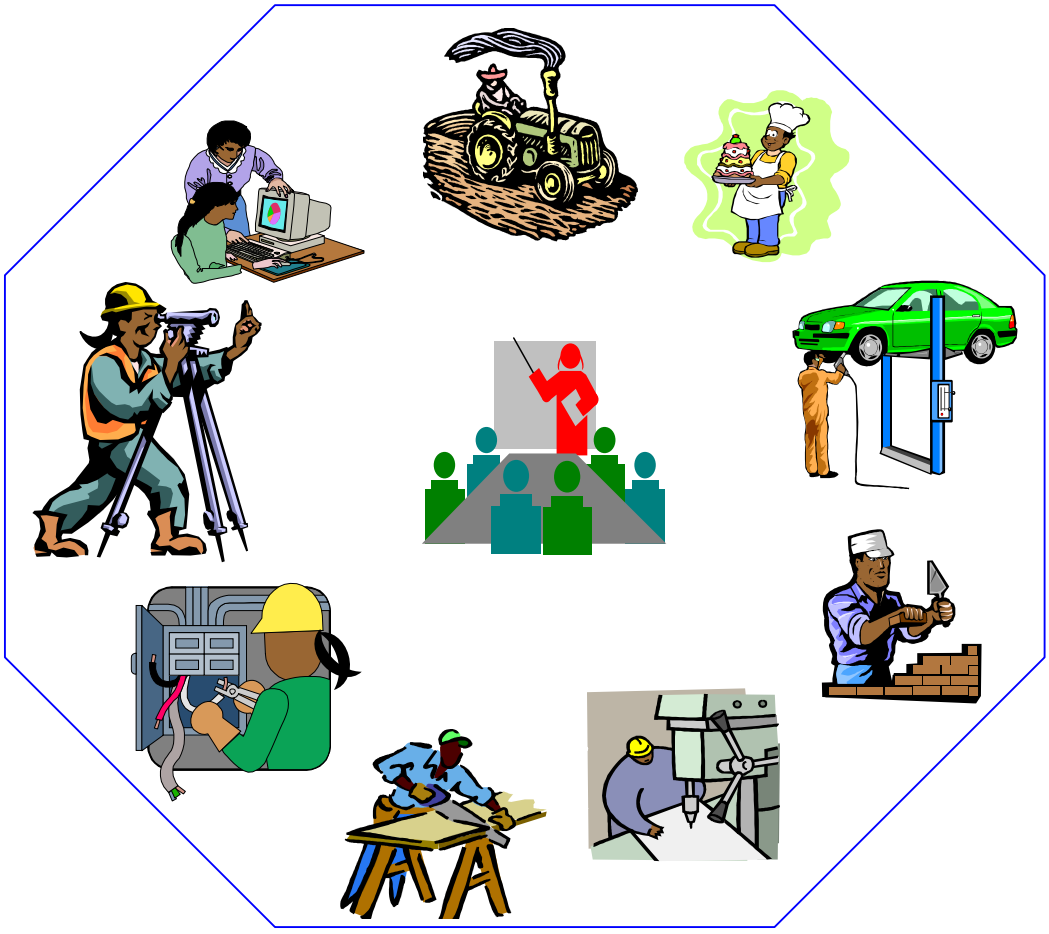
Federal Democratic Republic of Ethiopia

OCCUPATIONAL STANDARD

PULP AND PAPERMAKING OPERATIONS

NTOF Level II and III



Ministry of Education
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Introduction

Ethiopia has embarked on a process of reforming its TVET-System. Within the policies and strategies of the Ethiopian Government, technology transformation – by using international standards and international best practices as the basis, and, adopting, adapting and verifying them in the Ethiopian context – is a pivotal element. TVET is given an important role with regard to technology transfer. The new paradigm in the outcome-based TVET system is the orientation at the current and anticipated future demand of the economy and the labor market.

The Ethiopia Occupational Standards (EOS) is the core element of the Ethiopian National TVET-Strategy and an important factor within the context of the National TVET-Qualification Framework (NTQF). They are national Ethiopian standards, which define the occupational requirements and expected outcome related to a specific occupation without taking TVET delivery into account.

This document details the mandatory format, sequencing, wording and layout for the Ethiopia Occupational Standard which comprised of Units of Competence.

A Unit of Competence describes a distinct work activity. It is documented in a standard format that comprises:

- Occupational title and NTQF level
- Unit title
- Unit code
- Unit descriptor
- Elements and Performance criteria
- Variables and Range statement
- Evidence guide

Together all the parts of a Unit of Competence guide the assessor in determining whether the candidate is competent.

The ensuing sections of this EOS document comprise a description of the occupation with all the key components of a Unit of Competence:

- chart with an overview of all Units of Competence for the respective level including the Unit Codes and the Unit Titles
- contents of each Unit of Competence (competence standard)
- occupational map providing the Technical and Vocational Education and Training (TVET) providers with information and important requirements to consider when designing training programs for this standards and for the individual, a career path

UNIT OF COMPETENCE CHART

Occupational Standard: Pulp and Papermaking Operations		
Occupational Code: IND PP0		
NTQF Level II		
IND PPO2 01 0613 Operate Water Systems	IND PPO2 02 0613 Monitor and Control Boiler Operation	IND PPO2 03 0613 Prepare Chemical Products
IND PPO2 04 0613 Monitor and Control Power Generation System	IND PPO2 05 0613 Prepare and Operate the Woodchip Production System	IND PPO2 06 0613 Monitor and Control Stock Preparation Systems
IND PPO2 07 0613 Monitor and Control Pulping Operations	IND PPO2 08 0613 Monitor and Control Wet End Operations	IND PPO2 09 0613 Monitor and Control Dry End Operations
IND PPO2 10 0613 Use Specialised Liquid Bulk Transfer Equipment (Gravity/Pressurised)	IND PPO2 11 0613 Identify and Monitor Environmental Discharges or Emissions	IND PPO2 12 0613 Plan and Undertake a Routine Task
IND PPO2 13 0613 Monitor and Control Coated Paper Processes	IND PPO2 14 0613 Undertake Operator Level Preventative Maintenance	IND PPO2 15 0613 Monitor, Control and Shut down Finishing and Converting Operations
IND PPO2 16 0613 Monitor and Control Chemical Recovery Operations	IND PPO2 17 0613 Use Organization Computers or Data Systems	IND PPO2 18 0613 Monitor Process Capability
IND PPO2 19 0613 Prepare Equipment for Emergency Response	IND PPO2 20 0613 Identify and Rectify Problems in the Workplace	IND PPO2 21 0613 Estimate and Calculate Basic Operation Data
IND PPO2 22 0613 Provide Initial First Aid Response	IND PPO2 23 0613 Store and Dispatch Waste Paper	IND PPO2 24 0613 Participate in Workplace Communication
IND PPO2 25 0613 Work in Team Environment	IND PPO2 26 0613 Develop Business practice	IND PPO2 27 0613 Standardize and Sustain 3S

