Installation and Integration Workshop Update on Logistics Facility

Ladia Jakubec

LBNF/DUNE

24-25 January 2019

Introduction (Personal Background)

- *Ladislav Jakubec*
- *Twenty years of international logistics operational and commercial experience.*
- *Managed stevedoring operations for APL in Los Angeles Port and later on the APL Government Market Customer Service Department.*
- *Managed logistics for DoD, DoS, DoT, Humanitarian Aid and EXIM sponsored project cargo.*
- *Managed logistics for commercial Gas & Oil and Power Generation Projects.*

Rolle of the Far Site Logistics Manager

- Assist/Consult domestic and international partners with transportation needs to warehouse/storage near Lead, SD
- Track & Trace materials from origin to South Dakota warehouse
- Establish and manage warehouse facility including inventory control near Lead, SD
- Establish and maintain transportation contracts from Warehouse to SURF
- Central point of contact for scheduling & managing the delivery of goods from long term storage and integration facilities to the Ross shaft

Current Logistics Considerations

- International Cargo to be moved by providers on an “Thru Bill of Lading” from Origin to South Dakota Warehouse with Fermilab/LBNF as “also notify party” for visibility
- Domestic Cargo to be moved as appropriate to South Dakota Warehouse with advise to Logistics Manager and Warehouse
- Need to establish warehousing facility within “reasonable” distance (under ~6 hours roundtrip) from SURF with integrated warehouse management system
- Integration Testing Facility Location
- Sandblasting and Painting Facility Location

