

Greenfield Site to Operational Solution Mine

Safety in Transition

March 1, 2018



K+S Potash Canada

Introduction

- Support transition for role of Prime Contractor
- Ensure a SAFE transition



AMECFW
Responsibility

KSPC
Responsibility



How?



Building Legacy - In the Beginning



- **Greenfield Construction Phase**
 - AMECFW fulfilled duties of Prime Contractor
 - AMECFW owned the Safe Work Permit and LOTO program
 - Training provided for all workers
 - High volume of people (2000+)
 - Numerous contractors, disciplines, experience levels, backgrounds

How?



Intermediate Phase – Safety Transition

- **Transition into Intermediate Phase**
 - AMECFW construction + KSPC Operating (Early Cavern Development)
 - Problems identified early on with separate safety programs
- **Management (KSPC + AMECFW) - comprehensive SWP and LOTO program developed**
 - Joint SWP and LOTO procedure rollout – re-training
 - SWP / LOTO Matrix created to provide direction
 - Implement changes and prepare for plant commissioning

Intermediate Phase – SWP and LOTO

- **Central Permitting Office**

- Created inside KSPC Operations building
 - Staffed and managed by AMECFW
 - Employed +/- 25 positions dealing with SWP and LOTO
- LOTO / SWP Matrix heavily relied upon
 - Outlined responsibility by ownership of area / equipment
- System was effective, but slow and bulky (AMECFW factor)
 - How to manage conflict effectively?

Intermediate Phase - SWP / LOTO Matrix

	Date: Nov 19, 2016	Revision: 			Issued for Use: 		
Key: RED - Role related to LPET Construction, LPET BLUE - Role related to LPET Pre-Commissioning, DARK BLUE - Role related to LPET Commissioning, GREEN - Role related to ISPC Operations							
Location Area Owner	Asset Owner Within the Area	Permit Requester	Permit Issuer	Permit Receiver	LOTO Authority	LOTO Captain	LOTO Verifier
LPET CMT (Construction)	LPET CMT (Construction)	N/A	N/A	N/A	N/A	N/A	N/A
LPET Pre-Com	LPET Pre-Com	LPET Pre-Com Coordinators/ Discipline Leads	LPET Pre-Com Discipline Leads	Trades Person	AssetFW	LPET Pre-Com Captain	LOTO Authorized Employee
LPET Pre-Com	LPET CMT (Construction)	LPET CMT Coordination Environment	LPET Pre-Com Discipline Leads	Trades Person	AssetFW	LPET Pre-Com Captain	LOTO Authorized Employee
 LPET Pre-Com	ISPC Operations	LPET CMT LPET Pre-Com LPET Com ISPC Operations	LPET Pre-Com Discipline Leads for ASHA, LPET Com Procedures coordinators for ASHA, ISPC Operations for Asset O&M, Asset Authorization	Trades Person Trades Person Field Execution Leads Trades Person	ISPC Supervisor AND/OR AssetFW **Consult with SMOps Leads (Mark Marsh/Jason Skamnieh)**	ISPC Supervisor AND/OR AssetFW **Consult with SMOps Leads (Mark Marsh/Jason Skamnieh)**	ISPC AND/OR AssetFW **Consult with SMOps Leads (Mark Marsh/Jason Skamnieh)**
