



Temporary (Hired) Equipment Requirements ILNG

SPC - Specification

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1 PURPOSE

The purpose of this document is to provide information and certification requirements to aid the use of temporary (hired) equipment on the Darwin ILNG Facility.

2 SCOPE

This Guideline outlines general temporary or hired equipment certification requirements, available interfaces and specific facility information for prospective suppliers of temporary equipment.

The document is relevant for any equipment that needs to be utilised on a temporary basis to execute Project, Maintenance or Operations functions. This may include but not limited to:

1. Hired Tools and Equipment mobilised via ILNG Supply Base
2. Equipment and tools carried by specialist Contractors

The scope of this document does not include the installation of permanent equipment on site. The management of permanently installed non-like for like equipment will be managed by the Management of Change (MOC) Process.

3 AVAILABLE INTERFACES

Various interfaces readily available onshore are listed below along with standard hook-up information for the facility and the general design basis / capabilities for each system.

3.1 Wash Down Water

Hoses should comply to reference hose standardised data sheet: X060-AX-DAT-00003.

The fresh, service, potable and de-mineralised water systems produce, store, sterilise and distribute fresh water to users.

Table 3-1: L-710-T-001 - Service Water Storage Tank

L-710-T-001 Capacity	25,156 m ³
Design Standard	API 650
Hose End Fitting 1	1" Camlock self-locking lever style
Hose End Fitting 2	1" Camlock self-locking lever style
Hose Type	Service Water Flexible, Black NBR Blended and Anti-Static, oil and abrasion resistant.

3.2 Fire Water

The Fire Water (FW) supply consists of 2 interconnected FW ring mains. Available FW interface is via Dual Fire Hydrants located throughout the facility.

Table 3-2: Fire Water System

Design Conditions	1,600 kPag at -15 °C / 80 °C
Operating Conditions	600 kPag at 29 °C
Connection Type	Couplings shall be British Instantaneous type (BIC) in accordance with BS 336.
Hose Type	Hoses as per the Hose Management Standard: X060-AM-STD-60010

3.3 Plant Compressed Air

Hoses should comply to reference hose standardised data sheet: X060-AX-DAT-00001.

Table 3-3: L-680-V-001-A and B Main Compressed Air Process Connection: Plant Air

Design Capacity	871 m ³ per vessel
Operating Conditions	700 kPag at Ambient
Hose End Fitting 1	1" NPT/BSPT Male Hosetail SS316 c/w 1" Minsup Type A Coupler NPT/BSP Thread CF8M
Hose End fitting 2	1" NPT/BSPT Male Hosetail SS316 c/w 1" Minsup Type A Coupler NPT/BSP Thread CF8M
Hose Type	Plant Air flexible, Class C Antistatic, Black NBR Blended, oil and abrasion resistant.

3.4 Electrical

Low voltage electrical interfaces are provided throughout the facilities. Each outlet is Ex rated and linked to the platform fire and gas system which isolates power to the outlets on deck in the event of a fire, gas release or process shutdown. Outlets are fitted with 30 mA RCD protection for 16 A and 100 mA for three phase outlets. The electrical supply characteristics are listed below.

Refer to the following documents for further details:

- L780-AE-SPC-10058 - SPECIFICATION FOR EXPLOSION PROOF WELDING OUTLET SOCKET 63A - GHG 514 4506 R3001 - COMBINED CYCLE POWER PLANT (CCPP).
- L780-AE-SPC-10056 - SPECIFICATION DATA SHEET FOR 16AMP EXPLOSION PROOF CONVENIENCE SOCKET OUTLET & PLUG GHG 511 SERIES - LIGHTING FIXTURES - COMBINED CYCLE POWER PLANT (CCPP).

Table 3-4: 3 Phase + Neutral (Welding Outlets)

Supply	63 A / 400 V / 50 Hz (5 Pin)
Plug Type	GHG 514 7506 R0001
Socket Type	GHG 514 4506 R3001

Table 3-5: Single Phase Connection

Supply	63 A / 230 V / 50 Hz (3 Pin)
Plug Type	GHG 511 7306 R0001
Socket Type	GHG 511 4306 R3001

3.5 Nitrogen

This section should be read in conjunction with the ILNG Nitrogen System Operating Manual, L690-AP-IOM-10002

Hoses should comply to reference hose standardised data sheet: X060-AX-DAT-00002.

