | 142d | | A DEE | | 0 | _ | | |
| | | | | 0350 | Bid reviews | 8/17/2012 | 9/26/2012 | 30d | | | | • | • | | |
| | | • | | Current | Manufacturing | 10/1/2012 | 1/22/2013 | 233d | <u> </u> | | | | | | |
| _ | | | | Current | Construction | 1/22/2013 | 12/2/2013 | 457d | | | | | · · · · · · · · · · · · · · · · · · · | - | 4 |
| | | | | 0600 | Preliminaries | 1/22/2013 | 3/14/2013 | 40d | | | | • | · _ | | _ |
| | | | | | Site Clearance | 3/14/2013 | 4/10/2013 | 20d | | | | | • | | - |
| | | | | | Site Establishment | 4/10/2013 | 5/20/2013 | 30d | | | | | • • | | - |
| - | | | | | First Wave | 5/20/2013 | 7/10/2013 | 40d | | | | | - - | | - |
| - | | | | | Foundation | 7/10/2013 | 8/6/2013 | 20d | | | | | | | - |
| - | | | | | Electrical | 7/10/2013 | 9/2/2013 | 40d | <u> </u> | | | | | | - |
| - | | | | | Civils | 8/6/2013 | 9/26/2013 | | | | | | - | | - |
| - | _ | | | | Mechanical | 9/26/2013 | 12/2/2013 | | | | | | | • | |
| | _ | ±- | | | Commissioning | 9/2/2013 | 12/13/2013 | | | | | | ↓ · · · - | | 4 |
| | | | | | Handover | 12/24/2013 | 12/24/2013 | | | | | | • | \$ | + |
| | | <u> </u> | | 0100 | Project Finish | 1/31/2014 | 1/31/2014 | 0d | | | | | • | | - |
| Ť | • | | | | | | | | | | | | | • | |

Ready

Technip Case Study



Technip Subsea Case Study using Acumen



11-Sept-13 Presenters: Cesar Ramos & Pat Smith

Deltek. | ACUMEN

Acumen Technip SS Case Studies - 11-Sept-13

Presenters

Cesar Ramos

 Technip's North American Subject Matter Expert for Planning/Scheduling & Earned Value. He has a dual role as the Technip North American Onshore Business Unit Leader. Has experience in Offshore & Subsea as well.

Pat Smith

 Technip's North American P6 Administrator. Also has a dual role as the Technip North American Subsea Business Unit Leader. Has Onshore & Offshore experience as well.



Technip at a Glance

Technip is a world leader in project management, engineering and construction for the energy industry.

From the deepest Subsea oil & gas developments to the largest and most complex Offshore and Onshore infrastructures, our 38,000 people are constantly offering the best solutions and most innovative technologies to meet the world's energy challenges.

Present in 48 countries, Technip has state-of-the-art industrial assets on all continents and operates a fleet of specialized vessels for pipeline installation and subsea construction.

Technip shares are listed on the NYSE Euronext Paris exchange and traded in the USA on the OTCQX marketplace (OTCQX: TKPPY).

Quick Facts

- •Technip is active in three business segments: Subsea, Offshore and Onshore
- ■38,000 people in <u>48 countries</u>
- Industrial assets on five continents
- A fleet of 28 vessels in operation and 8 more under construction
- ■2012 operating income from recurring activities: €821.7 million
- ■2012 revenues of more than €8.2 billion
- Technip is listed on Euronext Paris (EURONEXT: FR0000131708)

Technip Worldwide

Main Locations in the World



Technip & Acumen History

- Technip started using Acumen Fuse in 2009.
- Acumen was officially incorporated into Technip North America's Schedule Review Procedure in 2010.
- Technip Schedule Review Procedure consists of the following:
 - Compliance with Technip standards of EPC schedule development
 - Compliance with PMBOK & AACE.
 - Technip follows Acumen Metrics [250] which include; PMI, AACE, DCMA, & others
- Technip has acquired the full Acumen Suite which has Acumen Risk.
- After a Technip/Acumen presentation in a conference in Brazil 2013, Technip Corporation has acquired over 25+ Acumen Licenses Globally.