LPET Com	LPET Com	LPET Com Planning Execution Leads	LPET Com Procedure Coordinators	Field Execution Leads	AssetFW	LPET Com Captain Field Execution Leads Electrical LOTO Captain	LOTO Authorized Employee
LPET Com	LPET Pre-Com	LPET Pre-Com Coordinators Discipline Leads	LPET Com Planning Execution Leads Production Area Leads	Trades Person	AssetFW	LPET Pre-Com Captain	LOTO Authorized Employee
LPET Com	LPET CMT (Construction)	LPET CMT Coordination Environment	LPET Com Planning Execution Leads Production Area Leads	Trades Person	AssetFW	LPET Pre-Com Captain	LOTO Authorized Employee
ISPC Operations	LPET CMT (Construction)	LPET CMT Coordination Environment	ISPC Production Supervisor/Operator	Trades Person	AssetFW	LPET Pre-Com Captain	LOTO Authorized Employee
ISPC Operations	ISPC Operations	LPET CMT Pre-Com Com	ISPC Production Supervisor/Operator	Trades Person Trades Person Field Execution Lead	ISPC Production Supervisor	ISPC Operator	LOTO Authorized Employee
ISPC Operations	LPET Pre-Com	LPET Pre-Com Coordinators Discipline Leads	ISPC Production Supervisor/Operator	Trades Person	AssetFW	LPET Pre-Com Captain	LOTO Authorized Employee
ISPC Operations	LPET Com	LPET Com Planning Execution Leads	ISPC Production Supervisor/Operator	Field Execution Lead	AssetFW	LPET Com Captain Field Execution Leads Electrical LOTO Captain	LOTO Authorized Employee
ISPC Operations	ISPC Operations	ISPC Maintenance Supervisor	ISPC Production Supervisor/Operator	Trades Person	ISPC Production Supervisor	ISPC Operator	ISPC Production Supervisor/Operator
ISPC High Voltage Electrical Rooms	LPET CMT Pre-Com Com	LPET CMT Pre-Com Com	ISPC High Voltage Supervisor or Planner	LPET CMT Electrician Pre-Com Electrician Com Electrician	ISPC High Voltage Supervisor	High Voltage Electrician	High Voltage Supervisor or Electrician
ISPC High Voltage Electrical Rooms	ISPC High Voltage Dept.	High Voltage Planner or Supervisor	ISPC High Voltage Supervisor or Planner	High Voltage Electrician	ISPC High Voltage Supervisor	High Voltage Electrician	High Voltage Supervisor or Electrician
ISPC Sustaining Capital Projects (SCP)	ISPC Sustaining Capital Projects (SCP)	ISPC Sustaining Capital Projects (SCP)	SCP Coordinators	SCP Contractors	ISPC Sustaining Capital Projects (SCP)	SCP Coordinators	LOTO Authorized Employee
ISPC PCS Server Room	ISPC PCS, HSE, IT, Facility Supervisor	ISPC LPET CMT Pre-Com Com	PCS Supervisor or Delegate	ISPC LPET CMT Pre-Com Com	PCS Supervisor or Delegate	PCS Supervisor or Delegate	LOTO Authorized Employee