Table 3-6: Nitrogen Process Conditions

Design Conditions	1,700 kPag at 80 °C
Operating Conditions	750 kPag at Ambient
Hose End Fitting 1	1" Quick Release Coupling ISO 7241-1 Series B
Hose End Fitting 2	1" Quick Release Coupling ISO 7241-1 Series B
Hose Type	Nitrogen Flexible Hose, Black NBR Blended and Anti-Static, oil and abrasion resistant.

3.6 Diesel

The ILNG Diesel system supplies treated diesel from to the plant. There is no upstream process connection to the diesel system.

Table 3-7: Diesel System Conditions

Diesel System - Design Conditions	80 °C
Diesel System - Operating Conditions	16 °C – 36 °C
Diesel System - Design Conditions	80 °C

Temporary Equipment shall not be connected directly to the Diesel Ring Main (unless via approved MOC and permit). Diesel for TE shall be supplied via bowzers available onsite.

4 TEMPORARY ELECTRICAL EQUIPMENT – SPECIFICATION/REQUIREMENT

All temporary equipment shall comply with the following specification & installation requirements. Any deviation from this requires a temporary MOC for approval of electrical TA-2.

All equipment shall be inspected and tested/tagged.

All temporary equipment shall be suitably Ex rated. If non-Ex rated equipment is to be used in the temporary equipment hazardous area, it must be demonstrated that alternatives have been considered and that their use is not reasonably practicable. Alternatives may include suitably rated equipment, or equipment with lower surface temperatures (refer to Appendix-A for surface temperature guidelines). Identification and consideration of alternatives must be performed as part of the TE request to allow for procurement of any alternative equipment, as needed. Appendix-A shall be used to determine whether an MOC is required; a formal risk assessment is required to support an MOC for any non-Ex rated equipment to be used in the temporary equipment hazardous area. The demonstration that alternative options have been considered will be required as an input to the risk assessment / ALARP determination.

Any EEHA shall be inspected as per X060-AE-STD-00009 EEHA – Portable Electrical Equipment.

A live register of temporary equipment is available - [Temporary Equipment Management System \(TEMS\) - Power Apps](#). This register includes a list of all TE used on site and whether it complies with EX requirements and if not, where this is documented/assessed:

- For equipment <200degC – No MOC/ORA
- For equipment between 200degC and 471degC (TE Exclusion Zone), or
For equipment between 200degC and 361 degC (nC5 restricted area)
 - No MOC/ORA if provided with auto-shutdown / attendant and regular temperature checks
- For equipment >361/471degC – MOC/ORA is always required

Note: The following consideration of alternative shall also be assessed.

The above criteria for MOC/ORA requirement considers a risk of surface temperature only. Actual MOC requirement needs to be assessed in conjunction with MOC requirement flowchart in Appendix-A.

Consideration of alternative;

- The following questions should be addressed as part of the TE request if a job is planned where non-EX TE is planned to be used within the TE hazardous area and an MOC is determined to not be required by this flowchart. These questions will also form part of any TE request that does require an MOC.
 1. Does suitable alternative equipment exist that does not present an ignition risk (e.g. EX rated, surface temperatures below 200degC, different method/equipment)? Justify why these alternatives cannot be used.

2. For hot surfaces (in order of priority):
 - a) Justify why equipment with lower surface temperatures cannot be used.
 - b) Identify if there are opportunities to reduce surface temperatures on the equipment and explain why these cannot be implemented. Justify why equipment cannot be located outside of hot surface exclusion zones (see the slide in Appendix A: Hot surface exclusion zone).
3. For electrical ignition risk (in order of priority):
 - a) Justify why equipment cannot be plugged into GPO/WOs (allowing for auto shutdown on gas detection)
 - b) Justify why an emergency shutoff box / Genguard (or similar) cannot be provided, which shuts down on signal from F&G system or portable detectors (instead of using an attendant).
4. What other controls have been considered but deemed not practicable, and why?

