IPEC
PROJECT SYSTEMS

3-DAYS THEORY& HANDS ON TRAINING

ADVANCED INDUSTRY PLANT TURNAROUND MANAGEMENT & CONTROL TRAINING

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HRD CORP CLAIMABLE

iAPSCC international Association of Planners, Schedulers, and Cost Controllers

Turnaround Best Practices Training - presentations, discussions & instructor-led workshop exercises featuring

- Risk based Scope Review Process & J-factor tool with initial budget
- Plan2Plan Strategic Planning Methodology
- Work Package Best Practices & Dynamic Scheduling Methodology
- Execution Excellence & Key Performance Indicator Dashboards

WHO SHOULD ATTEND?

- PROJECT MANAGER
- TURNAROUND MANAGER
- RELIABILITY MANAGER
- OPERATIONS MANAGER
- OPERATION MANAGER
- MAINTENANCE MANAGER
- PLANNING MANAGER
- MAINTENANCE ENGINEER
- PLANNING ENGINEER
- RELIABILITY ENGINEER
- OPERATIONS SHUTDOWNS
- OUTAGE COORDINATORS

COURSE OBJECTIVE

By the end of this seminar delegates will be able to:

- Enhance company's plant turnaround management capabilities
- Foster a team approach in planning and executing plant shutdowns and turnarounds
- Provide comprehensive understanding of effective turnaround management techniques
- Create awareness of planning methods and integrated organizational approaches
- Incorporate latest developments and emerging trends in turnaround planning and management
- Develop action plan to improve own turnaround management techniques
- Gain clearer understanding of roles and responsibilities of team members in successful turnarounds

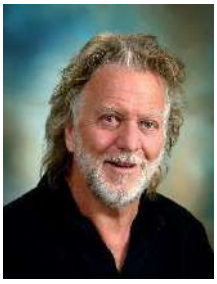
Advanced Turnaround Management & Controls

A plant turnaround is a project when a manufacturing or processing facility temporarily shuts down to perform planned maintenance, repairs, and other necessary work. It involves stopping operations, conducting maintenance activities, and then restarting the plant. Plant turnarounds are carefully planned events that ensure the facility operates safely and efficiently over the long term. Plant turnarounds are critical for ensuring the safe and reliable operation of industrial facilities, extending their lifespan, and maintaining compliance with regulatory requirements.

To achieve the business drivers associated with scheduled Turnaround events—asset integrity compliance, equipment utilization & reliability, process availability targets, and shareholder confidence (enhanced balance sheet performance)—it's necessary to effectively determine scope of work and initial budget well in advance of T-minus Zero (Feed-out) between Minus 18M-12M.

Our Advanced Turnaround Management & Controls Training addresses each of these opportunities, individually, and collectively in order to help project team to deliver TA project on time ad budget.

About the Course Instructor: EJ (Ted) Lister



Ted Lister is a seasoned international practitioner/SME of Turnaround events.

Having traveled to more than 43 countries on 6 continents in the past 33 years—contributing to 100+ companies in mining, oil & gas, petro-chemical and manufacturing—he was fortunate to have learned from some of the best in the business while developing his own best-practice methodologies & tools from lessons-learned experience.

Ted is a dynamic, inspirational instructor who will entertain you with stories and educate you with lessons-learned to help you navigate your next Turnaround event with confidence, ensuring your value contribution is recognized with performance-based KPI data.

"Not everything we plan is scheduled; an element of strategic and tactical coordination must be assumed, to maximize resource utilization [% earn] and control burn."

Key Benefits of Attending this Training

- Learn to pragmatically determine scope of work and initial budget using quantitative data with an RBSR (Risk-based Scope Review) J-factor process and a digital calculator for scope of work and initial budget.
- Learn to establish a formal P2P (Plan2Plan) methodology and strategic planning process.
- Understand how a formal basis of planning, development, and tracking methodology tool can help with Work Package deliverables at the workface.
- Learn how to establish an effective Core Team with formal Roles & Responsibilities and meeting agendas to support your Plan2Plan and Strategy Workshops.
- Learn the importance of the Turnaround Steering Team and mitigation of Risk Register items.
- Learn how to incorporate Contracting Strategy with Execution Strategy (Found Work & Contingency)
- Discover how to manage resources and control costs during the Execution Phase of your Turnaround event.
- Understand how to close out a Turnaround and capture lessons-learned, mitigate, and critique the outcome.