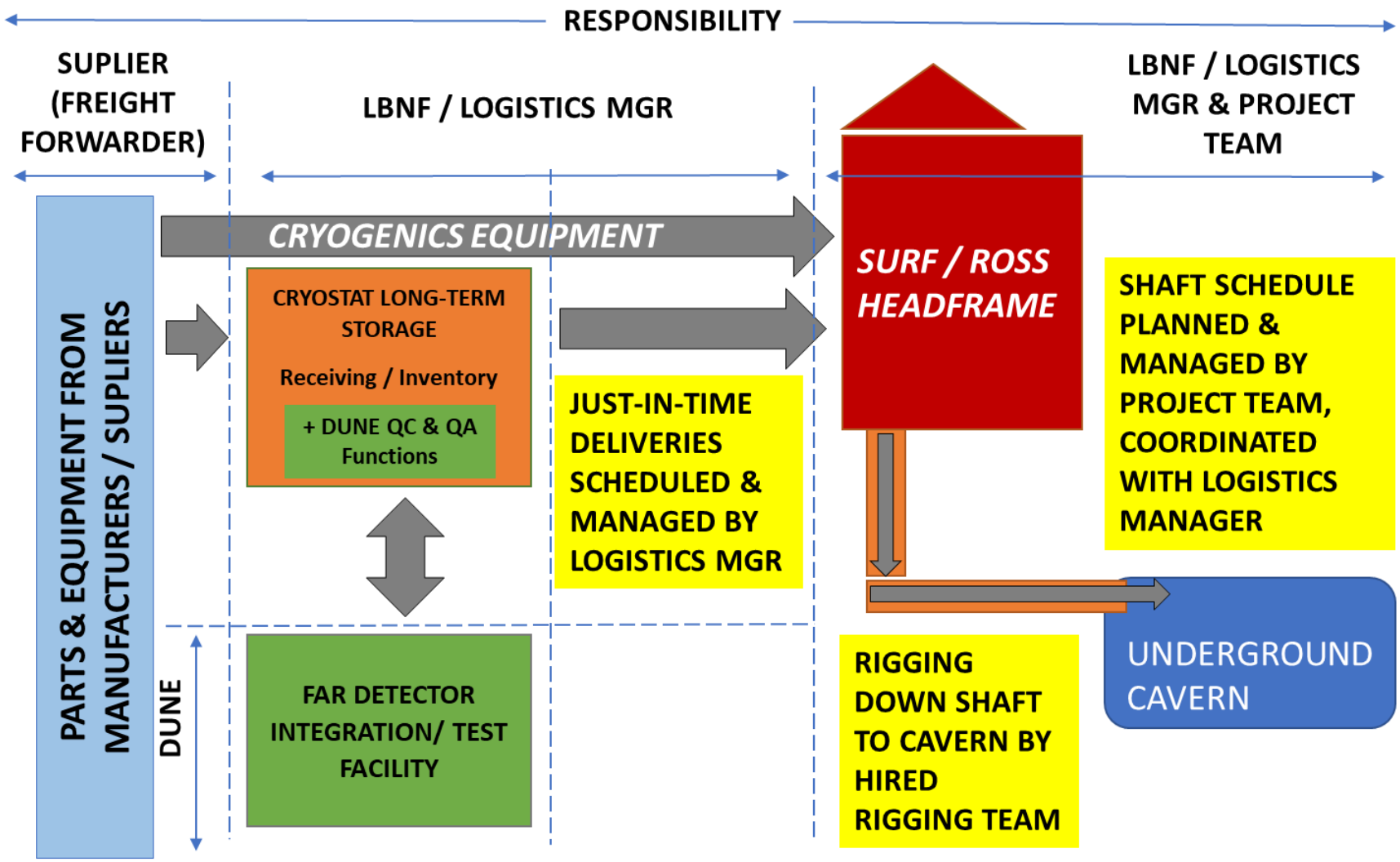
Logistical Challenges / Assistance

- Multitude of Contributors/Suppliers from around the World = *Challenging Tracking and Tracing Environment* – *Need to be appraised of shipments during the shipment planning phase*
- Limited understanding of international shipping rules and documentation requirements by overseas contributors = *Need for consulting ("hand holding") to avoid cargo delays* – *Happy to assist with any shipping issues thru all stages of shipment*
- Multitude delivery modes i.e. containers, trucks, less than container loads (LCL), less than truck loads (LTL), packages (FEDEX, UPS) and private deliveries = *unusually flexible warehouse management system (WMS)* – *Happy to assist with any shipping issues thru all stages of shipment*