4.1 Temporary Generator

- Portable generators under 25 kW shall comply with AS/NZS 2790 Electricity Generating Sets – Transportable (Up to 25 kW).
- Portable generators over 25 kW shall comply with AS/NZS 3010 Electrical Installations - Generating Sets.
- A Wyndham valve to be fitted for avoiding overspeed of equipment.
- An exhaust spark arrestor to be fitted.
- A battery isolator to be installed.
- Shutdown function upon gas detection shall be implemented prior to operate a genset. (e.g. Auto shutdown function – Gen Guard, Attendant at equipment to shut down equipment on gas detection)

4.2 SWGR/Distribution boards

- All switchboards/Distribution Boards used for construction shall comply with the requirements of AS/NZS 3000 and AS/NZS 3012.
- All doors and covers shall be lockable with a padlock where tools are not required to open.
- All doors and covers shall have Electrical Hazards Warning & Danger signs fitted.
- Temporary sub boards and distribution boards must be constructed to permit the opening or closing of the door or lid without the removal of, or damage to, any cables or flexible leads attached to the connection facilities.
- Temporary sub boards and distribution boards must be fitted with a lid or door that cannot be removed without the use of a tool, and which is either unhinged or fitted with hinges which ensure freedom of operation.
- All boards are to be bottom/side entry.
- All externally mounted boards to have an IP rating of IP66.

4.3 Temporary HVAC

- All HVAC electrical equipment shall comply with the requirements of AS/NZS 3000 and AS/NZS 3012.
- All HVAC refrigerating system shall comply with the requirements of AS/NZS 5149.

4.4 Flexible Cords, Extensions, Cables and Accessories

- Cord extension sets shall comply with AS/NZS 3199 except as varied by AS/NZS 3012;
- The minimum cross-sectional area of a flexible cord's conductors shall be 1.0 mm²;
- Flexible cords shall contain an earth conductor;
- The sheath of flexible cords shall not contain the colour green;
- Flexible cords shall be protected from mechanical damage
- Always be used un-coiled unless specifically designed and marked as being suitable for coiled use by the manufacturer.
- Only be used for temporary power e.g. not to be used to power fixed equipment such as refrigerators, photocopiers, pumps, drill presses etc.
- Be laid out in such a way that they will not be damaged in use such as strung above head height where appropriate with the use insulated hooks. Running of extension leads on floors / walkways should be avoided, unless absolutely necessary.
- Not be used in wet areas.
- Always checked for signs of wear and tear before use.
- Be stored appropriately when not in use.

Electrical Portable Outlet Devices (EPOD) shall:

- Not be used in wet areas.
- Not be used for high power electrical equipment (for example welding machines or portable heaters).
- Not be used if they show signs of damage, or of having been wet or are heavily contaminated with dirt, dust and other contaminants.
- Always checked for signs of wear and tear before use.
- Be stored appropriately when not in use.

EPODs shall have an inbuilt RCD that is to be tested before use every time in accordance with AS/NZS 3760. Double adaptors or piggy back plugs shall not be used on any INPEX facilities.

To achieve safe energisation of temporary equipment, complete the TEMPORARY EQUIPMENT ELECTRICAL INSTALLATION/COMPLIANCE – CHECK LIST: X060-AE-FRM-70002 prior to the energisation of equipment.

4.5 Temporary Steam Generators

The minimum controls shall include:

- Shutdown air damper and fuel shutoff valve

- Antistatic fuelling system
- Emergency shutdown system that includes high temperature, emergency stops and safety interlocks
- Steam vents routed away from where personnel may be