Technip Subsea EPCI Schedule Analysis

Acumen Analysis on 11-Oct-12 Started at 4:15pm and lasting a total of 2hrs 20min





Acumen Technip SS Case Studies - 11-Sept-13

Recognizing the Need for Analysis

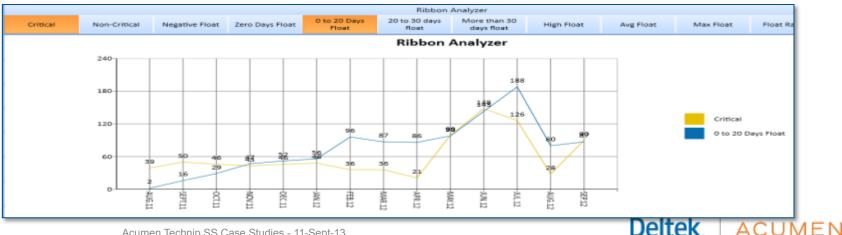
A full Subsea EPCI contract was awarded. As the project progressed, delays started occurring to the project which delayed Engineering Deliverables & began to impact Offshore Mobilization Date & Critical Equipment Delivery.

- Engineering Delays required forensic analysis of all possible impacts to these delays.
- Initial analysis provided belief that the client had impact to these delays.
- Upon further research the evidence was clear.
- In order to support a change order, to prove the impact, the business unit required supporting details and analysis.
- The initial attempt was to review the depletion of float, that was caused by the client.

Analyzing with Acumen

Once the need was recognized, a small peer group to explore the limitations of Acumen. Gathering all files, the business unit had to compare all project files to see how we could prove this.

- Acumen Phase Analyzer does not produce overlapping graphs over a timeline. This was confirmed by Acumen.
- Acumen recommendation was to export to Excel for further graph modifications
- The planner had saved all monthly updates as baselines. So as it was suggested that we take every baseline and compare as snapshots.
- With this we were able to emulate the graph functions out of Acumen as a timeline.
- See example below Float Ribbon Analyzer [count per time]



Implementing the Concept of Analysis

Each snapshot represented an updated cycle.

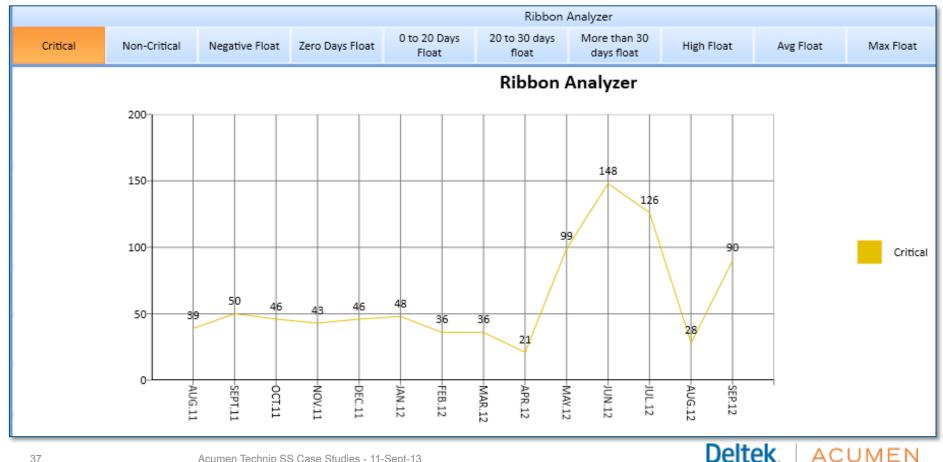
In order to emulate this function we had to do the following:

- Imported 14 XER files to Acumen, one for each month
- XER name is then the time stamp
- Then produced a comparison of multi files named as months.
- Acumen gives a timescaled graph

Critical Float [count of activities]

Our immediate place to compare was the Float depletion & behavior.

