Title	Catastrophic, Major & Serious (CMS) Accidents / Incidents Investigation and Analysis					
Target Population	Field Engineers & Field Specialists					
This requirement is applicable to:	✓	JFE		FST		EOT
	✓	FE1		FS1		EO1
	✓	FE2	✓	FS2		EO2
			✓	FS3		EO3

Objective:

DB is committed to providing Service Quality Excellence to our Clients.

The objective of this task is to create awareness and understanding on Catastrophic, Major & Serious (CMS) Accidents and Incidents Investigation and Analysis. This will also emphasize the importance of employee's participation in investigating, analyzing and closing accidents / incidents report to prevent them from recurring in the future.

Tasks:

- Employee to discuss with FSM on his participation as a member of an investigation team of a current accident/incident. In the event that there is no incident / accident reported, he may use any light incident occurred in the past which has high potential to cause catastrophic, Major and Serious (CMS) accidents / incidents.
- Gather information leading up to the incident, during and after the incident.
- Establish chronology of events of the incident and include in a presentation.
- Use problem solving techniques like Pareto Chart, Fishbone Diagram and 80/20 to determine the root causes.
- Develop an action plan and assign responsibilities.
- Prepare a presentation of the chronology events, risk analysis, root cause, accountability and action items.
- Verify that with implemented action plans no further incidents of the same nature will occur.
- Deliver the presentation to Line Management
- Follow up on all action items until they are closed.

REQUIRED EVIDENCE:

1	OP-FORM-01 Problem Report	/
2	OP-FORM-02 Problem Investigation Report	/
3	Slide Presentation	/

OVERALL SCORE	STRONG			ADEQUATE			IMPROVEMENT NEEDED		
	10	9	8	(7)	6	5	4	3	2

MENTOR / ASSESSOR's Comments & Recommendation (Service Quality Engineer):

Well understand on the problem solving technique /method. Investigation report adequately prepare and presented.

Signature		Assessment Date	23-01-2025
Name	M. Noorhafzan Ab. Majid	Position	Service Quality Eng.

FSM / OM Comments & Recommendation:

Good understanding on problem report and investigation process flow.

Signature		Assessment Date	23.01.25
Name	KHAIRUL RIDHWAN AZIZAN	Position	Field Service Manager

DIMENSION BID

PROBLEM REPORT

(To be filled-up by Field Personnel)

Note : All equipment problem reports must be submitted not later than 24 hours of the incident. All columns must be filled.
Kindly email PR to your superior and Operations manager, cc problem.alert@neudimension.com.
All Problem Investigation Report (PIR) must be submitted not later than 5 days

DEPARTMENT	LOCATION
☐ SLS ☐ CHS ☑ CTS ☐ BASE	☐ WMO ☐ EMO ☐ INTERNATIONAL/OTHERS:_____

CATEGORY

☑ SURFACE EQUIPMENT ☐ PRESSURE CONTROL EQUIPMENT ☐ DOWNHOLE TOOL ☐ OTHERS:_____

PR DETAILS

(A)	DATE OF INCIDENT	16TH AUGUST 2024	TIME OF INCIDENT	1000H
	CLIENT	PCSB	DOWNTIME INCURRED	
	LOCATION/WELL NO	ANGSI/B15	PUMPING SUPERVISOR	JOHAIRI JOHOR
	PACKAGE/UNIT NO.	PP02	CREW	1. Aizam 2. Ainudin 3. Fakrul Alim
(B)	Problem Title: Crossover miss out mobilization to Angsi Bravo for Well B15		PR Running No:	
(C)	Equipment/ Tool Involved (Serial/ Part No.) Wellhead Crossover (7-5 x CB44 and CB44 X CB22) *Supplier:*			

(D) Operational Information: Preparation for Tubing Pickling and SISQ for well B15

JOB / RUN TYPE	Rig up on well B15	PREVIOUS RUNS (IF APPLICABLE)	N/A
MAX ANGLE	N/A	INCIDENT DEPTH/ANGLE	N/A
SHUT-IN TUBING HEAD PRESSURE (SITHP) PRE-RUN	N/A	SITHP AFTER RUN (IF APPLICABLE)	N/A
FLUID LEVEL / WELL TYPE	N/A	CASING HEAD PRESSURE	N/A
PULLING WEIGHT	N/A	RUNNING WEIGHT	N/A
MAX HANGING WEIGHT	N/A	WIRE/COIL SIZE & TYPE	N/A
TOOL CONFIGURATION	N/A		

(D) **Brief Description of Incident**

On **June 27, 2024**, the Project Engineer (PE) issued a request to prepare a 7-5 x CB22 crossover for the upcoming operations at Angsi Bravo, for well B15.