STO Navigator Inc. Canada

STO Navigator Inc., Canada is an international training and consulting company specializing in EAM (Enterprise Asset Management—Reliability, Maintenance) and Turnaround event management and control.

We specialize in DSM (Dynamic Scheduling Methodology), DEM (Dynamic Execution Management), Strategic Stakeholder Planning, Work Package Planning, and Earned-value Performance Management—*driving* and *navigating* Turnaround events to achieve: Safety, Quality, Worker Wrench-time Efficiency, Indirect vs. Direct Cost Minimization Ratio and Longest-path/Critical Jobs delivery—to obtain the lowest risk/cost and shortest production duration outage (lost production minimization) with flawless start-up through PSSR (Pre-start-up Safety Review) and Flange Management Strategies, without compromising scope of work.

EJ (Ted) Lister – CNO (Chief Navigating Office)

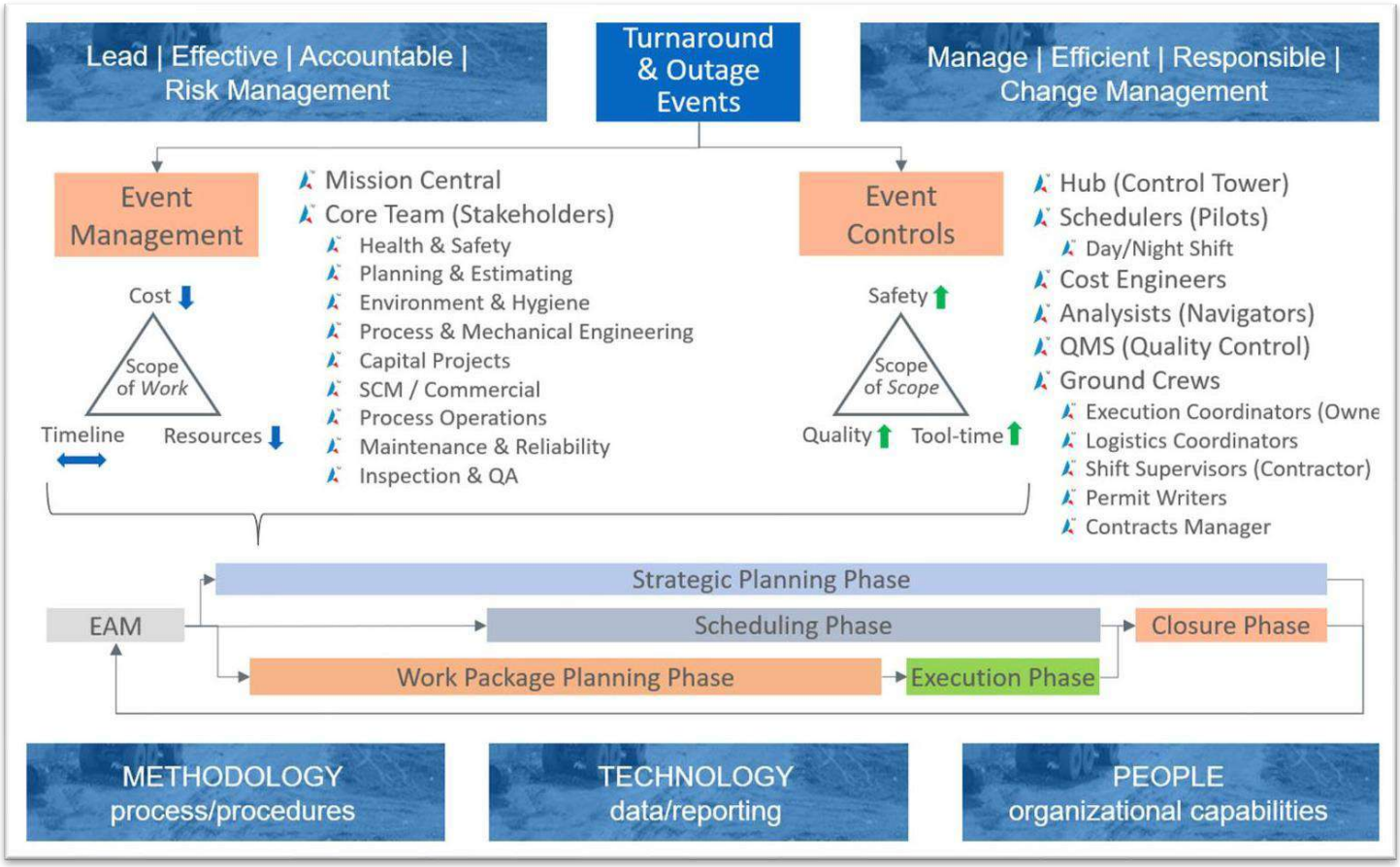
Major Themes in this Training Workshop

Day 1: Workscope & Budget Management
Day 2: Plan2Plan Strategic Planning
Day 3: Execution Excellence & Controls

Day 1—Theme: **Workscope/Budget Development and Control**

The theme for this session is 'Work scope/Budget Development and Control' where each participant will learn to quantifiably determine the most *effective* optimized scope of work and pragmatically calculate a budget in time to freeze scope and kick off the Turnaround event with sufficient time to strategically and practically plan and schedule the event—in order to *efficiently* execute the scope of work at the lowest risk/cost in the shortest duration with the fewest resources—without compromising safety or quality.

- Establish business drivers and the long-range production plan for Turnaround events.