NTQF Level III

IND PPP3 01 0613 Manage Steam Boiler Start up	IND PPP3 02 0613 Troubleshoot and Rectify Water Systems	IND PPP3 03 0613 Shut down and Bank Steam Boiler
IND PPP3 04 0613 Manage a Power Generation System Start-Up	IND PPP3 05 0613 Operate Process Control Equipment	IND PPP3 06 0613 Prepare and Start Up Wet End Operations
IND PPP3 07 0613 Prepare and Start Up Dry End Operations	IND PPP3 08 0613 Co-ordinate and Implement Wet End Shutdown	IND PPP3 09 0613 Troubleshoot and Rectify Finishing and Converting Systems
IND PPP3 10 0613 Handle Dangerous Goods/Hazardous Substances	IND PPP3 11 0613 Co-ordinate and Implement Dry End Shutdown	IND PPP3 12 0613 Prepare and Start Up Coated Paper Processes
IND PPP3 13 0613 Prepare and Start up Finishing and Converting Operations	IND PPP3 14 0613 Co-ordinate and Direct Clothing Changes	IND PPP3 15 0613 Measure and Calculate Routine Workplace Data
IND PPP3 16 0613 Prepare and Start up Chemical Recovery Operations	IND PPP3 17 0613 Co-ordinate and Implement Chemical Recovery Shutdowns	IND PPP3 18 0613 Solve Systemic Problems in the Workplace
IND PPP3 19 0613 Monitor and Control Environmental Hazards First Aid	IND PPP3 20 0613 Monitor Implementation of Work plan/Activities	IND PPP3 21 0613 Apply Quality Control
IND PPP3 22 0613 Lead Workplace Communication	IND PPP3 23 0613 Lead Small Teams	IND PPP3 24 0613 Improve Business Practice
IND PPP3 25 0613 Prevent and Eliminate MUDA		

NTQF Level II

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Operate Water Systems**
Unit Code	**IND PPO2 01 0613**
Unit Descriptor	This unit describes the outcomes required to operate water systems in the pulp and paper industry.

Element	Performance Criteria
1. Conduct local inspections and pre-operational safety checks	1.1. Local inspections and pre-operational safety checks are conducted within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements/***practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Isolations are removed. 1.3. Availability of supplies for ***water system*** is confirmed. 1.4. Plant status and requirements are determined. 1.5. ***Materials and supplies***, ***Water sources*** and ***Water types*** are checked. 1.5. Sequencing for plant start-up is confirmed.
2. Start up water systems	2.1. Water systems are started up within OHS, housekeeping, SOP, environmental and safe working requirements and practices. 2.2. ***Hazards and risks in water systems*** are checked. 2.2. Water system is started up. 2.3. Water system is observed for correct start-up operational response. 2.4. Start-up variation conditions are detected and corrective action taken.
3. Monitor and control water systems	3.1. Water systems are monitored and controlled within OHS, housekeeping, SOP, environmental and safe working requirements and practices. 3.2. Water system operation is monitored. 3.3. ***Water samples*** are taken and tested to maintain quality as required. 3.4. Routine checks of water systems are conducted as required. 3.5. Variations from operational parameters and ***equipment*** are identified, 3.6. Action is taken to restore water system to standard operational parameters. 3.7. Operator level ***maintenance*** is conducted as required.

4. Conduct a water system shutdown	4.1. Water system shutdown is conducted within OHS, housekeeping, SOP, environmental and safe working requirements and practices. 4.2. Shutdown plan is confirmed and ***communicated*** through ***sensory information*** in different ***forms of communication*** to relevant personnel. 4.3. ***Electronic control systems*** are used in the shutdown plan. 4.3. Shutdown procedures are implemented. 4.4. Plant is left in a safe condition for isolation as required.
5. Respond to an unplanned shutdown	5.1. Unplanned shutdown is responded to within OHS, housekeeping, SOP, environmental and safe working requirements and practices. 5.2. Cause of shutdown is identified and actioned as required. 5.3. Sequence for systems shutdown Electronic control systems of plant is completed. 5.4. Action taken is communicated to relevant personnel. 5.5. Plant is left in a safe condition for isolation as required.
6. Record and report water systems information	6.1. Water systems information is recorded and reported within OHS, housekeeping, SOP, environmental and safe working requirements and practices. 6.2. Water systems information is recorded as required. 6.3. Problems and related action are recorded, ***documented*** and communicated to relevant personnel.

Variable	**Range**
regulation	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk and small boat licensing requirements • water and chemical legislation and regulations • safety instructions
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed

	• handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Water system	may include: • de-alkalinisation plant • de-mineralisation plant • water softening plant • chemical treatment plant • reverse osmosis plant • clarifier plant • chillers • water storage systems • filtration systems • cooling towers • condensers • potable water plant
Materials and supplies	may include: • chemicals • filtering mediums
Water sources	may include: • raw water • mains water • recycled water
Water types	may include: • fresh water • treated water • de-mineralised water • softened water • filtrate-clarified water • potable water • dilution water (filtrate) ex-vacuum system • waste water (effluent) • white water (ex-machine) • cloudy water
Hazards and risks in water systems	may include: • confined space • hazardous chemicals and materials • biological hazards • environmental hazards • heat • height • slippery surfaces • pressures • fumes

	• electrical • compressed air • nip points • flooding
Water samples	may include: • sludge consistency • pH • conductivity • flocculation • colour • suspended solids • caustic strength • alkalinity • impurities • brine • bacteria • colour • acid strength
Equipment	may include: • flow control and metering devices • pumping systems • electronic and digital monitoring and metering • valving systems • recording systems • pipes • fittings • chemical testing and analysis equipment • chemical dosing equipment • tanks and chests • cranes and hoists • communication equipment • aeration ponds • chemical handling equipment • hand and power tools • pest control equipment • load shifting equipment • small boat • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to water processes and systems • analogue and digital instrumentation
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems

	• maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Communication	may include : • team members • production/service co-ordinators • internal/external customers and suppliers • maintenance services • operational management • statutory authorities
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Documentation	may include: • SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • confined space requirements • vendor documentation • reference manual • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log

	• production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in the operation of water systems
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to water system operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Quality requirements • Working knowledge of water system, plant, processes, layout and associated services sufficient to carry out startup and shutdown activities within level of responsibility • Types, causes and effects of water system shutdowns • Required responses to all unplanned shutdowns (e.g. power outage, mechanical breakdown, blockages, jamming, air supply, control system failure) to ensure safety quality and productivity • Process and procedures for plant shutdowns and unplanned shutdowns • Plant and machinery functions and operations • Emergency procedures and responses • Effects of shutdowns on the rest of the systems • Sensory information that indicates a deviation from standard operating parameters • Application of small boat operation requirements • Application of high risk equipment, as required • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control the water system, within level of responsibility

Underpinning Skills	Demonstrates skills to: • Use required forms of communication in operating water systems • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Take samples, conducts tests, interprets and records results, if required • Identify and monitor process control points • Plan and organise start-up and shutdown of water systems • Identify and respond appropriately to shutdown causes • Respond to problems associated with plant shutdown and unplanned shutdown to ensure safety quality and productivity • Maintain situational awareness in the work area • Operate a small boat as required • Operate high risk equipment as required • Analyse and use sensory information to adjust process maintain and co-ordinate safety, quality and productivity • Use electronic control and other systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor and Control Boiler Operation**
Unit Code	**IND PPO2 02 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control boiler operation in the pulp and paper industry.