APPENDIX A: MOC REQUIREMENT FLOWCHART & TE HAZARDOUS AREA MAP



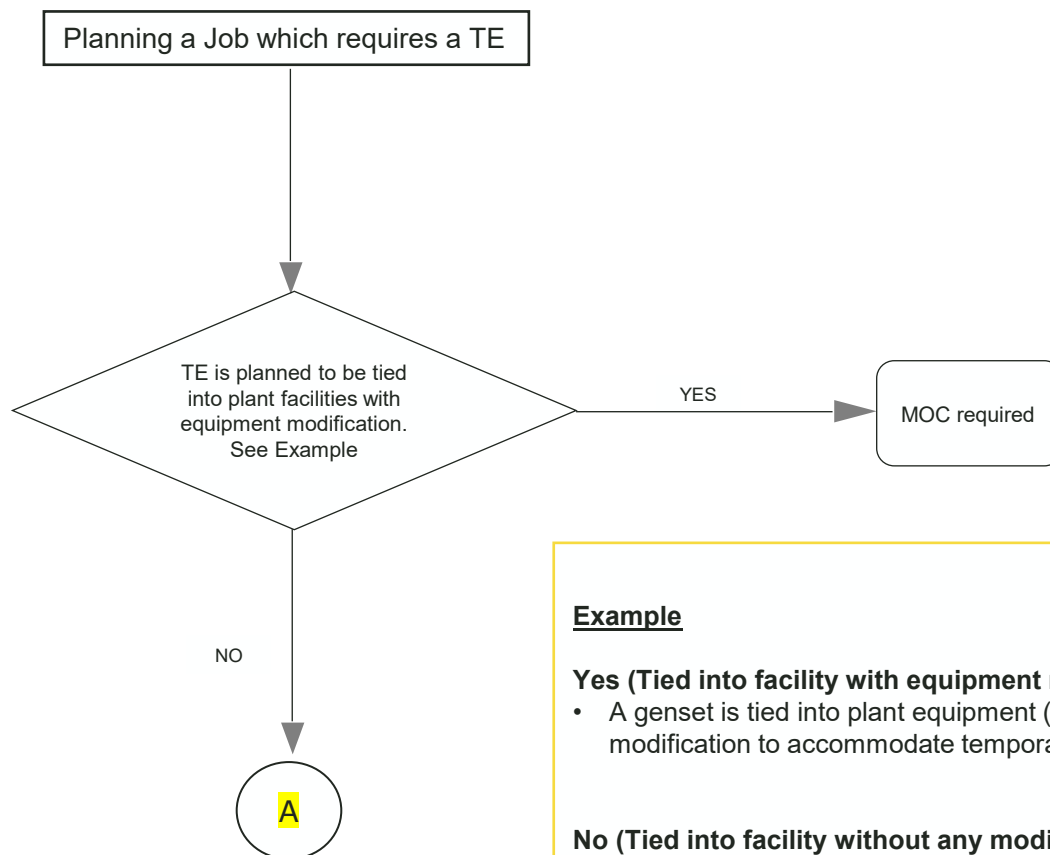
Temporary Equipment Management – MOC requirement flowchart

TE (Temporary Equipment) requestor to go through this flow chart and confirm MOC requirement prior to raising a TE request.

Note: Refer X060-A1-PRC-60012 for the Definition of TE and MOC requirement, L060-A1-SPC-70000 for the Specification of TE.

The following questions should be addressed as part of the TE request if a job is planned where non-EX TE is planned to be used within the TE hazardous area and an MOC is determined to not be required by this flowchart. These questions will also form part of any TE request that does require an MOC.