By **July 1, 2024**, the crew had prepared two different crossovers: a 7-5 x CB44 and a CB44 x CB22, along with the necessary chemicals intended for well B22. The plan at that time was to load out the equipment for both wells B15 and B22 together on July 4, 2024.

Figure 1: 7-5 X CB44 and CB44 X CB22 Crossover Packed in Cargo Container MM6-1002

However, on **July 9, 2024**, a sudden change in operational plans occurred. The focus shifted from wells B15 and B22 to well B18L, which required different preparations, including the mobilization of an N2 package. Consequently, the List of Loadouts (LOL) for B18L was submitted, and the loadout equipment for wells B15 and B22 was put on hold.

By **July 16, 2024**, the loadout for well B18L was successfully completed. However, due to changes in plan, the wellhead crossover, which was initially planned for well B15 was excluded from this loadout.

Finally, on **August 6, 2024**, the crew prepared for the loadout for well B15. Unfortunately, the crossover that was initially prepared for B15 was inside chemical container for B22 loadout. Due to congested space on the main deck area, the B22 equipment was left out from the loadout. This oversight led to the crucial error of excluding the wellhead crossover required for well B15.

Note: ***Please describe 1. Chronology that leads to incident, 2. Your observation/evidence on current situation 3. Client Feedback and 4. Evidences found and preservation action taken***
Preserve all evidence for problem identification/reproduction at base.

(E) Possible Cause of Incident

1. **Sudden Change in Operational Plans:**
   The abrupt shift in focus from wells B15 and B22 to B18L on July 9, 2024, disrupted the original loadout plans. The change required a different set of equipment, including the N2 package for B18L, which led to the postponement of the B15 and B22 loadouts. This sudden shift created confusion and disrupted the preparation process.
2. **Miscommunication or Lack of Coordination:**
   The transition from preparing for B15 and B22 to B18L may have resulted in miscommunication or a lack of coordination among the team members. This could have led to the incorrect assumption that the B15 crossover was no longer needed or had been accounted for in another part of the process.
3. **Human Error in Loadout Preparation:**
   When the loadout for B15 was finally prepared on August 6, 2024, the crossover intended for B15 was storage inside chemical container included in the B22 loadout. This was a critical error, likely caused by confusion or oversight during the hectic loadout process.
4. **Lack of a Robust Tracking System:**
   A more robust system for tracking and verifying the inclusion of all necessary equipment, particularly critical items like the wellhead crossover, might have prevented this error. The absence of such a system allowed the mistake to go unnoticed until it was too late.

Note : ***This is only an initial assumption based on limited information available at time of incident. It is not final and used only to assist investigation.***

(F) Recommendation and Solution

1. **Development of New Documentation for Equipment Requests (Iron Request):**
   A new, standardized document will be created specifically for equipment requests. This "Iron Request" form will clearly outline the equipment required for each well, ensuring that all necessary items are accounted for and reducing the risk of oversight.
2. **Enhancement of the Load-Out List (LOL):**
   The existing Load-Out List will be improved by adding a new column to specify the well number associated with each basket and container. This enhancement will allow for more precise tracking and segregation of equipment, ensuring that items are correctly allocated to their intended destinations.
3. **Improvement of Labelling Procedures:**
   The labeling process will be enhanced by logistics to include clear identification of the well number on each basket and container. This will involve updating labeling stickers to ensure that they prominently display the well number, facilitating easier identification and reducing the likelihood of equipment being packed incorrectly.