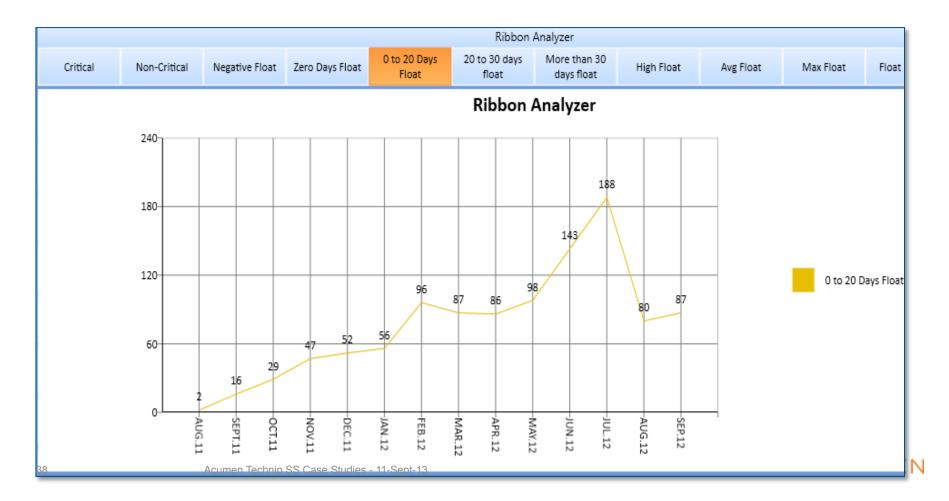
- As you can see in the example, there was a substantial jump in critical float count.
- Gave cause for further investigation



0 to 20 Days Float [count of activities]

Our next place to compare was further Float depletion & behavior.

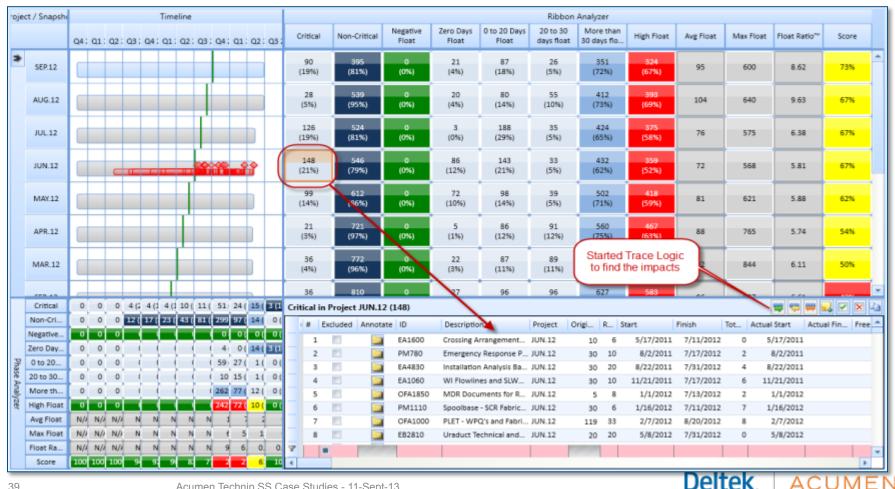
•0 to 20 Days Float [count of activities] pulled up anomalies.



Ribbon & Trace Logic

Ribbon & Trace Logic allowed us to dissect indicators.

Tracing the peak critical, then started looking at the IFC drawings.



Trace Logic Backwards Analysis

Trace Logic allowed us to dissect indicators.

Here is where the indicator of Client Review cycles extended beyond contractual agreements.