Element	Performance Criteria
1. Confirm operational status	1.1. Operational status is confirmed within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan the daily activities as required. 1.3. Continuing process supplies are maintained. 1.4. Combustion processes are confirmed to be within operational specifications. 1.5. ***Boiler types*** performance is recorded in the operational log. 1.6. Operational status and ***situational awareness*** is communicated to relevant personnel. 1.7. ***Materials and supplies*** are checked before operation. 1.8. ***Actions*** are carried out according to the procedures.
2. Monitor and control boiler and ancillary plant operation	2.1. Boiler and ancillary plant operation is monitored and controlled within OHS regulations, environmental and safe working ***Productivity requirements***/practices, SOP, and housekeeping requirements. 2.2. Operational status is confirmed by inspection, observations and other information. 2.3. Water quality tests are conducted and chemical addition adjusted as required. 2.4. Steam pressures are monitored and maintained as required. 2.5. Fuel efficiency calculations and recordings are made. 2.6. Boiler control adjustments are made to maintain operation within specification. 2.7. ***Pre-operational checks*** are carried out. 2.7. Pre-treatment systems for water to be monitored, tested and maintained are made up. 2.8. Steam distribution systems are monitored and maintained to client requirements. 2.9. Operator level ***maintenance*** is carried out as required. 2.10. ***Electronic control systems*** is used for operation .

3. Handover boiler operations	3.1. Handover of boiler operations is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Workplace records are maintained in accordance with statutory requirements and workplace procedures. 3.3. Handover is carried out according to workplace procedure. 3.4. Boiler and ***equipment*** operators are aware of boiler status and related equipment at completion of handover.
4. Record and document boiler and plant performance	4.1. Boiler and plant performance is recorded and ***documented*** within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Operating log is maintained. 4.3. Maintenance requirements are identified and documented and ***communicated*** through ***sensory information*** in different ***forms of communication*** as required.

Variable	**Range**
Regulation	may include: • OHS and environmental requirements (local, state and commonwealth) • as applicable, activity or task specific high risk licensing requirements • appropriate boiler/pressure vessel operator certification • confined space standards and regulations
Boiler types	may include: • fire tube • water tube and may be operated in conjunction with other steam driven plant and operations including: ➢ paper making machines ➢ turbines ➢ digesters ➢ evaporators ➢ heating plant
Situational awareness	may include awareness of: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
Materials and supplies	may include: • chemicals • coal • oil

	• gas • additives • air • water • wood waste • steam • recovery process products • power
Actions	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Productivity requirements:	may include • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Pre-operational checks	may include: • low water level alarm • high water level alarm • low water level alarm lockout • hydrostatic test • burner management system • safety valve test
Maintenance:	may include • operator level as per site agreements • operator schedules • systems • suppliers • proactive strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics

Equipment	may include: • boiler and auxiliary plant • boiler heating systems • steam distribution system • fuel and fuel delivery system plant • dust removal and combustion waste • fuel management system • extraction systems • water distribution systems • compressed air systems • steam temperature control plant • chemical dosing system • water treatment system • flame detection equipment • hand and power tools • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to steam generation operations
Documentation	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • enterprise policies and procedures • job sheets • manufacturer's specifications • maintenance documentation • statutory requirements • Materials Safety Data Sheets (MSDS) • operator's log • process and instrument diagrams
Communication	may include: • internal/external customers and suppliers • team members • production/service coordinators • maintenance services • operational management • statutory authorities
Sensory information	may include: • visual

	• sound • feel • touch • smell • vibration • temperature
Forms of communication:	may include • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • Asses the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in monitoring and controlling boiler operation assessment requires evidence that the candidate:
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to monitoring and controlling boiler operation systems including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Working knowledge of steam generation plant, processes, layout and associated services including operating parameters, variation and associated adjustments within level of responsibility • Sampling and testing process for plant and system operations, and process steam supply monitoring - purpose, standards and procedures as per site agreements • Boiler water treatment system and reasons for treatment • Operation of plant and systems • Application of high risk equipment as required • Sensory information that indicates a deviation from standard operating parameters

	• Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control boiler operation, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling boiler operation • Read and interpret required documentation, procedures and reports within level of responsibility • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Interpret specifications and customer orders • Identify and action problems within level of responsibility • Identify and monitor process control points • Maintain situational awareness in the work area • Perform tests and interprets and record results as required • Use measuring equipment as required • Conducts pre-operational checks • Inspect and maintain boiler and ancillary equipment and services to operating standards • Operate high risk equipment as required • Analyse and uses sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Prepare Chemical Products**
Unit Code	**IND PPO2 03 0613**
Unit Descriptor	This unit describes the outcomes required to prepare chemical products in the pulp and paper industry.

Element	Performance Criteria
1. Establish chemical requirements	1.1. Chemical requirements are established within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Chemical requirements are determined.
2. Inspect and prepare chemical systems	2.1. Chemical systems are inspected and prepared within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Isolations are removed. 2.3. ***Materials and supplies*** are checked according to the work requirement. 2.4. Visual check of delivery systems is conducted. 2.5. Delivery systems are confirmed as operational using ***electronic control systems***. 2.6. ***Equipment*** is checked for operational. 2.7. Additives are mixed to specifications as required. 2.8. Quality checks are conducted on chemical product as required.
3. Start, monitor and maintain chemical system	3.1. Chemical system is started, monitored and maintained within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Process tests are conducted to ensure product quality. 3.3. Process adjustments are made to ensure product quality. 3.4. ***Documentation*** is carried out and communicated through ***sensory*** in different ***forms of communications*** is maintained. 3.5. Details of hazardous situations are documented as required. 3.6. Faulty equipment is identified and repaired or replaced.
4. Implement shutdown procedures	4.1. Shutdown procedures are implemented within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Shutdown is planned, organised and conducted as required.

Variable	Range
Regulation	may include: • OHS and environmental requirements (local, state and commonwealth)
Materials and supplies	may include: • water • chemicals
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Equipment	may include: • chemical production equipment • process control and monitoring equipment, input and extract data • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to preparing chemical products
Documentation	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • enterprise policies and procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems
Sensory	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in preparing chemical products
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to preparing chemical products including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Cause and affects of operational equipment faults and appropriate rectification action • Chemical system layout • Chemical preparation processes and systems • Plant and machinery functions and operations • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Types, causes and effects of shutdowns • Required responses to all unplanned shutdowns (e.g. power outage, mechanical breakdown, blockages, jamming, air supply, control system failure) to ensure safety quality and productivity • Process and procedures for plant shutdowns and unplanned shutdowns • Emergency procedures and responses • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in preparing chemical products • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Communicates information clearly to internal and external contacts

	• Collect and collate information for decision-making • Identify and action problems within level of responsibility • Interpret instruments, gauges and other recording equipment • Identify and monitor process control points • Plan work within standard procedures • Prepare chemical system • Maintain a clear and hazard free work area • Conduct tests, interprets and records results if required • Use measuring equipment • Identify and respond appropriately to shutdown causes • Respond to problems associated with plant shutdown and unplanned shutdown to ensure safety quality and productivity • Coordinate and plan shutdown activity • Maintain situational awareness in the work area • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor and Control Power Generation**
Unit Code	**IND PPO2 04 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control power generation systems in the pulp and paper industry.