- Turn stakeholder worklists into an approved scope of work through a pragmatic RBSR (Risk-based Scope Review) process and J-factor tool. Calculate the initial budget and kick-off the Turnaround event with Premise.
- Establish scope freeze and a formal Late Work Process with J-factor hurtles for justification.
- Establish the Execution Team, Core Team, and Steering Committee with formal Roles & Responsibilities.
- Establish WBS (Work Breakdown Structure), Systemization and Budget Process leading to Cost Control.
- Implement a formal Turnaround Management Methodology, supported by detailed workflows, policies, best-practice procedures, guidelines, templates, checklists, and technology/digitalization tools.
- Establish Communication Plan and meeting schedules, agendas, attendance, and tracking methods.



Day 2—Theme: Plan2Plan Strategies & Work Package Planning

The theme for this session is 'Plan2Plan Strategies & Work Package Planning' where participants will learn to establish the Plan2Plan T-minus Milestone Schedule and associated responsibilities matrix and a formal Work Package Tracking Tool. The work package process is discussed in detail, along with Basis of Planning procedures and work package development tools, including ITPs (Inspection & Test Plans), work package contents, review, and distribution.

Strategy workshops are discussed, and participants will take part in conducting two key strategy workshops (contracting and execution) by following a formal process, using lessons learned, risk mitigation results, and best practices to meet safety, quality, and tool-time efficiency KPI targets during the Execution Phase of their Turnaround event.

Participants will learn to create an Executive Dashboard for the Steering Committee in conjunction with a formal Risk Register to control the Plan2Plan in relation to T-minus deliverables and milestones.