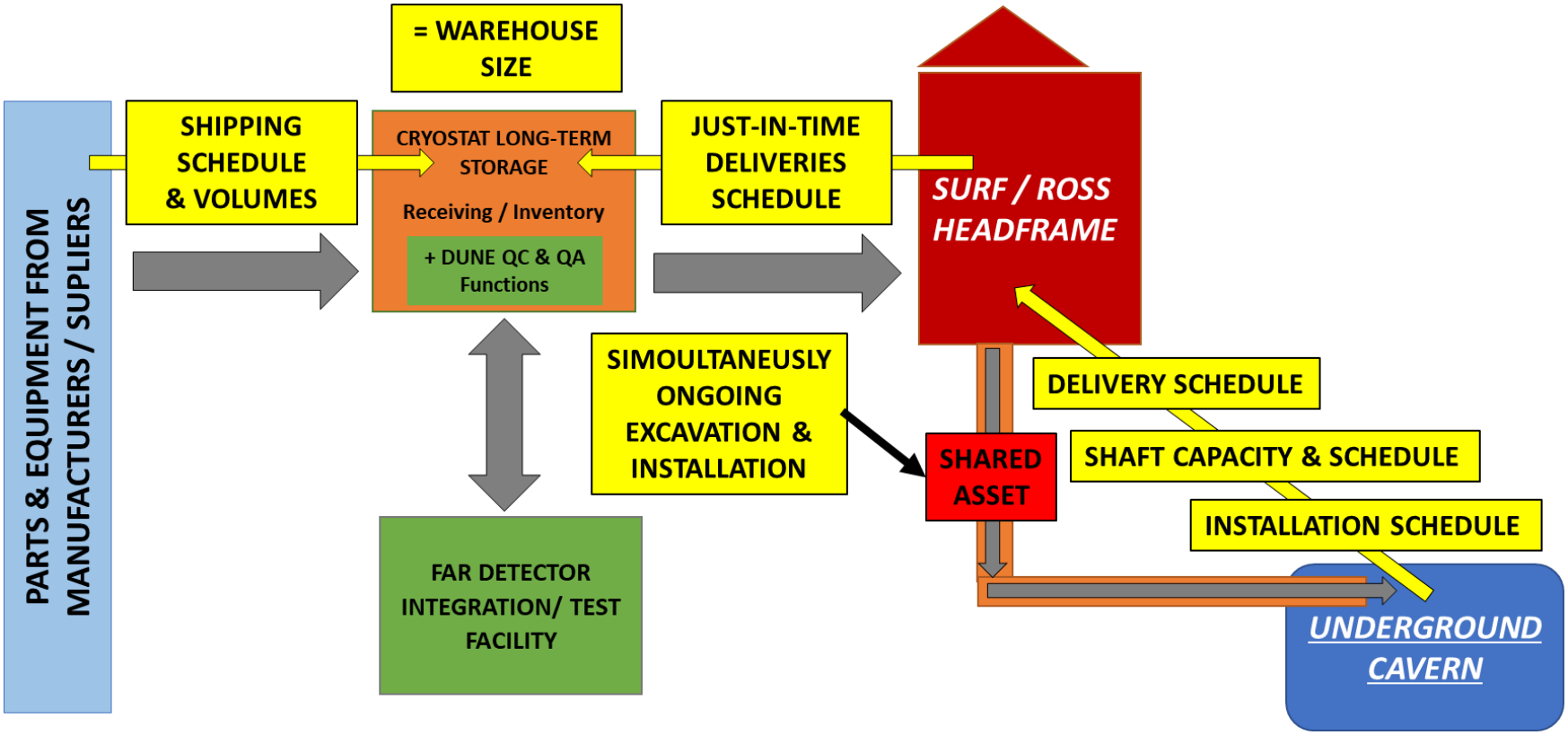
Logistical Challenges / Assistance

- Limited laydown or storage space on surface as well as below underground on the SURF site for LBNF and DUNE = *Long-term Storage Requirements* – *Need input volume and timing input from consortiums to secure needed warehousing space*
- Subassembly and preparation requirements = *additional logistics and "manufacturing" management process* – *Need top develop a LBNF/DUNE team to manage subassembly and logistics*

Logistics Flow from point of manufacture to SURF



Warehouse and Ross Shaft Schedule/Capacity determination



General Contractor Shaft Schedule/Capacity

- GC is tasked to provide shaft capacity/schedule for the duration of project
- Installation of Cryostat #1 will commence while excavation is still ongoing
- GC was put on notice to update schedule by March 2019
- LBNF/DUNE to provide best estimated volumes and timing for installation deliveries for GC to provide schedules by February

Near Term Far Site Logistics Activities Timeline

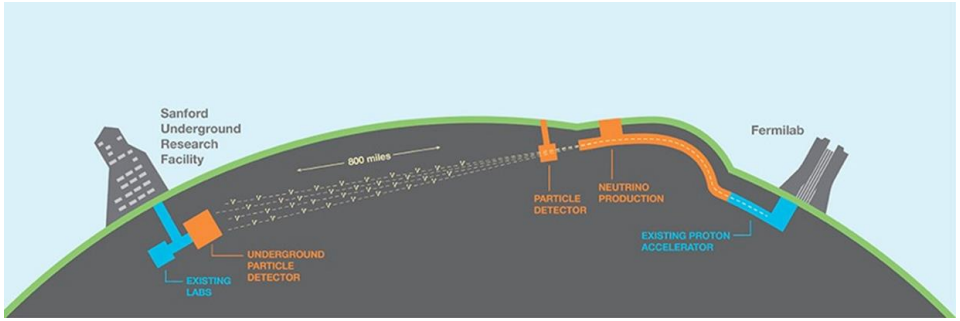
Activity CY	2019				2020				2021			
Warehouse & Warehouse Management System RFI	▲											
Warehouse & Warehouse Management System RFP				▲								
Transportation Warehouse to SURF RFI							▲					
Transportation Warehouse to SURF RFP										▲		
International Shipping Manual			▲									
Warehouse & WMS Operational									▲			
Transportation Warehouse to SURF Operational												

RFI / Warehouse, ITF and Warehouse Management System

- To establish meaningful RFI we need:
- GC Shaft Capacity and Schedule Estimates
- Shipping Volumes and Schedule Estimates
- Cargo Origins