(G) Details of Originator

Reported by:

Name: Nurul Farahana Muhammad Khairul Teo
Position: Junior Field Engineer
Date: 19th August 2024

(H) TO BE FILLED BY TOWN:

Action by:

Name: Mohd Shahfariz Salim
Position: **Technician/Engineer**
Date: 19th August 2024

Verified by:

Name: Mohd Khairul Ridhwan Azizan
Position: **Field Service Manager**
Date: 19/8/2024

DIMENSION BID

PROBLEM INVESTIGATION REPORT

All investigation report must be submitted not later than 5 days

Problem Statement:	Wellhead crossover missed out mobilization to Angsi B for well B15
PR Running No.:	PR2024-CTS-AUG-057
Date of Investigation:	18th August, 2024
Date of Investigation (Closed):	20th August, 2024

(A)	**BACKGROUND**

i. Detailed Description of Problem

On June 27, 2024, the Project Engineer (PE) issued a request to prepare a 7-5 x CB22 crossover for the upcoming operations at Angsi Bravo, for well B15.

By July 1, 2024, the crew had prepared two different crossovers: a 7-5 x CB44 and a CB44 x CB22, along with the necessary chemicals intended for well B22. The plan at that time was to load out the equipment for both wells B15 and B22 together on July 4, 2024.

However, on July 9, 2024, a sudden change in operational plans occurred. The focus shifted from wells B15 and B22 to well B18L, which required different preparations, including the mobilization of an N2 package. Consequently, the List of Loadouts (LOL) for B18L was submitted, and the loadout equipment for wells B15 and B22 was put on hold.

By July 16, 2024, the loadout for well B18L was successfully completed. Due to changes in plan, the wellhead crossover, which was initially planned for well B15 was excluded from this loadout.

Finally, on August 6, 2024, the EIC asked to loadout items for well B15 that was prepared on 1st July 2024. Due to congested space on the main deck area, the B22 equipment was left out from the loadout. Unfortunately, the crossover was stored inside chemical container for well B22. This oversight led to the crucial error of excluding the wellhead crossover required for well B15.

ii. Investigation Team

Team Leader: Mohd Khairul Ridhwan Azizan
Member 1: Nurul Farahana Muhammad Khairul Teo
Member 2: Mohd Shahfariz Salim
Member 3: Nur Izzah Norsham

iii. Supporting Documents/Attachments/Picture/Investigation details

Figure 1: 7-5 X CB44 and CB44 X CB22 Crossover Packed in Cargo Container MM6-1002

DIMENSION BID

(B)	INVESTIGATION ANALYSIS
	Note: The WHY's could be more or less than 5 WHYs until the point where the WHY is no longer reasonably actionable
1	**WHY 1:** Critical equipment intended for well B15 was overlooked and not mobilized to the Angsi B platform.
2	**WHY 2:** Critical equipment designated for well B15 was packed in closed container for well B22.
3	**WHY 3:** The plan to load out equipment for multiple wells together.
4	**WHY 4:** The use of a single load-out plan for multiple wells, combined with the practice of packing mixed equipment for same location.
5	**WHY 5:** The absence of a dedicated document to segregate and track equipment specific to each well has led to critical oversights during the packing and mobilization process.
6	**Root Cause of Incident *(Acquire from the last WHY)*:** The root cause was determined to be the lack of documentation to track the packing of critical equipment prior to load-out. There is no proof for the items packed prior load out.

ROOT CAUSES CLASSIFICATION *(Refer to QA-REF-01: Root Causes Classification)*

People	Process	Equipment	Environment
a. Lack of knowledge ☐	a. Inadequate Procurement/ Purchasing ☐	a. Inadequate Engineering /Manufacturing ☐	a. Due to well condition ☐
b. Lack of Skill ☐	b. Inadequate Maintenance/ Repair ☐		b. Subcontractor/ client negligence ☐
c. Improper Motivation ☐	c. Inadequate Standards/ Procedures/Work Instructions ☑		
d. Abuse & Misuse ☐	d. Excessive Wear and Tear ☐		
e. Inadequate leadership & supervision ☐	e. Inadequate Communication ☐		
	f. Inadequate Logistics/ delivery ☐		

(C)	SOLUTIONS/ WAY FORWARD AND TRAINING REQUIRED
1	**Correction (Short Term):** - We attempted to expedite the WHXO by 2 crew change hand-carrying it via FCB on Sunday (18.8.2024), unfortunately, KTSB did not permit this method due to total weight for both WHXO are 121.3 kg which exceed allowable weight to be carried around 20 kg. - We also discussed with the logistic team on the possibility of loading the WHXO onto a vessel to Tiong, which was scheduled to sail on (17.8.2024), and then routing the Angsi FCB to pick up the item tomorrow. However, the RO at Angsi informed us that the FCB could not be released due to the platform's packed schedule. - Thus, as a way forward, we will load out the WHXO on the 24.8.2024 sector boat.