- Establish a formal Turnaround Management Program
  - EAM (Enterprise Asset Management Phase) for Scope/Budget development and Freeze
  - Strategic Planning Phase (Plan2Plan)
  - Detailed Work Package Planning & Scheduling Phase
  - Execution Phase (Pre, Shutdown, Open, Clean, Inspect/Repair, Close, Start-up, Post)
  - Closure Phase (Lessons-learned)
- Establish a Turnaround Playbook with formal best-practice procedures and templates
- Establish Budget & Cost Management Plan (AFE, LEMS, Indirect, Contingency)
- Determine the technology required to support the Turnaround Management Program
- Establish and schedule the Plan2Plan; assign responsibilities by Execution and Core Team members.
- Establish Core Team meeting agenda, timing, and tracking methods.
- Schedule and conduct strategy workshops, e.g., permitting, cleaning, materials management, contracting, etc.
- Learn to manage Late Work, EWOs (Engineering Work Orders), MOCs (Management of Change) while controlling the Planning Budget. Create organization charts and Resource Management Process, including resource histograms, mobilization, indirect support, and pre-work
- Establish a formal Risk Register and implement a Mitigation & Action Plan for Steering Team mitigation
- Establish a formal Procurement & Materials Management Process; identify long-lead items

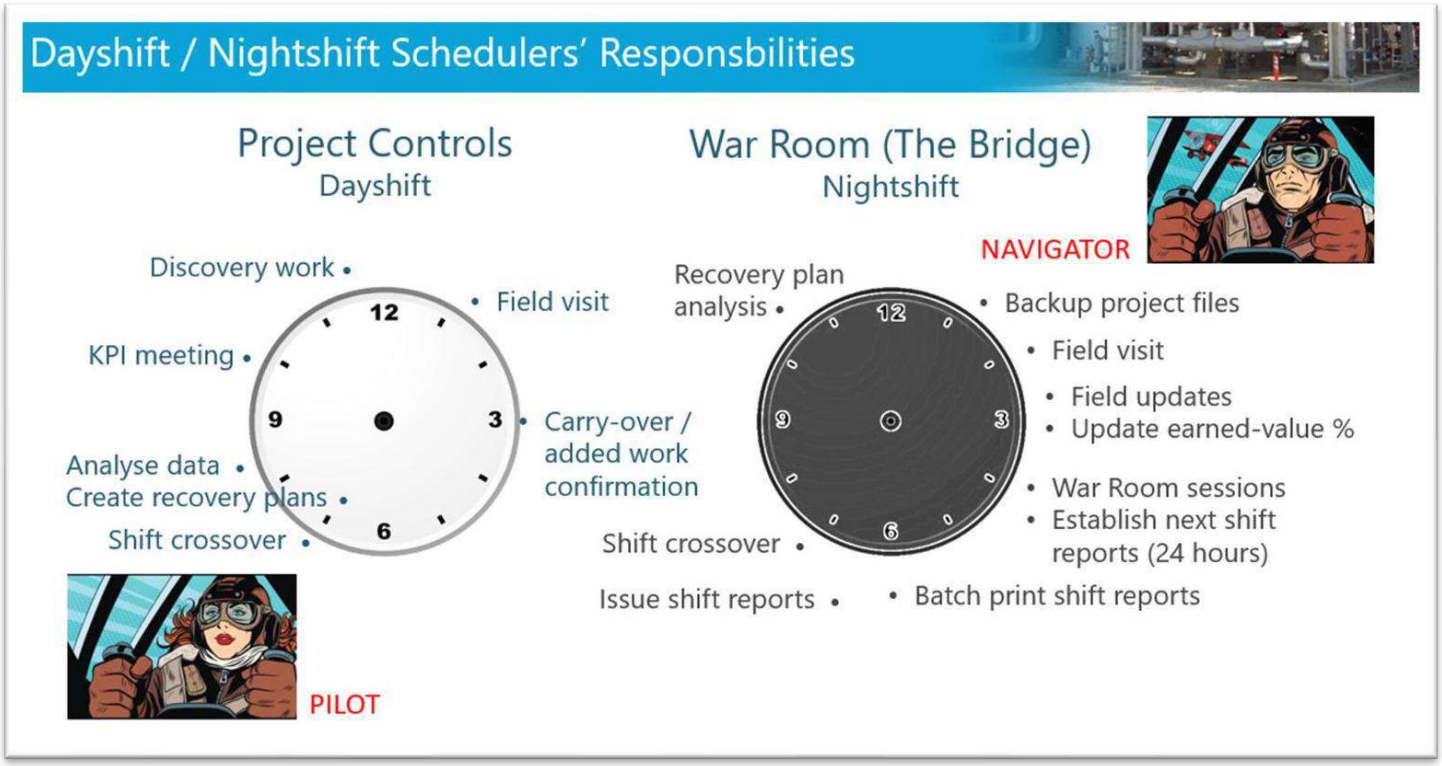
Day 3—Theme: Turnaround Execution Controls & Lessons Learned