Element	Performance Criteria
1. Confirm operational status	1.1. Operational status is confirmed within Occupational Health and Safety (OHS) ***regulations***, environmental, safe working and ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan the day's activities as required. 1.3. Continuing process supplies are maintained. 1.4. ***Power generation*** processes are confirmed to be within operational specifications. 1.5. Delivery systems are confirmed as operational using ***electronic control systems***. 1.6. Turbine performance is recorded in the operational log. 1.7. Operational status is communicated through ***sensory*** in different ***forms of communication*** to relevant personnel.
2. Monitor and control power generation and ancillary plant operation	2.1. Power generation and ancillary plant operation is monitored and controlled within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Operational status is confirmed by inspection, observations and other information. 2.3. Process ***supplies*** are monitored as required. 2.4. Turbine pressures, temperatures and flows are measured as required. 2.5. Turbine and generation control adjustments are made to maintain operation within specification. 2.6. Power output demand and distribution systems operation is monitored and maintained to meet client requirements. 2.7. ***Equipment*** are checked to meet the product requirement 2.8. ***Situational awareness*** is carried.
3. Record and document power generation and ancillary plant performance	3.1. Power generation and ancillary plant performance is recorded and documented within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements.

	3.2. Pressures, temperatures and flows are ***documented*** as required. 3.3. Operating log is maintained. 3.4. ***Maintenance*** requirements are identified and documented as required. 3.5. Required ***actions*** are carried out.

Variable	**Range**
regulation,	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk licensing requirements • operator endorsement requirements • local power authority rules and regulations
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
power generation	may include: • availability of required supplies • electricity generation • regulation and distribution systems
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Sensory	may include: • visual • sound • feel • touch • smell • vibration and temperature

Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access
supplies	may include: • water • air • steam • electricity • gas
Equipment	may include: • boilers • high and low voltage transformers • steam or gas turbine driven alternators • switchboards • water systems and auxiliary plant • circuit breakers • AC/DC generation and distribution systems • protective equipment • measuring and recording equipment • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to the power generation process
Situational awareness	may include • traffic • pedestrians • location of equipment • product • hazards • obstruction and unexpected movement
Documentation	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • enterprise policies and procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems

	• operational logs and reports • maintenance logs • Materials Safety Data Sheets (MSDS) • process and instrument diagrams
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Actions	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in monitoring and controlling power generation systems
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to power generation systems including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Working knowledge of power generation plant, processes, layout and associated services including operating parameters, variation and associated adjustments within level of responsibility • Electrical isolation procedures • Principles of operation of transformers and circuit protection systems within level of responsibility • Power distribution systems • AC/DC generation principles • Output control and regulation principles • Power factor characteristics and effects • Effect of steam quality on turbine operation • Application of high risk equipment as required

	• Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control power generation systems, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling power generation systems • Read and interpret required documentation, procedures and reports, within level of responsibility • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Respond to monitoring and warning devices • Identify and action problems within level of responsibility • Monitor and control process control points • Maintain situational awareness in the work area • Use measuring equipment as required • Conduct routine checks • Use tools and equipment • Operate high risk equipment as required • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Prepare and Operate the Woodchip Production**
Unit Code	**IND PPO2 05 0613**
Unit Descriptor	This unit describes the outcomes required to prepare and operate the woodchip production system in the pulp and paper industry This unit applies to operators who prepare and operate the woodchip production system in the pulp and paper industry. This work typically involves complex integrated equipment and continuous operations.

Element	Performance Criteria
1. Conduct pre-start-up system checks	1.1. Pre-start-up system checks are conducted within Occupational Health and Safety (OHS) regulations, environmental safe working and ***Productivity requirements/***practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. External inspection and pre-operational checks of the woodchip system are carried out. 1.3. Operator level ***maintenance*** schedules are carried out as required. 1.4. Isolations are removed in accordance with site procedures if required. 1.5. Monitoring devices and alarm systems are confirmed to be operational. 1.6. Operational status is communicated through ***sensory information*** in different ***forms of communication*** to relevant personnel are notified of impending start-up. 1.7. Logs to be processed are identified and loaded to ensure correct presentation.
2. Start up system for production run	2.1. System for production run is started up within OHS ***regulations***, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. ***Equipment,*** conveyors, transfer system and operational monitoring equipmen***t*** pre-start-up checks are carried out. 2.3. ***Accessories***, transfer equipment, bins and hoppers are checked to ensure prevention of chip contamination as required. 2.4. System is started. 2.5. Logs are docked as required.
3. Monitor and maintain chipping system operation	3.1. Chipping system operation is monitored and maintained within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements.

	3.2. Logs and conveyors are monitored to achieve optimum flow. 3.3. ***material and Supply*** of logs is co-ordinated and maintained to ensure production requirements are met. 3.4. ***Situational awareness*** and equipment operation are monitored electronically and visually to ensure operating conditions are continually maintained. 3.5. Potential blockage and/or jamming situations are identified and appropriate ***action*** is taken to rectify. 3.6. Woodchip quality is continually monitored as required. 3.7. Woodchip transfer to storage system is monitored and maintained. 3.8. Storage levels are monitored and maintained as required.
4. Record and document machine performance and production data	4.1. Machine performance and production data is recorded and ***Documentation, procedures and reports*** is carried out within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Production and quality records are maintained as required. 4.3. Data is entered into computer system as required. 4.4. Problems or variations are ***communicated*** to relevant personnel.
5. Conduct a plant shutdown	5.1. Plant shutdown is conducted within Occupational Health and Safety (OHS) regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 5.2. Shutdown plan is communicated with relevant personnel. 5.3. Shutdown procedures are carried out. 5.4. Cause of uncontrolled shutdown is identified and rectified. 5.5. Shutdown details are recorded as required.

Variable	**Range**
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks

	• meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Maintenance	may include: • operator level maintenance as per site agreement • operator maintenance schedules • maintenance systems • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Equipment	may include: • chipper • hogger • conveyor feed systems • chipscreens • hydraulic cutting equipment • blades • chainsaws • magnetic detectors • silos • hopper and storage systems • chip spreaders and slingers • front end loader trailer or tipper, articulated loader, tracked dozer/front end loader, forklift, side loader, mobile crane, rigid loader, log loader, straddle truck

	• fork lift attachments, crane hooks, chains, slings and straps, grabs, winches • docking saw • bark transferring system • debarking machinery • drying ovens • sizing screens • video monitoring • electronic weighing and measuring equipment • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to the woodchip production system
Accessories	may include: • protective and high visibility safety clothing and equipment • break down tools and equipment • electronic communication equipment
Materials and supplies	may include: • hardwood or softwood logs • supplies and parts
Situational awareness	may include • traffic • pedestrians • location of equipment • product • hazards • obstruction and unexpected movement
Action	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Documentation, procedures and reports	may include: • SOP • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • enterprise policy, procedures and guidelines • environmental sustainability requirements/practices • plant manufacturing operating manuals • work orders • tally sheets • truck delivery dockets • invoices