2	**Corrective Action (Long Term) / Way Forward:** - **Enhancement of Equipment Request and Tracking Processes for Critical Mobilization:** To improve operational efficiency, the documentation will be upgraded to include requests for critical equipment such as iron, crossovers, and other essential components. The new 'Wellhead Crossover Request' form will clearly specify the equipment required for each well, ensuring comprehensive accountability and minimizing the risk of oversight. - **Enhancement of the Load-Out List (LOL):** The existing Load-Out List will be improved by adding a new column to specify the well number associated with each basket and container. This enhancement will allow for more precise tracking and segregation of equipment, ensuring that items are correctly allocated to their intended destinations. - **Implementation of 7-14 Day Operational Lookahead for Enhanced Resource Planning:** To address the crossover issue and ensure all necessary resources are properly allocated, the Project Engineer will develop a 7-14 day operational lookahead for campaign mode. This lookahead will serve as a proactive planning tool, capturing and scheduling all required elements, including personnel, equipment, chemicals, and boat schedules. By systematically identifying and planning for these needs well in advance, the lookahead will help to ensure that critical items, such as crossovers and other equipment, are not overlooked, thereby improving overall operational readiness and efficiency.
3	**Training Required:**

Prepared by	Verified by	Approved by
		
Name : Mohd Khairul Ridhwan Azizan	Name : Aliff Adenan	Name :
Position : Team Leader	Position : General Manager	Position :
Date: 22/8/2024	Date: 28/1/24	Date:

Note: Verified and Approved Signatories are according to DBSB-QA-09: Operation Problem Management. Refer to the table below:

SEVERITY	VERIFIED BY	APPROVED BY
HIGH	Operation Manager	Chief Operating Officer
MEDIUM	Field Service Manager	Operation Manager
LOW	Field Service Manager	Operation Manager

(D)	CLASSIFICATION OF MANAGEMENT SYSTEM CONTROL *Note: To be filled by Head of Dept. Refer to QA-REF-01: Root Causes Classification*			
	a. Commitment, Leadership & Accountability		e. Risk Management	
	b. Policies and Objectives		f. Business Processes	
	c. Organizations and Resources		g. Performance Monitoring and Improvement	
	d. Contractor and Supplier Management		h. Audit and Reviews	

Submit a scanned copy of this PIR &supporting documents in NeuPublic\8. Technical\1. Problem Management\1. Problem Report & Investigation.

Neu Dimension
Your Integrated Solutions Partner

Improving Mobilization Efficiency: Addressing Equipment Oversights Through a Standardized Tracking System

18 AUGUST 2024

1

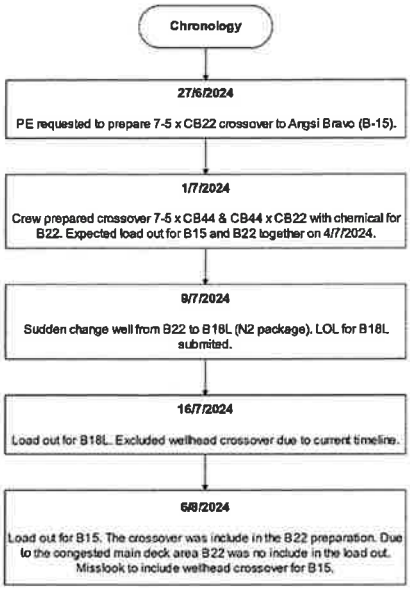
Neu Dimension
Your Integrated Solutions Partner

Table of contents

2

01 DEFINE PROBLEM

- Critical equipment being overlooked during the packing process, leading to instances where baskets are mobilized without all necessary items



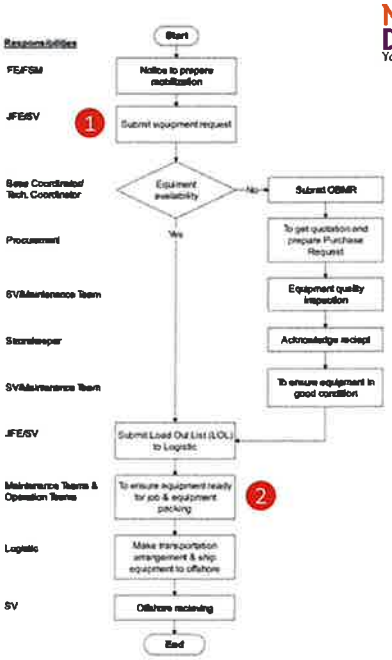
3

3

02 DATA COLLECTION

- Critical equipment being overlooked during the packing process, leading to instances where baskets are mobilized without all necessary items