The theme for this session is 'Turnaround Execution Controls & Lessons Learned' where participants will learn to establish a war room of sorts (Obeya) and combine DEM (Dynamic Execution Management) with DSM (Dynamic Execution Methodology) to *drive* and *navigate* the Execution Phase of their Turnaround event with the goal of safety, quality, and efficiency to achieve the lowest cost, shortest duration, fewest resources—on-time/on-budget.

Participants will establish a lessons-learned program to capture, mitigate, and implement improvements to future Turnaround events.

Participants will practice calculating tool-time, earned vs. planned, and actual cost, including forecasting of resources, mob/demob, Found Work and Change Management Processes. At then end of this session, participants will be knowledgeable and competent to contribute significant value to the navigation and control of Turnarounds.

- Establish a formal war room (Obeya) for strategic and tactical planning during Execution Phase.
- Establish KPI (Key Performance Indicator) Dashboards for Safety, Quality, Efficiency, Cost, Schedule, Scope.
- Create Level V Schedules and run 'what-if' scenarios for constructability, density, SIMOPs (simultaneous operations).
- Execute pre-work, hang blind tags, temporary piping and tanks, bag & tag, scaffold and insulation.
- Implement LOTO in conjunction with Shutdown Plan & Schedule.
- Implement Permitting Process to optimize safety and tool-time efficiency.
- Establish shifting, reporting, and progress updating procedures for field Execution Coordinators.
- Implement Confined Space Program and Create PTC (Permission to Close) reporting procedure.
- Implement QA/QC processes from strategy workshops in conjunction with Flange Management and PSSR (Pre-start-up Safety Review), in conjunction with Turnover Packages and data/document control.
- Implement navigation aides and recovery plans with tactical response to changes.
- Implement Lessons Learned program and prepare for Closure Phase Critique Process.



Example: Turnaround Event Premise Document (example: mining industry)

Group Exercise: A template and procedure will be provided to create the Premise Document which is a vital part of the communication plan and the initial kick off meeting for Plan2Plan (at Scope/Budget Freeze: T-minus 18- 12M)

Turnaround Event Summary				
Outage Days/Dates:	32 Days Feed-out to Feed-in 03/09/24 06h00 to 05/10/24	**Turnaround Event Manager**	Ted Lister – STO Navigator Inc. ejlister@stonavigator.ca	
Project #:	0947388	**Short Description:**	2024 – 3-Year Asset Integrity Inspection & Process Integrity Cleaning	
AFE Budget:	~$34.5MM	**Location:**	Heartland Alberta Canada	
Tagline:	**Green Metals for an Electric Future**			**Turnaround Event Logo**
Vision:	Best practice Turnaround execution to drive sustainable prosperity for employees, investors & communities. Aim to be a leader in the industry and expand the metals enterprise of nickel, cobalt, and copper production by successfully completing planned outages to maintain ABSA compliance, enhance equipment reliability, and provide low-cost, safe operations.			
Mission:	Progress together at every level to deliver Turnaround execution excellence: “Start-Up On-Time with Zero Harm to People, Equipment or Environment”.			