	• non-conformance reports • test results and reports • log sheets (production/equipment) • equipment performance data • tonnage, input and conversion • sampling and test reports • Material Safety Data Sheets (MSDS) • process and instrument diagrams
Communication	may include: • work area personnel • internal/external customers and suppliers • team members • production/service coordinator • maintenance service • operational management and statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in preparing and operating woodchip production systems
Underpinning Knowledge and Attitudes	Demonstrates knowledge of - • Procedures, regulations and legislative requirements relevant to woodchip production operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Quality standard requirements • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Equipment fault identification and corrective action • Working knowledge of woodchip production system, area layout and associated services sufficient to carry out docking and debarking processes within level of responsibility • Required responses to all unplanned shutdowns (e.g. power outage, mechanical breakdown, blockages, jamming, air supply, control system failure) to ensure safety quality and productivity • Process and procedures for plant shutdowns and uncontrolled shutdowns • Plant and machinery functions and operations • Emergency procedures and responses

	• Process and procedures for woodchip production • Application of high risk (and non-high risk) load shifting equipment as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems operation and application to make appropriate adjustments that control the woodchip production system, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in preparing and operating the woodchip production system • Read and interpret required documentation, procedures and reports • Prepare written information and enters data to support groups and teams • Access, navigate and enter computer-based information • Respond to video and other monitoring devices and alarms • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Follow equipment maintenance procedures including recognition, checking, fixing and reporting faults • Identify and monitor process control points • Maintain situational awareness in the area • Maintain chip quality and machine production rate or schedules • Prepare, starts up, and monitor operations • Follow procedures for woodchip operation • Monitor and maintain waste systems • Coordinate and plan shutdown activity • Respond to problems associated with plant shutdown and uncontrolled shutdown to ensure safety quality and productivity • Set up equipment or plant to specification as required • Operate high risk (and non-high risk) load shifting equipment as required • Use measuring equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor and Control Stock Preparation Systems**
Unit Code	**IND PPO2 06 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control stock preparation systems in the pulp and paper industry .This work typically involves complex integrated equipment and continuous operations.

Element	Performance Criteria
1. Monitor and control process and systems	1.1. Process and systems are monitored and controlled within Occupational Health and Safety (OHS) ***regulations***, environmental, safe working and ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan day's activities as required. 1.3. Operational status is confirmed by inspection, observations and other information. 1.4. Process supplies are maintained and controlled to meet production requirements. 1.5. ***Systems and functions involved in stock preparation*** are monitored to ensure stock preparation systems are within parameters. 1.6. Process and system variations from operating parameters are identified, rectified and/or reported. 1.7. Operator level preventative maintenance is undertaken as required. 1.8. Changes to machine operations are ***communicated*** through ***sensory information*** in different ***forms of communications*** relevant personnel. 1.9. Stock systems are monitored and adjusted during stock-off situations as required. 1.10. Operator level ***equipment, electronic control systems,*** and on-line adjustments are conducted. 1.11. ***Situational awareness*** is carried if required.
2. Control quality of stock, chemicals and water	2.1. Quality of stock, chemicals and water is controlled within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Quality of stock, chemical and water is monitored and controlled within parameters.

	2.3. Test samples are taken and test results are interpreted and recorded as required. 2.4. Adjustments are made to ensure quality requirements are met. 2.5. Routine observations and assessments are conducted on product and system operations. 2.6. Changes to product requirements are communicated to relevant personnel. 2.7. Operator level ***Maintenance*** is carried.
3. Conduct product grade change	3.1. Product grade changes are conducted within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Product grade change is completed within OHS, SOP, environmental and safe working requirements and practices. 3.3. Grade change requirements are determined and planned. 3.4. Run out of stock, chemicals and water systems are coordinated and completed as required. 3.5. Flushing, draining and cleaning of stock, chemicals and water systems are completed as required. 3.6. Process set ups/adjustments are implemented to meet new grade requirements. 3.7. Raw ***materials and supplies*** required for new grade requirements are staged ready for use. 3.8. Stock, chemicals and water systems start-ups are coordinated and implemented for new grade requirements as required. 3.9. Grade change is coordinated and implemented on the run as required, 3.10. ***Hazards and risks involved in stock preparation*** are identified.
4. Record process and system information	4.1. Recording process and system information is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Systems and production information is recorded. 4.3. Problems or variations of ***documentation*** in performance are recorded and communicated.

Variable	**Range**
regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • as applicable, activity or task specific high risk (and non-high risk) load shifting licensing requirements

Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Systems and functions involved in stock preparation	may include: • refining systems • blending system • proportioning system • broke system • stock chests • water chests • cleaning system • water recovery system • chemical and additive plants • bale handler • broke baler • wire coiler
Communication	may include: • team members • production/service co-ordinators • internal/external customers and suppliers • maintenance services • operational management • statutory authorities
Sensory information	may include: • visual • sound • feel • touch • smell • vibration and temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry

	• reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access
Equipment	may include: • refiners • pumps • valves • chests • agitators • pulpers • screens • cleaners • showers • disc deckers • consistency controllers • screw press • water recovery equipment • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to stock preparation systems
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstructions • unexpected movement
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Materials and supplies	may include: • water • stock • compressed air

	• chemicals • additives • steam • baled pulp
Hazards and risks involved in stock preparation	may include: • steam and/or gas leaks • fires • nip points • compressed air • hot surfaces • electrical • entanglement • slip hazards/falls • energy • pressures • chemicals • fumes • confined spaces • dust
Documentation	may include: • SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • confined space requirements • vendor documentation • reference manual • grade specifications • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements

	• applicable aspects of the range statement • practical workplace demonstration of skills in the monitoring and controlling of stock preparation systems
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to stock preparation systems including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Stock preparation in-process tests and procedures • Working knowledge of stock preparation plant, processes, layout and associated services including operating parameters, variation and associated adjustments within level of responsibility • Grade requirements • Quality requirements • Materials and supplies and how they influence paper properties • Grade change processes and coordination • Timing for materials and supplies run out • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control stock preparation systems, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling stock preparation systems • Read and interpret required documentation, procedures and reports • Interpret instruments, gauges and data recording equipment • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Interpret and plan grade change requirements • Co-ordinate and conduct grade changes • Take samples, conduct tests, interpret and record results as required • Use measuring equipment as required • Identify and monitor process control points • Maintain situational awareness in the work area

	• Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor and Control Pulping Operations**
Unit Code	**IND PPO2 07 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control pulping operations in the pulp and paper industry. This work typically involves complex integrated equipment and continuous operations.