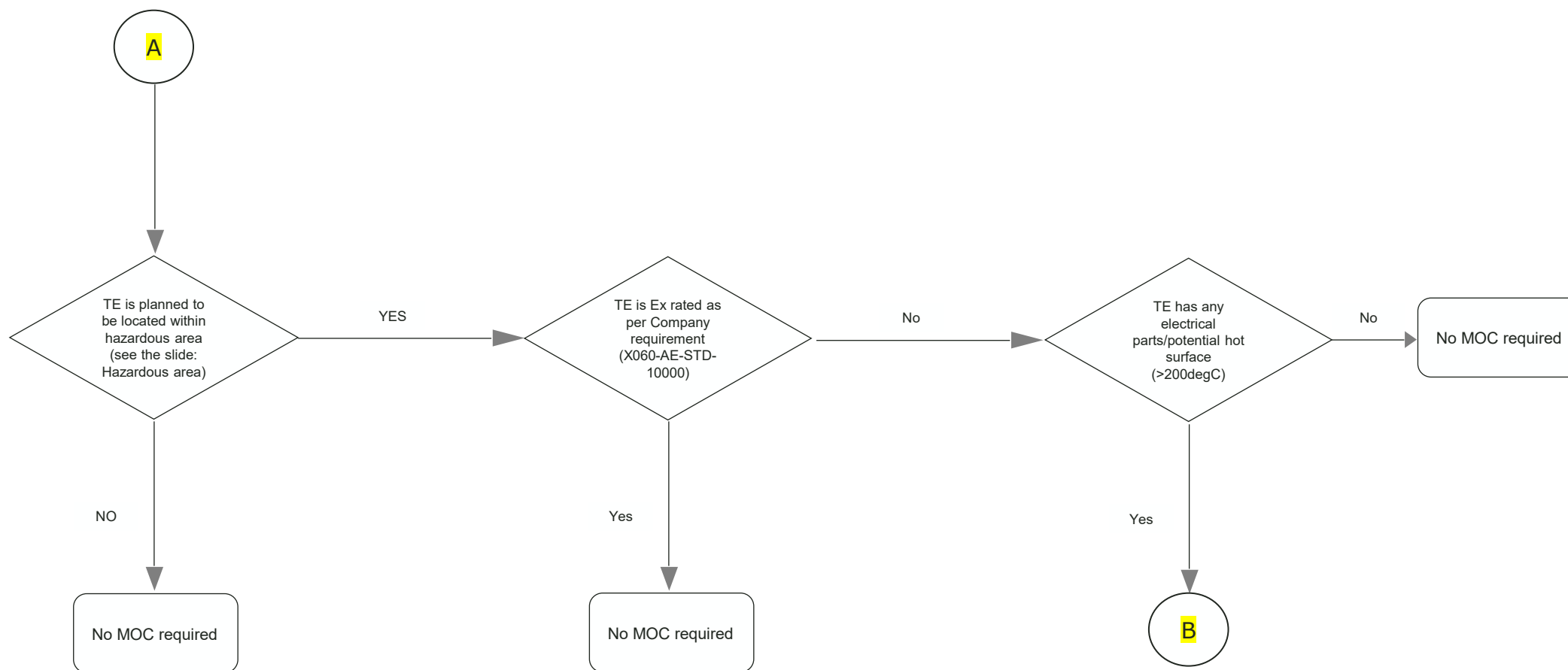
1. Does suitable alternative equipment exist that does not present an ignition risk (e.g. EX rated, surface temperatures below 200degC, different method/equipment)? Justify why these alternatives cannot be used.
2. For hot surfaces (in order of priority):
 - a) Justify why equipment with lower surface temperatures cannot be used.
 - b) Identify if there are opportunities to reduce surface temperatures on the equipment and explain why these cannot be implemented. Justify why equipment cannot be located outside of hot surface exclusion zones (see the slide: Hot surface exclusion zone).
3. For electrical ignition risk (in order of priority):
 - a) Justify why equipment cannot be plugged into GPO/WOs (allowing for auto shutdown on gas detection)
 - b) Justify why an emergency shutoff box / Genguard (or similar) cannot be provided, which shuts down on signal from F&G system or portable detectors (instead of using an attendant).
4. What other controls have been considered but deemed not practicable, and why?