Event Description				
Event Justification & Business Drivers:	The metals business units undergo scheduled Turnarounds to maintain and continuously operate numerous pieces of equipment to produce nickel, cobalt, copper products, ammonium sulphate and other intermediate products. The annual Turnaround of these production units is part of the ongoing maintenance required for the metals production. This year’s Turnaround is required to ensure long-term operability, profitability, and efficiency of the business unit. It is required to meet ABSA code compliance for pressure vessels, inspection and repair of critical equipment, and to conduct non-routine maintenance activities. The success of this year’s Turnaround will be evaluated by completing the scope of proposed inspection, reliability, and capital projects activities safely, efficiently and with quality, on schedule and within the established Control Budget.			
Longest Path:	E-101A: Inspections & Repairs + Tube Side RV & PIT Installation			
Scope Summary	**Stationary Equipment**	**E/I**	**Rotating**	**Major Maintenance & Capital Projects**
	Piping, Valves & PSV’s Heat Exchangers Tanks Vessels	Control Valves Calibrations Analyzers Transformers	Compressors Pumps Sumps Conveyors	Leach West MCC Zinc Lamella Overflow Ammonium Sulphate Dryer Synthesis Gas Aqua Separator
Risks / Concerns:	Simultaneous Work and Congestion QC/QA Deficiencies Resulting in Leaks		Unknown / Found Work or Repairs Purchase of Materials & Securing Resources	
Execution KPI’s & Targets:	Safety – Zero Incidents Quality – Zero Leaks & Rework Efficiency - (55% Tool-Time / Equipment Utilization)		Contractor Performance Cost Performance Schedule Performance	

Best Practices & Exercises

Turnaround Event Best Practice Examples & Workshop Exercises

Following is a short list of best practices to be discussed and exercises to be conducted with participants' involvement over the 3-day duration of this training:

- Establish a Long-Range Business Plan (5- 10- 20-year) to highlight annual events which incur risk, result in loss of production, affect financials, e.g., shutdowns, turnarounds, outages, major maintenance, pitstops; or, events which enhance production, e.g., capital projects. Spread the risk and funding across years based on marketing requirements
- Establish a formal Turnaround Management Process supported by best practice polices, procedures, guidelines, templates, tools, procedures, and technology
- Implement a formal RBSR J-factor Methodology & Tool to establish the most optimized, risk-mitigated scope of work; then, establish a Scope Freeze Date and Kick-off Meeting—suggested T-minus 18- 12-Months prior to Feed-out
  - Workshop Exercise
- Establish a formal Plan2Plan Process and Core Team in conjunction with Strategic Planning, complete with KPI Dashboards and document control processes
  - Workshop Exercise
- Create a formal Premise Document in conjunction with a Communication Plan
  - Workshop Exercise
- Establish a formal Work Package Planning Process and Tracking Tool
  - Demonstration
- Primavera™ P6 scheduling software demonstration for DSM (Dynamic Scheduling Methodology) and DEM (Dynamic Execution Management):
  - Demonstration—the power of technology when it supports methodology.
  - Resource Levelling (DSM) – understanding the P6 engine and algorithms.
  - Resource Histograms, PF (Productivity Factor) and Updating/Progressing
- Conduct Strategy Workshops for key functions, e.g., permitting, logistics, materials management, contracting, inspection, execution, safety, environment, etc.
  - Workshop Exercises
- Conduct Readiness Assessment by third party at each gate of the Turnaround Management Program, e.g., T-minus 12M, T-minus 9M, T-minus 6M, T-minus 3M
- Establish Risk Register and Action Item Program for Steering Committee to mitigate risk
- Establish indirect mobilization plan in conjunction with Plan2Plan and resource controls
- Manage Late Work Additions with J-factor hurdles and a formal Change Management Process
- Manage Found Work with J-factor decision-making and Change Management Process
- Establish an MCC (Mission Control Center) for the Execution Phase of the Turnaround event, in conjunction with DSM (Dynamic Scheduling Methodology) and DEM (Dynamic Execution Management)
- Establish a formal Lessons Learned process with Turnaround event Closure Phase and critique program—create subsequent event worklist and identify long-lead items
- Establish real-time KPI dashboards to demonstrate safety, quality, cost burn, schedule earn, variance, leading and lagging indicators, trends, float burn, estimate to complete
  - Demonstration

Short Client List: Consulting, Training, Speaking, Schedule Reviews, Readiness Assessments