| Annotate | ID | Description | Project | Original D | Re | Start | Finish | Total Float | Actual Duration | Actual | Start | Actual Finish |
|-----------|--------|---|---------|--------------|----|-------------|-----------|-------------|-----------------|--------|----------|---------------|
| <u>in</u> | A1230 | Contract Award | JUN.12 | 0 | (|) 11/8/2010 | 11/8/2010 | | 0 | 0 1 | 1/8/2010 | 11/8/2010 |
| <u>in</u> | A1020 | Deliverable Kickoff | JUN.12 | 0 | (|) 1/1/2011 | 1/1/2011 | | 0 | 0 | 1/1/2011 | 1/1/2011 |
| <u>in</u> | A1210 | Project Team Kickoff | JUN.12 | 0 | (|) 1/10/2011 | 1/10/2011 | | 0 | 0 1 | /10/2011 | 1/10/2011 |
| 2 | EA4570 | Mobilize Engineering Team | JUN.12 | 5 | (|) 1/10/2011 | 1/14/2011 | | 0 | 51 | /10/2011 | 1/14/2011 |
| <u>in</u> | EA4580 | Assign Roles and Responsibilities | JUN.12 | 5 | (|) 1/14/2011 | 1/20/2011 | | 0 | 5 1 | /14/2011 | 1/20/2011 |
| <u>in</u> | EA4590 | Begin Engineering Package Process | JUN.12 | 30 | (|) 1/24/2011 | 3/3/2011 | | 0 2 | 29 1 | /24/2011 | 3/3/2011 |
| <u>in</u> | EA4810 | Installation Analysis Basis of Design - IFR | JUN.12 | 40 | (|) 2/7/2011 | 3/24/2011 | | 0 8 | 33 | 2/7/2011 | 3/24/2011 |
| | EA4820 | Installation Analysis Basis of Design - Client Review | JUN.12 | 10 | (|) 3/24/2011 | 8/19/2011 | | 0 10 |)4 3 | /24/2011 | 8/19/2011 |
| | EA4830 | Installation Analysis Basis of Design - IFC | JUN.12 | 30 | 2 | 8/22/2011 | 7/31/2012 | | 4 21 | 19 8 | /22/2011 | |
| | | lient Review cycles contractually were 1 e took almost 5 months. As futher rese review cycles took beyond the contr | earched | l almost all | | | | | | | | |

Trace Logic Export to Excel

Trace Logic export to Excel allows for further analysis.

Using Excel with combinations of Filters, Sorts, & Conditional Formatting allows us to find exact details.