**Example****Yes (Tied into facility with equipment modification)**

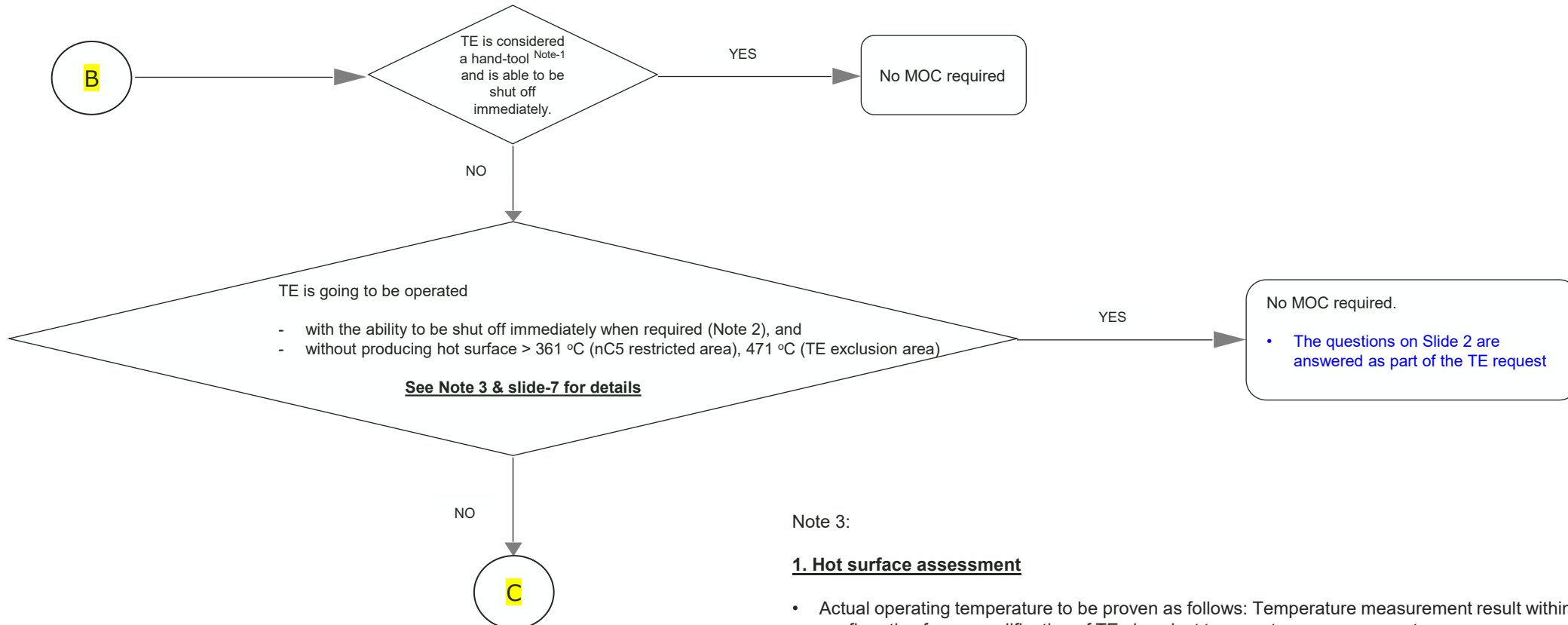
- A genset is tied into plant equipment (SWGR/DB/JB, etc.) which requires a cabinet modification to accommodate temporary power

No (Tied into facility without any modification of equipment)

- An electrical equipment is connected to plant PO/WO
- An equipment is tied into existing connection points on plant facilities (e.g. refill the tank)



"NO MOC required" does not mean relevant work permit isn't required. Actual job to be executed with required permit & control. Equipment also needs to comply with relevant Australian Standard (e.g. AS/NZS 3000)



Note 1: Refer 0000-AH-STD-60029 for definition of hand tool

Note 2:

“the ability to be shutoff when required” examples:

- Automatic shutdown via facility fire and gas system or temporary detection / Genguards.
- Attendant at equipment whose primary job is to shutdown equipment on gas detection.
- Vehicle operators who understand the requirement to turn off vehicles and equipment (e.g. pumps)

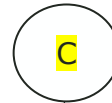
Note 3:

1. Hot surface assessment

- Actual operating temperature to be proven as follows: Temperature measurement result within last 12 months + a confirmation for no modification of TE since last temperature measurement