- Based on discussions between management regarding the load-out system, the identified gaps in the process are as follows:
  1. **Currently, equipment requests are limited to Bottom Hole Assembly (BHA) and chemicals, with no formal process in place for requesting critical equipment.** This omission results in incomplete information transfer, increasing the likelihood of errors.
  2. **There is no package preparation report to confirm that the equipment is ready for mobilization.** The absence of this report can lead to human error and oversight during the packing and mobilization process."



4

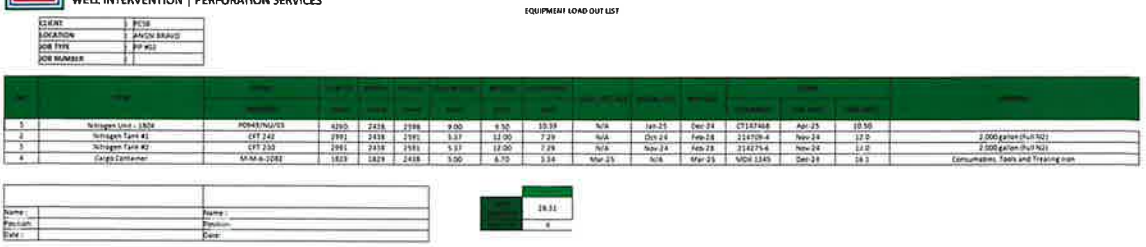
4

02 DATA COLLECTION

Neu Dimension
Your Integrated Solutions Partner

DIMENSION BID
WELL INTERVENTION | PERFORATION SERVICES

EQUIPMENT LOAD OUT LIST



- This is the main page of Load Out List (LOL). Includes the dimensions, expires date of lifting equipment and remark on items but not specific on the items for consumable and the tools/equipment being load out. This LOL is attached with chemical request, Bottom Hole Assembly (BHA) request and Treating Iron Movement Activity (TIMA). However, this process only at the beginning of packing (pre-mob).

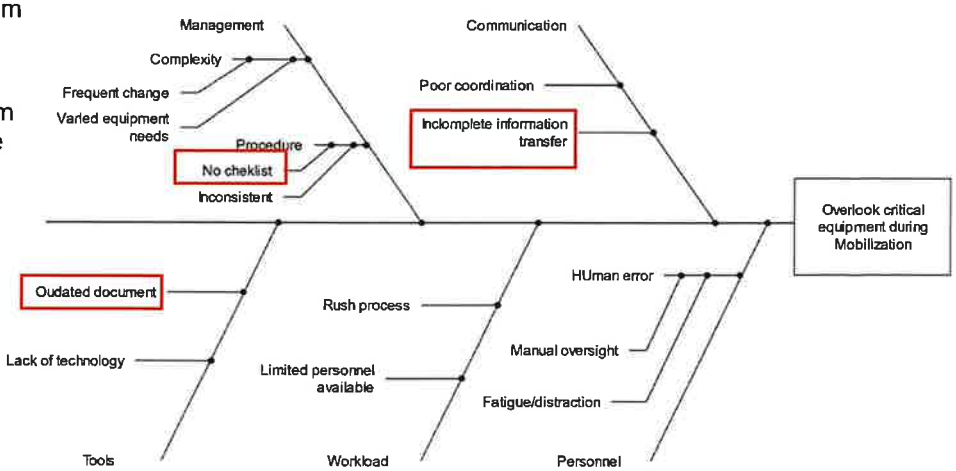
5

5

03 ROOT CAUSE ANALYSIS

Neu Dimension
Your Integrated Solutions Partner

- Possible causal factors by Fish Bone/Ishikawa Diagram
- The possible causes were jot down and through out the system mobilization, there are 3 main cause for the problem