| | Fuse | Analyst Report Analy | | | | | | | | | | | |
|---|--|--|---|--|--|--|--|--|--|---|---|---|------------------|
| Subsea Sch | edule | Analysis 11-Oct-12_3.19pm - 19696 Activities | | | | | | | | | | | |
| Float | | | | | | | | | | | | | |
| Created on: | :: 9/11 | /2013 | | | | | | | | | | | |
| Created by: | : cesra | amos | | | | | | | | | | | |
| | | | | | | | | | | | 1 | | |
| | | SEP.12: Detailed View | | | | | | | | | T | | |
| Critical | | | | | | | | | | | | | |
| Number of | critica | l activities. | | | | | | | | | | | |
| Excluded | ID | Description | Original Duration | Start | Finish | Total Float | Finish Variance | Actual Duration | Duration Variance | | Baseline Finish | Actual Start | Actual Finish |
| FALSE | _ | Anode Installation Procedure and ITP - Client Review / Ap | 10.00 | | 10/11/2012 | | | 91.00 | | | | 5/18/2012 | |
| FALSE | - | Initiation Pile Installation Procedure - Client Review / Ap | 10.00 | | 10/11/2012 | 10 | | 71.00 | | | 7/31/2012 | | |
| FALSE | _ | Sleepers Loadout Procedure - Client Review / Approval | 10.00 | | 10/17/2012 | 10 | | 0.00 | | | 10/17/2012 | | |
| TABL | 200 | steepers could arrocative energy approval | 10.00 | 10/4/2012 | 10/11/2012 | | | 0.00 | 10.00 | 10/4/2012 | 10/11/2012 | | |
| Non-Criti | cal | | | | | | | | | | | | |
| Number of | non-c | ritical activities. | | | | | | | | | | | |
| Excluded | ID | Description | Original Dur | Start | Finish | Total Floa | at | Actual D | uration | Baseline Sta | Baseline Fir | Actual Sta | Actual |
| FALSE | EA48 | Production and WI Flowlines Normal Lay Installation Anal | 10.00 | 9/7/2011 | 10/11/2012 | 174 | -387 | 269.00 | -259.00 | 9/7/2011 | 9/20/2011 | 9/7/2011 | |
| EALOE | | | | | | | | | | | | | |
| FALSE | EA44 | Concrete Mattress Installation Procedure - Client Review | 10.00 | 10/21/2011 | 10/11/2012 | 169 | -342 | 236.00 | -226.00 | 10/21/2011 | 11/4/2011 | ########## | |
| FALSE | - | Concrete Mattress Installation Procedure - Client Review ON1, ON2 Umbilicals Installation Analysis Report - Client I | 10.00 | | 10/11/2012 | 169 109 | | 236.00 128.00 | | | | | |
| | EB10 | | | 3/28/2012 | | | -182 | | -118.00 | 4/2/2012 | 4/12/2012 | | - |
| FALSE | EB10 PM1 | ON1, ON2 Umbilicals Installation Analysis Report - Client | 10.00 | 3/28/2012 4/4/2012 | 10/11/2012 | 109 | -182 -171 | 128.00 | -118.00 -113.00 | 4/2/2012 4/17/2012 | 4/12/2012 5/1/2012 | 3/28/2012 4/4/2012 | |
| FALSE FALSE | EB10 PM1 PM1 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A | 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 | 10/11/2012 10/19/2012 | 109 169 | -182 -171 -154 | 128.00 123.00 | -118.00 -113.00 -84.00 | 4/2/2012 4/17/2012 5/7/2012 | 4/12/2012 5/1/2012 5/18/2012 | 3/28/2012 4/4/2012 5/15/2012 | |
| FALSE FALSE FALSE | EB10 PM1 PM1 EA42 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A | 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 | 10/11/2012 10/19/2012 10/19/2012 | 109 169 169 | -182 -171 -154 -121 | 128.00 123.00 94.00 | -118.00 -113.00 -84.00 -84.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 | |
| FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / | 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 | 109 169 169 174 | -182 -171 -154 -121 -121 | 128.00 123.00 94.00 94.00 | -118.00 -113.00 -84.00 -84.00 -81.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 | |
| FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 EA43 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client | 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 | 109 169 169 174 169 | -182 -171 -154 -121 -121 -128 | 128.00 123.00 94.00 94.00 91.00 | -118.00 -113.00 -84.00 -84.00 -81.00 -78.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 6/5/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 EA42 EA43 EA43 EA47 EB21 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client SLWR VIV Fairings Installation Procedure - Client Review / | 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 | 109 169 169 174 169 169 | -182 -171 -154 -121 -121 -128 -141 | 128.00 123.00 94.00 94.00 91.00 88.00 | -118.00 -113.00 -84.00 -84.00 -81.00 -78.00 -77.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/21/2012 5/10/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 6/5/2012 5/23/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 EA43 EB21 EB21 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proc | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 5/30/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 | 109 169 169 174 169 169 164 | -182 -171 -154 -121 -121 -128 -141 -114 | 128.00 123.00 94.00 94.00 91.00 88.00 87.00 | -118.00 -113.00 -84.00 -84.00 -81.00 -78.00 -77.00 -74.