Backup Slides

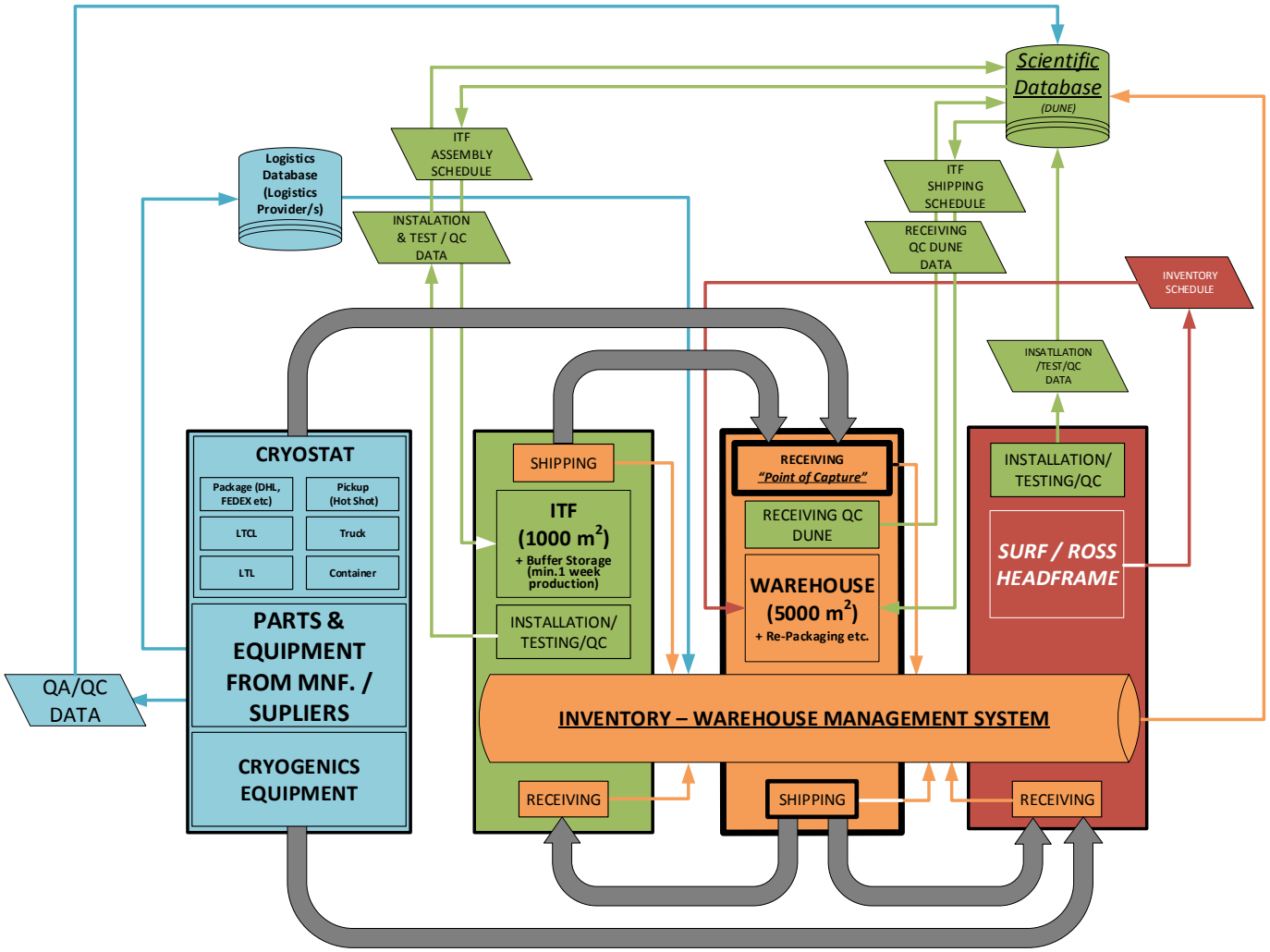
- Tentative Far Site Delivery Schedule
- Logistics Data Flow



Tentative Far Site Logistics Delivery Schedule

Year			2020			2021				2022				2023				2024				2025				2026				2027				2028				2029			
Task	Group	Months	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Excavation Cavern #1	CF	31	Cavern#1 (North) Cavern 2 (CUC)																																						
Excavation Cavern #3	CF	20												Cavern#3																											
N2 piping in the shaft	SURF	12																N2 Piping																							
CUC Infrastruc and DAQ	DUNE	12												CUC Infra				DAQ																							
Install Warm Dec #1	CERN	9												Warm 1																											
Install Cold Dec #1	GTT	12																Cold	Struct. #1																							
Infrastructure Det #1	DUNE	6																		Infra																						
Assembly SP Dec #1	DUNE	12																				Detector #1 SP																			
TCO Closing	CERN	3																								TCO															
Purge/Fill Dec #1	CERN	15																									Pur	Fill Dec #1													
Install Warm Dec #2	CERN	9																	Warm 2																							
Install Cold Dec #2	GTT	12																					Cold Struct. #2																		
Infrastructure Det #2	DUNE	6																						Infra & DAQ																	
Assembly Dec DP #2	DUNE	12																								Detector #2 DP															
TCO Closing	CERN	3																												TCO											
Purge/Fill Dec #2	CERN	15																													Pur	Fill Dec #2								
Install Cryo Equipment	CERN	12																		Cryo #1		Cryo #2																			
ITF	DUNE													ITF Infra				ITF Operations																							
Logistics Facility	LBNF/DUNE													Logistics Facilty Operations																											
APA Shipping	UK			Prod. Strt.																																					
	US																																							
Warm Structure #1																																								
Cold Structure #1																																								
Warm Structure #2																																								
Cold Structure #2																																								
Cryo Equipment																																								

Logistics Flow from point of manufacture to SURF / DATA Flow



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