Element	Performance Criteria
1. Monitor and control processes	1.1. Processes are monitored and controlled within Occupational Health and Safety (OHS) ***regulations***, environmental safe working and ***productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan day's activities as required. 1.3. ***Operational parameters*** and status are confirmed by inspection, observations and other information. 1.4. ***Materials and supplies*** systems are monitored to ensure availability and suitability. 1.5. Sampling and testing is conducted. 1.6. ***Storage levels*** are monitored and controlled. 1.7. Process variables are monitored and controlled to ensure efficient operation. 1.8. Discharges are monitored to meet environmental requirements. 1.9. ***Pulping processes - chemical, mechanical and semi-chemical pulping*** are monitored and checked. 1.10. ***Situational awareness*** are carried.
2. Monitor and maintain plant	2.1. Plant is monitored and maintained within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Plant variations are interpreted and ***actioned*** if required. 2.3. Plant inspections are undertaken to maintain production. 2.4. Test equipment is calibrated and maintained if required. 2.5. Plant adjustments are made to maintain production and quality schedules. 2.6. Operator level preventative ***maintenance*** schedules are carried out as required. 2.7. Operator level ***equipment, electronic control systems,*** and on-line adjustments are conducted.

3. Record and report process data	3.1. Process data is recorded and reported within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Process data is interpreted and recorded. 3.3. Process problems and equipment faults are reported. 3.4. Problems or variations with systems or ***product*** are communicated to relevant personnel. 3.5. Hazardous conditions are ***documented*** and ***communicated*** in different ***forms of communications*** to relevant personnel. 3.6. Problems with environmental releases are recorded and reported as required.

Variable	**Range**
regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • as applicable, activity or task specific high risk (and non-high risk) load shifting licensing requirements • relevant endorsed licences • hazardous chemical handling • air and gas discharges • safety instructions
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Operational parameters	may include: • flows • temperatures • pressures • through put • consistencies

	• amps • set points • valve settings • levels • interlocks
Materials and supplies	may include: • woodchips • pulp • steam • water • chemicals • power
Storage levels	may include: • vats • chests • silos • tanks • bins • piles
Pulping processes chemical, mechanical and semi-chemical pulping	may include: • bleaching plant operations • refining • chip preparation • cleaning or washing systems • chemical preparation and treatment • pulp lapping production • stock distribution and storage • digester operations • mechanical pulping systems
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
Action	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Maintenance	may include: • operator level maintenance as per site agreement • operator maintenance schedules • calibrating test equipment • maintenance systems • maintenance suppliers

	• proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Equipment	may include: • power and steam systems • hydraulic and electrical systems • chemical delivery and processing systems • conveyors and pump distribution equipment • pneumatic systems • process plant • materials handling equipment • hand and power tools • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to pulping operations
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Product	may include: • bleached or unbleached pulp • fluff pulp • crumbed pulp • baled, rolled or sheet pulp • slushed pulp
Documentation	may include: • SOP • work instructions or purchase orders • environmental sustainability requirements/practices • plant manufacturing operating manuals • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • log sheets and shift reports • work orders • delivery or distribution documentation • tally or production records • incident reports • Materials Safety Data Sheets (MSDS) • process and instrumentation diagrams
Communication	may include: • internal or external • customers and suppliers

	• team members • maintenance services • operational management • statutory authorities
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in monitoring and controlling pulping operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to pulping operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Causes and effects of process variation between upstream and downstream customers • Basic problem-solving techniques consistent with level of responsibility • Sampling and testing processes for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Pulping in-process tests and procedures • Working knowledge of pulping plant, processes, layout and associated services including operating parameters, variation and associated adjustments within level of responsibility • Quality requirements • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory and other information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control the pulping operations, within level of responsibility

Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling pulping operations • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Take samples, conducts tests, interprets and records results if required • Use measuring equipment as required • Identify and monitor process control points • Maintain situational awareness in the work area • Operate high risk (and non-high risk) load shifting equipment as required • Carry out operator level maintenance as required • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor and Control Wet End Operations**
Unit Code	**IND PPO2 08 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control wet end operations in the pulp and paper industry. This work typically involves complex integrated equipment and continuous operations.

Element	Performance Criteria
1. Monitor and control process and systems	1.1. Process and systems are monitored and controlled within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan daily activities as required. 1.3. Operational status is confirmed by inspection, observation and other information. 1.4. ***Materials and supplies*** are maintained and controlled to meet production requirements. 1.5. ***Systems*** are monitored to ensure wet end operations are within parameters. 1.6. Process and system variations from operating parameters are identified, rectified and/or reported. 1.7. Operator level preventative ***maintenance*** is undertaken as required. 1.8. Changes to machine operations are ***communicated*** to relevant personnel. 1.9. Sheet breaks are detected and sheet re-established as required. 1.10. Operator level ***equipment, electronic control systems,*** and adjustments are conducted.
2. Control product quality	2.1. Controlling product quality is completed within OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements. 2.2. Sheet is monitored and controlled to quality requirements. 2.3. Test samples taken and test results interpreted and recorded as required. 2.4. Adjustments are made to control quality requirements. 2.5. Changes to product requirements are communicated to relevant personnel.

	2.6. Routine observations and assessments are conducted on product and system operation.
3. Conduct product grade change	3.1. Product grade change is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Grade change requirements are determined and planned. 3.3. Out of stock, chemical and water systems are co-ordinated and completed as required. 3.4. Wet end systems are shut down as required. 3.5. Flushing, draining and cleaning of stock, chemicals and water systems are completed as required. 3.6. Process setups and/or adjustments are implemented to meet new grade requirements. 3.7. Raw materials and supplies required for new grade requirements are staged ready for use. 3.8. Stock, chemical and water systems start-ups are coordinated with other sections and implemented for new grade requirements as required. 3.9. Grade change is coordinated with other sections and implemented on the run as required.
4. Record process and system information	4.1. Recording process and system information is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Systems and production information is recorded. 4.3. Problems or variations in performance are recorded and communicated.

Variable	**Range**
Regulation	may include: • OHS and environmental requirements (local, state and commonwealth) • as applicable, activity or task specific high risk (and non-high risk) load shifting licensing requirements • relevant endorsed licences • hazardous chemical handling • air and gas discharges • safety instructions
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal

	• consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials and supplies	may include: • water • air • stock • chemicals • additives • steam • machine clothing • baled pulp
Systems	may include: • stock approach systems • forming system • pressing systems • cleaning and screening system
Maintenance	may include: • operator level maintenance as per site agreement • operator maintenance schedules • calibrating test equipment • maintenance systems • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Communication	may include: • internal or external • customers and suppliers • team members • maintenance services • operational management • statutory authorities
Equipment	may include: • screens • forming section • water, chemical, vacuum or stock systems • former • pumps • consistency meter

	• flow meter • refiner • control valves • cleaning showers • chemical showers • presses • cleaners • waste hood recovery unit • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to the wet end process
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in monitoring and controlling wet end operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to wet end operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Wet end in-process tests and procedures • Wet end plant, processes, layout and associated services including operating parameters, variation and associated adjustments within level of responsibility • Quality requirements • Grade requirements • Materials and supplies and how they influence paper properties • Grade change processes and co-ordination

	• Timing for materials and supplies run out • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control the wet end operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling wet end operations • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Take samples, conducts tests, interprets and records results • Use measuring equipment as required • Identify and monitor process control points • Maintain situational awareness in the work area • Interpret and plan grade change requirements • Co-ordinate and conduct grade changes • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor and Control Dry End Operations**
Unit Code	**IND PPO2 09 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control dry end operations in the pulp and paper industry .This work typically involves complex integrated equipment and continuous operations.