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/21/2012 5/10/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 6/5/2012 5/23/2012 6/12/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 EA43 EB21 EA43 EB17 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proc Sleeper Installation Procedure - Client Review / Approva | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/15/2012 5/23/2012 5/23/2012 5/24/2012 5/30/2012 7/10/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/4/2012 | 109 169 169 174 169 169 164 10 | -182 -171 -154 -121 -128 -141 -114 -35 | 128.00 123.00 94.00 91.00 88.00 87.00 84.00 | -118.00 -113.00 -84.00 -84.00 -81.00 -78.00 -77.00 -74.00 -48.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/21/2012 5/10/2012 5/30/2012 8/22/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 6/5/2012 5/23/2012 6/12/2012 9/6/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 5/30/2012 7/10/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 EA43 EB21 EA43 EB17 EB20 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proc Sleeper Installation Procedure - Client Review / Approval Flexible Jumpers Anodes Fabrication ITP - Client Review / | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 5/30/2012 7/10/2012 7/11/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/4/2012 10/11/2012 | 109 169 174 169 169 169 164 10 39 | -182 -171 -154 -121 -128 -141 -114 -35 -48 | 128.00 123.00 94.00 91.00 88.00 87.00 84.00 58.00 | -118.00 -113.00 -84.00 -84.00 -81.00 -78.00 -77.00 -74.00 -48.00 -47.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/21/2012 5/10/2012 5/30/2012 8/22/2012 8/13/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 6/5/2012 5/23/2012 6/12/2012 9/6/2012 8/24/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 5/30/2012 7/10/2012 7/11/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 EA43 EB21 EA43 EB17 EB20 EA41 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proc Sleeper Installation Procedure - Client Review / Approval Flexible Jumpers Anodes Fabrication ITP - Client Review | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/15/2012 5/28/2012 5/24/2012 5/30/2012 7/10/2012 7/11/2012 7/16/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/4/2012 10/11/2012 | 109 169 174 169 169 169 164 10 39 164 | -182 -171 -154 -121 -128 -141 -114 -35 -48 -76 | 128.00 94.00 94.00 91.00 88.00 87.00 84.00 58.00 57.00 | -118.00 -113.00 -84.00 -84.00 -78.00 -77.00 -74.00 -48.00 -43.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/10/2012 5/30/2012 8/22/2012 8/13/2012 7/16/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 5/23/2012 5/23/2012 6/12/2012 9/6/2012 8/24/2012 7/27/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 5/30/2012 7/10/2012 7/11/2012 7/16/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 EA42 EA43 EA43 EB21 EA43 EB17 EB20 EA41 EA58 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proc Sleeper Installation Procedure - Client Review / Approval Flexible Jumpers Anodes Fabrication ITP - Client Review Imbilical Reel Loadout Procedure and ITP - Client Review | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/15/2012 5/28/2012 5/24/2012 5/30/2012 7/10/2012 7/10/2012 7/16/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 | 109 169 174 169 169 164 10 39 164 169 | -182 -171 -154 -121 -128 -141 -114 -35 -48 -76 -76 | 128.00 94.00 94.00 91.00 88.00 87.00 84.00 58.00 57.00 53.00 | -118.00 -113.00 -84.00 -81.00 -78.00 -77.00 -74.00 -48.00 -43.00 -43.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/30/2012 5/30/2012 8/22/2012 8/13/2012 7/16/2012 7/16/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/5/2012 5/23/2012 6/12/2012 8/24/2012 8/24/2012 7/27/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/15/2012 5/23/2012 5/24/2012 5/30/2012 7/10/2012 7/11/2012 7/16/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 EB21 EA43 EB17 EB20 EA41 EA58 EA59 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client F SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proce Sleeper Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proce Sleeper Installation Procedure - Client Review / Umbilical Reel Loadout Procedure and ITP - Client Review / Umbilical Reel Loadout Procedure and ITP - Client Review / Flowline and SLWR Installation Procedure and Work Plan WI & Production SLWRs Transfer Procedure to FPSO - Clie | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/23/2012 7/10/2012 7/10/2012 7/16/2012 7/16/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 | 109 169 174 169 169 164 10 39 164 169 | -182 -171 -154 -121 -128 -141 -114 -35 -48 -76 -76 -76 -76 | 128.00 123.00 94.00 91.00 88.00 87.00 84.00 58.00 57.00 53.00 | -118.00 -113.00 -84.00 -84.00 -78.00 -77.00 -77.00 -48.00 -47.00 -43.00 -43.