6

6

03 ROOT CAUSE ANALYSIS

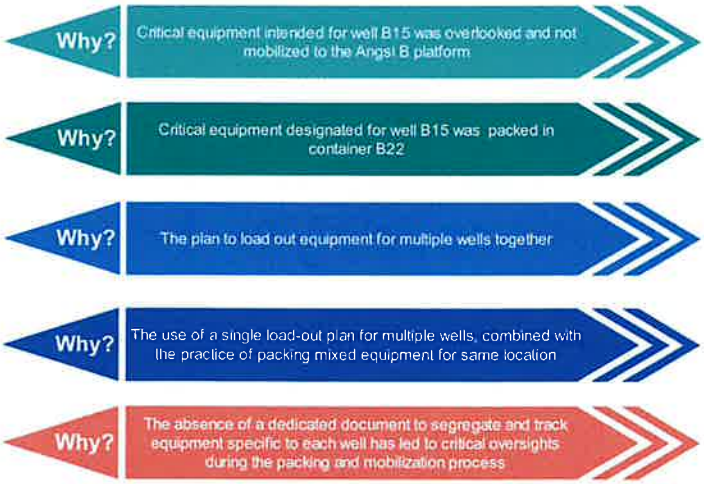
Neu Dimension
Your Integrated Solutions Partner

1. **Communication**
   - **Poor Coordination**: Lack of clear communication between departments or team members about what equipment needs to be included in each mobilization.
   - **Incomplete Information Transfer**: Critical information about required equipment may not be passed along properly from planning to execution stages.
2. **Personnel (Human error)**
   - **Manual Oversight**: Relying on memory or manual tracking increases the likelihood of human error, leading to missed items.
   - **Fatigue or Distraction**: Workers might miss items due to fatigue, distraction, or being rushed during the packing process.
3. **Inadequate Documentation Tools**
   - **Lack of Technology**: The absence of digital tools or software to track and manage equipment lists can lead to items being overlooked.
   - **Outdated Document**: Existing documentation might be outdated or incomplete, leading to items not being included in the packing process.
4. **Workload**
   - **Rushed Processes**: Tight deadlines or heavy workloads may force teams to rush through the packing process, increasing the risk of missing equipment.
   - **Insufficient personnel available**: Limited personnel available for packing and checking equipment can lead to oversights.
5. **Management**
   - **Varied Equipment Needs**: Projects that require different sets of equipment can make it difficult to track what is needed for each mobilization, especially without a clear system.
   - **Frequent Changes**: Changes to equipment requirements that are not promptly updated in tracking documents can result in missing items.
   - **Inconsistent Processes**: Different teams or individuals may follow varied procedures for packing, leading to inconsistencies in what is considered "complete."
   - **No Checklist**: Absence of a standardized checklist or protocol for ensuring all equipment is accounted for before mobilization.

03 ROOT CAUSE ANALYSIS

Neu Dimension
Your Integrated Solutions Partner

- Root cause of the problem after using elimination method using 5 WHY



- The three primary causal factors for this problem were analyzed using the 5 WHY method, which led to the identification of the root cause. The root cause was determined to be the lack of documentation to track the packing of critical equipment prior to load-out.

← Root cause

Neu Dimension
Your Integrated Solutions Partner

04 RECOMMENDATIONS & SOLUTIONS

To address the identified issues and prevent future occurrences, the following steps will be implemented:

1. **Enhancement of Equipment Request and Tracking Processes for Critical Mobilization:**
   To improve operational efficiency, the Treating Iron Movement Activity will be upgraded to include requests for critical equipment such as iron, crossovers, and other essential components. The new 'Crossover Request' form will clearly specify the equipment required for each well, ensuring comprehensive accountability and minimizing the risk of oversight.
2. **Enhancement of the Load-Out List (LOL):**
   The existing Load-Out List will be improved by adding a new column to specify the well number associated with each basket and container. This enhancement will allow for more precise tracking and segregation of equipment, ensuring that items are correctly allocated to their intended destinations.
3. **Implementation of 7-14 Day Operational Lookahead for Enhanced Resource Planning:**
   To address the crossover issue and ensure all necessary resources are properly allocated, the Project Engineer will develop a 7-14 day operational lookahead for campaign mode. This lookahead will serve as a proactive planning tool, capturing and scheduling all required elements, including personnel, equipment, chemicals, and boat schedules. By systematically identifying and planning for these needs well in advance, the lookahead will help to ensure that critical items, such as crossovers and other equipment, are not overlooked, thereby improving overall operational readiness and efficiency.