Element	Performance Criteria
1. Monitor and control process and systems	1.1. Process systems are monitored and controlled within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan the day's activities. 1.3. ***Materials, supplies*** and stock are maintained and controlled to meet production requirements. 1.4. ***Systems*** are monitored to ensure dry end operations are within parameters. 1.5. Process and system variations from operating parameters are identified, rectified and/or reported. 1.6. Operator level preventative ***maintenance*** is undertaken as required. 1.7. Changes to machine operations and ***Hazards and risks*** are communicated to relevant personnel. 1.8. Sheet breaks are detected and sheet re-established as required. 1.9. ***Situational awareness*** is carried out.
2. Control product quality	2.1. Product quality is controlled within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Sheet is monitored and controlled to quality requirements. 2.3. Product and system operations are confirmed by inspection, observations and other information. 2.4. Adjustments are made to control quality requirements. 2.5. Test samples are taken and test results interpreted and recorded as required. 2.6. Changes to product requires and are communicated to relevant personnel.

	2.7. Operator level ***equipment, electronic control systems,*** and adjustments are conducted.
3. Conduct product grade change	3.1. Product grade change is conducted within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Grade change requirements are determined and planned. 3.3. Dry end systems are shut down as required. 3.4. Process setups/adjustments are implemented to meet new grade requirements. 3.5. Equipment start-ups are coordinated and implemented as per new grade requirements. 3.6. Grade change is coordinated and implemented on the run as required.
4. Record process and system information	4.1. Process and system information is recorded within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. System and production information is recorded. 4.3. Problems or variations in performance are recorded, ***documented*** and ***communicated*** through ***sensory information*** in different ***forms of communication***.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements as applicable
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate

Materials supplies	may include: • chemicals • compressed air • water • electricity • gas • steam • additives • machine clothing • ropes and belts
Systems	may include: • drying processes • reeling operations • chemical additive system • monitoring systems • sheet treatment processes • tail feed systems • broke system • on-line coating systems • calendaring systems • vacuum systems • laser systems • slitter systems • sheet transfer systems • accumulator • cleaning showers
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Hazards and risks	may include: • steam and/or gas leaks • fires • nip points • compressed air • hot surfaces • electrical • entanglement • slip hazards/falls • energy • pressures • chemicals • fumes • confined spaces and dust

Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstructions • unexpected movement
Equipment	may include: • scales • tape turner • hand and power tools • computer systems • electronic screens and alarms • process control systems • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to the dry end process
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Documentation	may include: • SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • confined space requirements • vendor documentation • reference manual • grade specifications • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams
Communication	may include: • team members

	• production/service co-ordinators • internal/external customers and suppliers • maintenance services • operational management • statutory authorities
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in the monitor and control of dry end operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to dry end operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Dry end plant, processes, layout and associated services including operating parameters, variation and associated adjustments within level of responsibility • Quality requirements

	• Application of high risk (and non-high risk) load shifting equipment as required • Materials and supplies and how they influence paper properties • Grade change processes, coordination and requirements • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control the dry end, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling dry end operations • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Take samples, conducts tests, interprets and records results if required • Use measuring equipment as required • Identify and monitor process control points • Maintain situational awareness in work area • Interprets and plan grade change requirement • Co-ordinate and conduct grade changes • Operates high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Use Specialised Liquid Bulk Transfer Equipment (Gravity/Pressurised)**
Unit Code	**IND PPO2 10 0613**
Unit Descriptor	This unit involves the skills and knowledge required to use specialised gravity and pressurised liquid bulk transfer equipment including planning the work; transferring the bulk according to regulatory and operational requirements; monitoring and operating controls; and completing all operations, as required.

Element	Performance Criteria
1. Plan work	1.1 Liquid transfer method is identified for loading and unloading as gravity or pressure. 1.2 Dangerous or ***hazardous*** (including regulated waste) or other materials requiring specialised handling are identified and relevant procedures are taken into account when planning the ***work***. 1.3 Precautions are undertaken to eliminate all ***ignition sources.*** 1.4 Traffic flow, vehicle positioning and work area conditions are assessed to ensure safe ***operation*** and no injury to people, or damage to equipment, loads or facilities. 1.5 Characteristics of the liquid, transfer and holding method are taken into account when evaluating procedural requirements, special precautions for method, equipment and, where applicable, appropriate attachments to transfer the load. 1.6 Potential occurrences in the ***work area*** that may affect the safety and efficiency of operations are reported to the appropriate personnel. 1.7 ***Liquid transfer*** is planned, taking into account the requirements of the load, transfer method, storage facility and transport mode, load weight, volume and viscosity and the capacity of the equipment. 1.8 Load is checked prior to and at the completion of transfer to ensure ullage and/or maximum permitted capacity complies with ADG Code. 1.9 Adjustments are made to process to accommodate special requirements such as temperature control, combustion, etc. 1.10 Required ***personal protective equipment,*** signage, barriers and special precautions are identified in the plan and utilised. 1.11 Procedures to deal with spills, leakages and ruptures are identified. 1.12 ***Requirements for work*** are set.

2. Transfer material	2.1 Equipment is prepared and any appropriate attachments fitted. 2.2 Equipment controls are checked for correct operational status before commencing transfer. 2.3 Instruments and gauges are monitored during operations to ensure that operation is within manufacturers' specifications and workplace schedule and safety requirements. 2.4 Speed of operation is managed for safety and efficiency of materials movement and equipment operations. 2.5 Faults or damage to equipment are immediately reported to the appropriate personnel.
3. Monitor and operate controls	3.1 Equipment controls are monitored and operated in accordance with manufacturers operating instructions. 3.2 Control systems are monitored in accordance with statutory authority ***regulations***, manufacturers' guidelines and site operating procedures. 3.3 Materials are moved ensuring no injury to personnel or damage to equipment or goods. 3.4 Faults are identified and reported in accordance with ***workplace procedures***.
4. Complete operations	4.1 Equipment is shut down within manufacturers' guidelines without injury to personnel or damage to equipment, loads or facilities in accordance with workplace procedures. 4.2 Cleanup methods for transfer equipment are completed following workplace procedures. 4.3 Equipment is secured in accordance with securing procedures for the appropriate equipment. 4.4 Workplace communication and ***documentation*** is completed and filed following workplace procedures.