How?



Building a Legacy – Commissioning

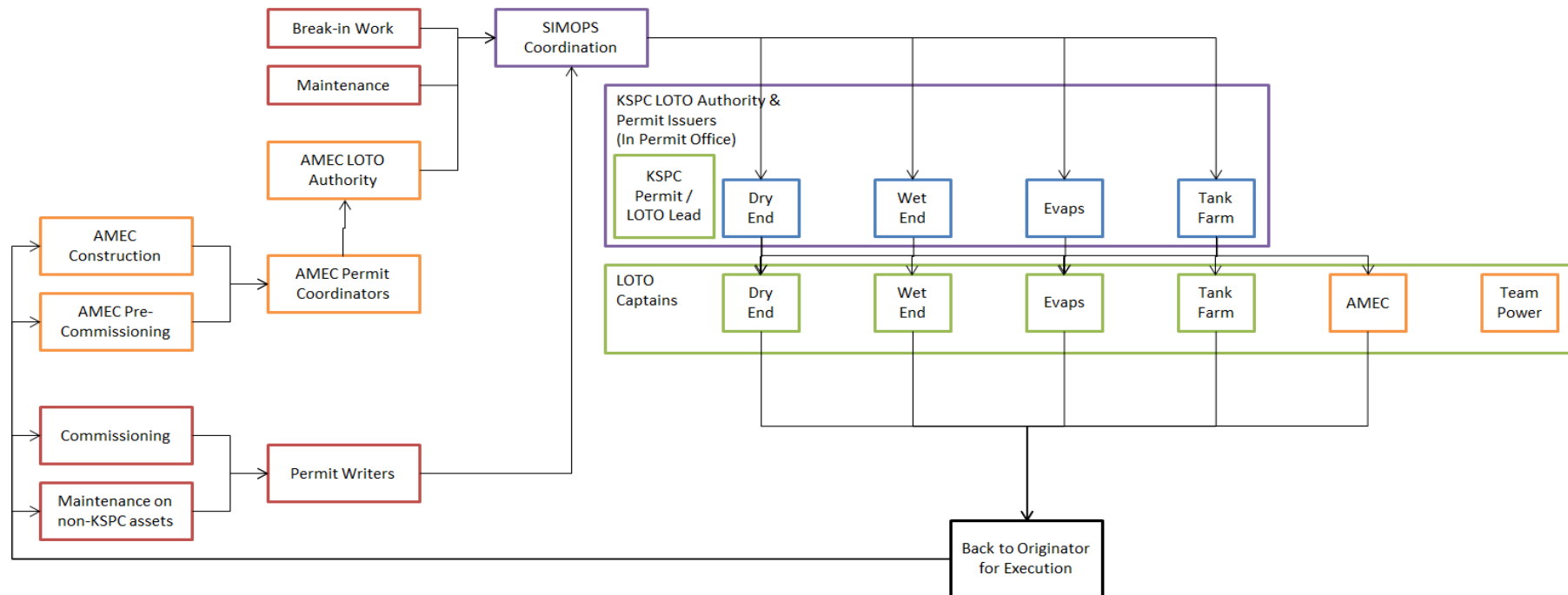
- **Conflict Management**
 - How to keep all work fronts safe
 - Construction alongside commissioning / live systems
- **SIMOPS (Simultaneous Operations)**
 - Coordinator was on-boarded
 - Responsibility to oversee process to ensure conflict was managed and the SOW were safe to complete
 - 2500 + SWP ; 400 + LOTO per week
- **Construction vs Operational Plant**
 - Construction philosophy clashing with live plant
 - Ensuring awareness
 - Energization notices – COMMUNICATION!

How?



Prime Contractor Transfer – Planning

- **KSPC formed committee**
 - Committee formed to put together a transition plan
 - Prepare to own the SWP / LOTO process



Prime Contractor Transfer - Stages

- **Progressive 2 Stage Transition Developed**
 - ***Stage 1 : AMECFW to KSPC Permitting Group***
 - KSPC LOTO/Permit Leads – train on process
 - Prime Contractor Transfer – KSPC issuing all SWP/LOTO with full AMEC support ongoing
 - ***Stage 2 : KSPC Permitting Group to KSPC Operations***
 - Construction and Commissioning subsides, Operations activity high
 - Closure of central permitting office and transfer to Operations permit desks

Prime Contractor Transfer – Stage 1 Progress

- **Permit Office Transition Goals**

- Improve consistency, clarity, and real-time issue resolution
- Streamline the process and increase productivity while maintaining high safety record

- **Permit Office Transition Challenges**

- Construction ongoing with Commissioning activities high – transition to Start-up
- Getting 'A' train ready for production
- Conflict management paramount!