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/21/2012 5/21/2012 5/30/2012 8/22/2012 8/13/2012 7/16/2012 7/16/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 6/5/2012 5/23/2012 6/12/2012 9/6/2012 8/24/2012 7/27/2012 7/27/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/15/2012 5/23/2012 5/23/2012 5/23/2012 7/10/2012 7/10/2012 7/16/2012 7/16/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 EA43 EB21 EA43 EB17 EB20 EA43 EA58 EA59 EA62 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client Review SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proce Sleeper Installation Procedure - Client Review / Approval Flexible Jumpers Anodes Fabrication ITP - Client Review / Umbilical Reel Loadout Procedure and ITP - Client Review Flowline and SLWR Installation Procedure and Work Plan WI & Production SLWRs Transfer Procedure to FPSO - Clie WI & Production SLWRs Transfer Procedure to FPSO - Clie | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/24/2012 5/30/2012 7/10/2012 7/16/2012 7/16/2012 7/16/2012 7/16/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 | 109 169 174 169 169 169 164 10 39 164 169 164 | -182 -171 -154 -121 -121 -128 -141 -114 -35 -48 -76 -76 -76 -72 | 128.00 123.00 94.00 91.00 88.00 87.00 58.00 57.00 53.00 53.00 53.00 | -118.00 -113.00 -84.00 -81.00 -78.00 -77.00 -74.00 -48.00 -43.00 -43.00 -43.00 -43.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/10/2012 5/30/2012 8/22/2012 8/13/2012 7/16/2012 7/16/2012 7/16/2012 7/18/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 6/12/2012 9/6/2012 8/24/2012 7/27/2012 7/27/2012 7/27/2012 7/25/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/23/2012 5/30/2012 7/10/2012 7/16/2012 7/16/2012 7/16/2012 7/17/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA42 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proce Sleeper Installation Procedure - Client Review / Approval Flexible Jumpers Anodes Fabrication ITP - Client Review / Umbilical Reel Loadout Procedure and ITP - Client Review / Flowline and SLWR Installation Procedure and Work Plan WI & Production SLWRs Transfer Procedure to FPSO - Clie WI & SLWR Transfer Analysis Report - IFC | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 5.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/23/2012 5/24/2012 5/24/2012 7/10/2012 7/10/2012 7/16/2012 7/16/2012 7/16/2012 7/17/2012 7/19/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 | 109 169 174 169 169 164 10 39 164 169 164 164 | -182 -171 -154 -121 -128 -141 -114 -35 -48 -76 -76 -76 -76 -76 -72 -76 | 128.00 123.00 94.00 91.00 88.00 87.00 84.00 57.00 53.00 53.00 53.00 53.00 | -118.00 -113.00 -84.00 -84.00 -78.00 -77.00 -74.00 -48.00 -43.00 -43.00 -43.00 -43.00 -40.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/10/2012 5/10/2012 8/22/2012 8/13/2012 7/16/2012 7/16/2012 7/16/2012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/12/2012 6/5/2012 5/23/2012 6/12/2012 9/6/2012 8/24/2012 7/27/2012 7/27/2012 7/27/2012 7/27/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/23/2012 5/23/2012 5/30/2012 7/10/2012 7/16/2012 7/16/2012 7/16/2012 7/17/2012 | |
| FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE | EB10 PM1 PM1 EA42 EA43 EA43 EB21 EA43 EB17 EB20 EA43 EB17 EB20 EA43 EA55 EA62 EA43 PM1 | ON1, ON2 Umbilicals Installation Analysis Report - Client COMPANY Items Handover Procedure - Client Review / A Logistics Plan for Offshore Operations - Client Review / A SLWR VIV Strakes Installation Procedure - Client Review / Buoyancy Module Installation Procedure and ITP - Client SLWR VIV Fairings Installation Procedure - Client Review / PIPE LAY VESSEL Umbilical Loadout and Transpooling Proce Sleeper Installation Procedure - Client Review / Approval Flexible Jumpers Anodes Fabrication ITP - Client Review / Umbilical Reel Loadout Procedure and ITP - Client Review / Flowline and SLWR Installation Procedure and Work Plan WI & Production SLWRs Transfer Procedure to FPSO - Clie WI & Production SLWRs Transfer Procedure to FPSO - Clie WI & SLWR Transfer Analysis Report - IFC Flowline and SLWR Installation Ctgy Procedure - Client Review R | 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/23/2012 5/23/2012 5/24/2012 5/24/2012 7/10/2012 7/10/2012 7/16/2012 7/16/2012 7/17/2012 7/19/2012 7/23/2012 | 10/11/2012 10/19/2012 10/19/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 10/11/2012 | 109 169 169 169 164 10 39 164 169 164 164 184 | -182 -171 -154 -121 -128 -141 -141 -35 -48 -76 -76 -76 -76 -76 -72 -76 -72 | 128.00 123.00 94.00 91.00 88.00 57.00 53.00 53.00 53.00 53.00 53.00 53.00 | -118.00 -113.00 -84.00 -84.00 -78.00 -77.00 -74.00 -48.00 -47.00 -43.00 -43.00 -43.00 -43.00 -44.00 | 4/2/2012 4/17/2012 5/7/2012 5/30/2012 5/30/2012 5/10/2012 5/10/2012 8/22/2012 8/13/2012 7/16/2012 7/16/2012 7/16/2012 7/16/2012 8/12/012 | 4/12/2012 5/1/2012 5/18/2012 6/12/2012 6/5/2012 5/23/2012 6/12/2012 9/6/2012 8/24/2012 7/27/2012 7/27/2012 7/27/2012 7/27/2012 7/27/2012 8/8/2012 | 3/28/2012 4/4/2012 5/15/2012 5/15/2012 5/18/2012 5/24/2012 5/24/2012 5/30/2012 7/10/2012 7/16/2012 7/16/2012 7/16/2012 7/19/2012 7/19/2012 | |