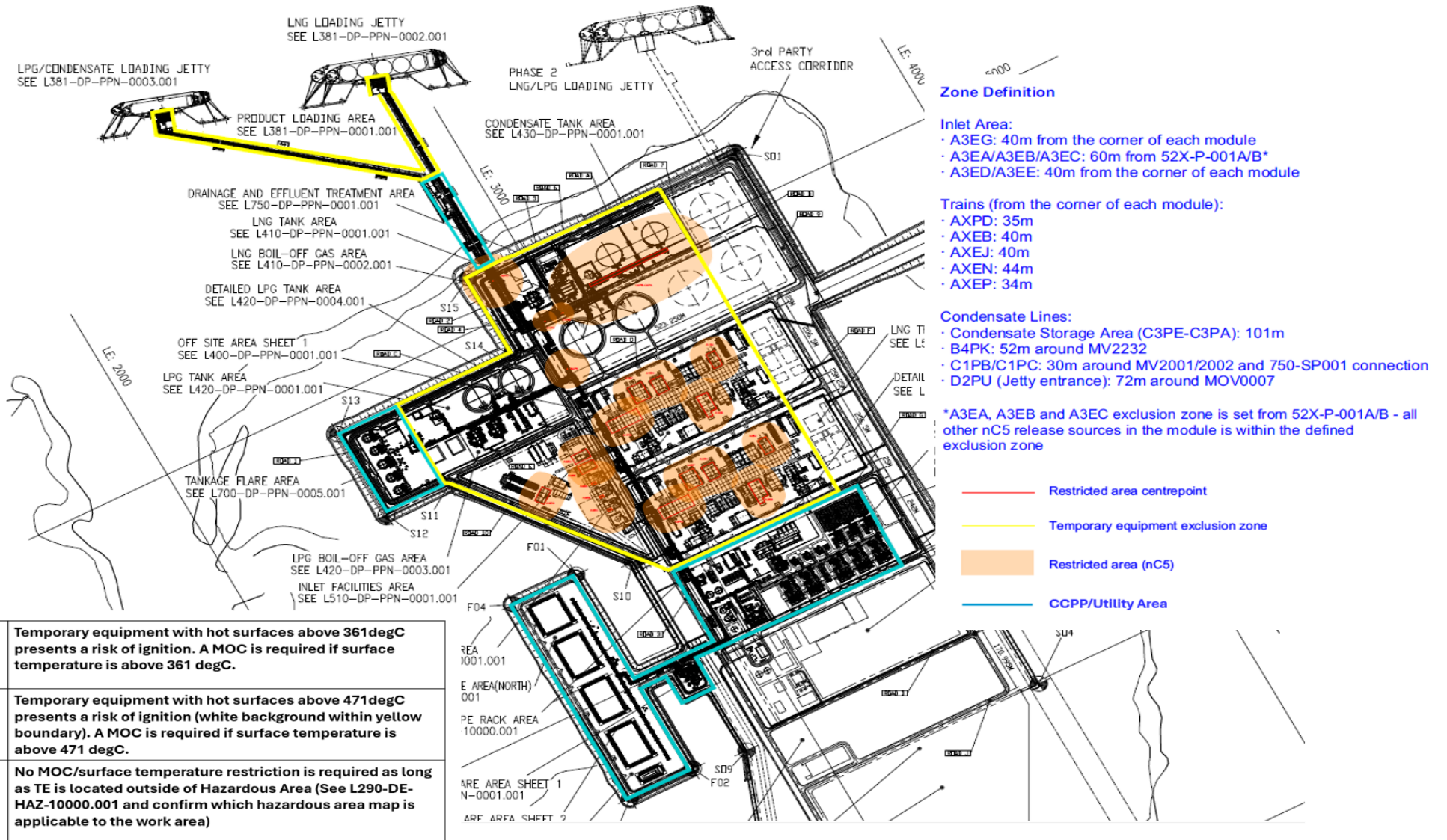
2. Temperature restriction (see L290-A1-GLN-60037 and the slide: Hot surface exclusion zone)

- TE with hot surfaces above 361oC in restricted areas (based on C5 dispersion zones) significantly increases the likelihood of ignition. A MOC is required if surface temperature is above 361 degC.
- TE with hot surfaces above 471oC in the ‘Temporary Equipment Exclusion Zone’ significantly increases the likelihood of ignition. A MOC is required if surface temperature is above 471 degC.



Temporary MOC and/or additional control is required to operate a TE

Note: The questions on Slide 2 are answered as part of the TE request



1. “NO MOC required” does not mean relevant work permit isn’t required. Actual job to be executed with required permit & control. Equipment also needs to comply with relevant Australian Standard (e.g. AS/NZS 3000)
2. MOC to be raised by a TE requestor (i.e. job coordinator/supervisor) and a requestor to be a MOC focal
3. MOC shall be generated and approved prior to shipment of TE as per the procedure
4. MOC focal/operator to ensure that equipment to locate/operate as intended & MOC

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