Prime Contractor Transfer - Brownfield



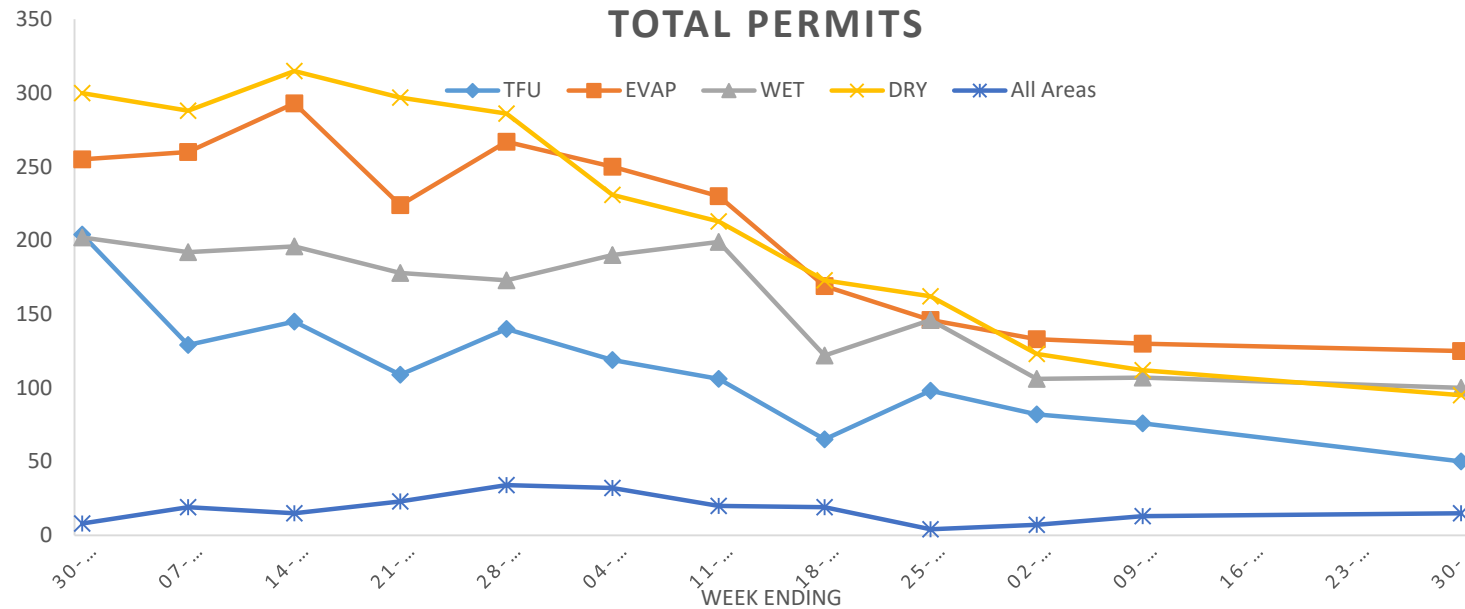
- Site transition to Brownfield
- Prime Contractor Transfer to KSPC
- K+S Legacy produces first tonne of potash
- Construction + Commissioning + **Production!**

How?



Operations Ownership - Preparation

- **Monitor SWP / LOTO #'s and ensure Operations can handle the workload**
 - OPS far from reaching steady state; commissioning ongoing



Operations Ownership - Transition

- **Operations owned systems on rise**
 - Central Permit office staff demobilized as SWP and LOTO #'s begin to stabilize
 - Construction scope nearing completion – AMECFW ownership minimal
- **Transition to Stage 2**
 - Closure of Central Permitting Office
 - All SWP / LOTO issued by Operations
 - Work with management and production leadership to determine support required

Operations Ownership - Full Transfer

- **OPS Workload High**
 - Identified need for extended support
 - SWP/LOTO #'s still high
 - Maintain a lean permit office crew
- **SWP/LOTO procedure fully KSPC managed**
 - No influence from AMECFW
 - Challenges
 - Permit support staff provide assistance and mentorship
 - OPS / Maintenance work together on daily conflict management

How?



Key Learnings

- **Increase in near misses observed as OPS took ownership**
 - Support for Operations extended
 - Required resources to maintain safety standard
- **KSPC progressively rebuilding HSSE procedures**
 - Joint procedures with AMECFW added complexity & confusion
 - Procedures need clarity / simplification
- **Culture**
 - Correct the influence that AMECFW / Contractors had with our people

Take Away Message

- **Clarity** – Be clear in your message, communication is key
- **Transparency** – Show that there is nothing to hide
- **Support** - Provide readily as required – stand behind your people
- **Involvement** – Involve all levels of the organization; ensure people's voices are heard
- **Ownership** – Empower people to make their own decisions
- **Culture** – A positive workplace is a productive and safe workplace

Questions