TECHNIP SUBSEA EPCI EARNED VALUE WORK ANALYSIS Phase II of Analysis

Utilizing the graphical impacts in Acumen we were able to begin researching detail impacts.





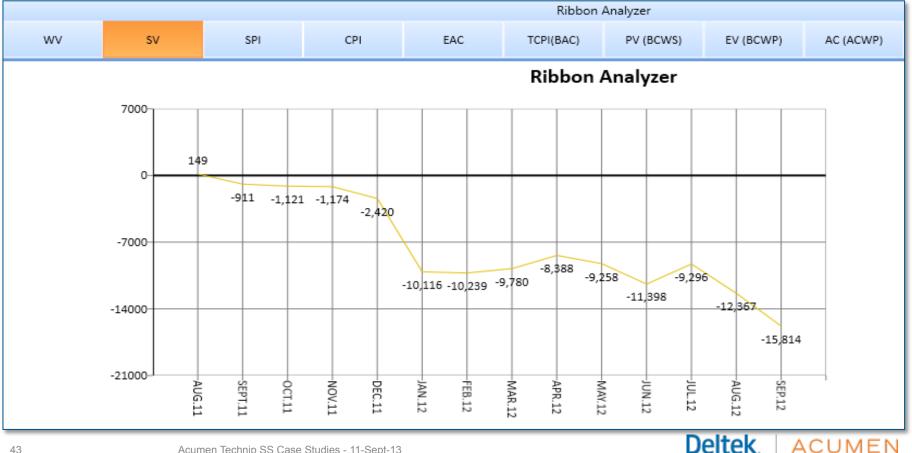
Acumen Technip SS Case Studies - 11-Sept-13

Earned Value Work Schedule Variance [EV-PV]

Schedule Variance provides a comparison of "where we planned to be" vs "where we really are".

Schedule Variance is using P6 values and is calculated as Earned minus Planned.

This variance shows a disparity of slipping on planned dates and is used to calculate a recovery index.



Earned Value Work Estimate at Complete [EAC]

Estimate at Completion provides necessary forecasting.

Estimate at Completion has 5 different calculations. However the most common is using the "Remaining" to Earn + Actual Costs". Acumen brings in the P6 calculation of EAC.

Since the project is still in progression and has almost halfway remaining to complete, it is important to use current performance to provide a valid means of forecasting.

This EAC can be used to forecast cost impacts where engineering delays, manufacturer delays due to held up specs & data sheets as well as the impact of delaying the Pipe Lay Vessel and what that equates to dollars.



Conclusion

As the results of the Float Analysis, Trace Logic Analysis, & Earned Value Work, we were able to determine a cost impact to these delays.

These cost impacts to support the change order was submitted up to contracts management for approval & submit to the client.

The analysis proven to be extremely useful & favorable.

The results still pending & confidential.

Demonstration and Questions