Variable	**Range**
Hazards	may include exposure to: • hazardous or dangerous materials • contamination of, or from, materials being handled • noise, light, energy sources • stationary and moving machinery, parts or components • service lines • spills, leakages, ruptures • dust/vapours
Work	may be conducted in: • restricted spaces • exposed conditions • controlled or open environments
Ignition sources	may include naked flames and static sources

Operations	may be conducted: • in a range of work environments and weather conditions • by day or night
Work area	may include: • phone • electronic data interchange • fax • email • internet • radio • oral, aural or signed communications
Liquid transfer	may require special precautions
Personal protective equipment	may include: • gloves • safety headwear and footwear • safety glasses • mask or respirator and high visibility clothing
Requirements for work	may include: • site restrictions and procedures • use of safety and personal protective equipment • communications equipment • specialised lifting and/or handling equipment • incident breakdown procedures • additional gear and equipment • noise restrictions • hours of operation • authorities and permits
Regulations	may include: • state/territory mass and loading regulations • Ethiopian and international regulations and codes of practice for the handling and transport of dangerous goods and hazardous substances, including: • Ethiopian and International Dangerous Goods Codes • Ethiopian Marine Orders and the International Maritime Dangerous Goods Code • IATA Dangerous Goods by Air regulations • Ethiopian and International Explosives Codes • Ethiopian and state/territory regulations related to the transfer of liquid bulk product • relevant Ethiopian Standards, including AS 2809.1, AS 2809.2, AS 2931, AS 2430 • relevant state/territory environmental protection legislation • relevant state/territory OH&S legislation
Workplace procedures	• company procedures • enterprise procedures • organisational procedures • established procedures and site procedures

Documentation	may include: • Safe Working Load (SWL) and Working Load Limit (WLL) • manifests, bar codes, goods and product identification • manufacturers specifications for equipment/tools • workplace procedures and policies for the transfer of liquid bulk product • goods identification numbers and codes, including ADG and IMDG markings and HAZCHEM signs • supplier and/or client instructions • codes of practice including the Ethiopian Dangerous Goods Code, relevant Ethiopian Standards and the Industry Safety Code • award, enterprise bargaining agreement, other industrial arrangements • relevant standards and certification requirements • quality assurance procedures • emergency procedures and material safety data sheets

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the underpinning knowledge and skills • relevant legislation and workplace procedures • other relevant aspects of the range statement
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Ethiopian Dangerous Goods Code and relevant state/territory mass and loading regulations as they apply to vehicles transporting liquid bulk product • OH&S procedures and guidelines concerning the use of specialised liquid bulk transfer equipment • Risks when transferring liquid bulk product and related precautions to control the risk • Workplace procedures and policies for the efficient use of specialised gravity and pressurised equipment to transfer liquid bulk product • Problems, faults or malfunctions that may occur when transferring liquid bulk product using specialised equipment and action that should be taken to prevent or resolve them • Hazards involved in transferring liquid bulk product using specialised equipment when transferring liquid bulk product and ways and means of controlling the risks involved • Housekeeping standards procedures required in the workplace • Methods of securing a vehicle following transfer of liquid bulk product • Relevant permit and health and safety requirements
Underpinning Skills	Demonstrates skills to: • Communicate effectively with others when transferring liquid bulk product using specialised equipment

	• Read and interpret instructions, procedures, information and signs relevant to the transfer of liquid bulk product using specialised equipment • Identify goods coding, IMDG markings and, where applicable, emergency information panels • Interpret and follow operational instructions and prioritise work • Complete documentation related to the transfer of liquid bulk product using specialised equipment • Operate electronic communication equipment to required protocol • Estimate the mass, volume and special requirements of liquid bulk product • Work collaboratively with others when transferring liquid bulk product using specialised equipment • Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others • Promptly report and/or rectify any identified problems, faults or malfunctions that may occur when transferring liquid bulk product using specialised equipment in accordance with regulatory requirements and workplace procedures • Implement contingency plans for unexpected events that may arise when transferring liquid bulk product using specialised equipment • Apply precautions and required action to minimise, control or eliminate hazards that may exist during the transfer of liquid bulk product using specialised equipment • Monitor work activities in terms of planned schedule • Modify activities depending on differing operational contingencies, risk situations and environments • Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment • Operate and adapt to differences in transfer equipment in accordance with standard operating procedures • Identify and correctly use equipment required to transfer liquid bulk product • Monitor performance of transfer equipment • Service transfer equipment in terms of maintenance schedule and standard operating procedures
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Identify and Monitor Environmental Discharges or Emissions**
Unit Code	**IND PPO2 11 0613**
Unit Descriptor	This unit describes the outcomes required to identify and monitor environmental discharges/emissions in the pulp and paper industry.

Element	Performance Criteria
1. Monitor environmental discharges/emissions	1.1. Environmental ***discharges/emissions*** are monitored within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Discharge/emission levels and consequences of exceeding allowable discharge/emission levels are recognised. 1.3. Discharge/emission levels are monitored and measured. 1.4. Discharges and emissions are kept within targeted limits. 1.5. Waste is removed from site where appropriate. 1.6. Appropriate ***equipment*** are used for discharge waste. 1.7. ***Situational awareness*** is identified and monitored.
2. Respond to abnormal environmental discharges/emissions	2.1. Abnormal environmental discharges/emissions are responded to within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Abnormal discharges and emissions are reported to appropriate personnel and ***actions*** will be taken. 2.3. Containment procedures are applied. 2.4. ***Documentation, procedures and reports*** are carried out through ***sensory information*** and different ***forms of communication***.

Variable	Range
Emissions/discharges	may include: • noise • light • odour • gas • smoke • vapour • liquid and solids • particulates and fumes
Regulation	may include: • OHS and environmental requirements (local, state and commonwealth)

	• HAZCHEM • dangerous goods • external licensing requirements (for example, Environment Protection Authority [EPA], water authorities, local councils) • internal environmental control standards
Equipment	may include: • containment equipment • personal protective equipment • monitoring equipment • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to environmental monitoring
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
Actions	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Documentation, procedures and reports	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • enterprise policies and procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems
Sensory information	may include: • visual • sound • feel • touch • smell • vibration and temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry

	• reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in identifying and monitoring environmental discharges/emissions
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to identifying and monitoring environmental discharges/emissions including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Environmental consequences of unacceptable discharges • Company policy related to environmental monitoring and control • Role and responsibility of regulatory bodies • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in identifying and monitoring environmental discharges/emissions • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Interpret instruments, gauges and other recording equipment • Identify unacceptable environmental discharges • Conduct work practices within regulatory requirements • Maintain situational awareness in the work area • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Plan and Undertake a Routine Task**
Unit Code	**IND PPO2 12 0613**
Unit Descriptor	This unit describes the outcomes required to plan and undertake a routine task in the pulp and paper industry.

Element	Performance Criteria
1. Identify tasks requirements	1.1. Task requirements are identified within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Instructions on procedures are obtained, understood and clarified. 1.3. Task outcomes are identified. 1.4. Relevant specifications for task outcomes are obtained, understood and clarified. 1.5. Task requirements, including completion time and quality measures are identified. 1.6. ***Information provided to assist planning*** is collected and analysed.
2. Plan steps required to complete task	2.1. Steps required to complete task are planned within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Individual steps or ***activities*** required to undertake task are understood and clarified where necessary. 2.3. ***Planning*** steps and outcomes are checked to ensure conformity with instructions and relevant specifications. 2.4. Required sequence of activities to be completed are identified in ***plan***.
3. Review plan	3.1. Plan is reviewed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Outcomes are identified and compared with planned objectives, task instructions, specifications and task requirements. 3.3. Plan is revised, when necessary, to better meet objectives and task requirements. 3.4. ***Documentation, procedures and reports*** are carried out in different ***forms of communication***.

Variable	Range
regulations	may include: • OHS and environmental requirements (local, state and commonwealth)
Information provided to assist planning	may include: • instructions • standard operation sheets • specifications • quality requirements • time allowances • outcome requirements • performance requirements
Activity	may require: • prioritising and sequencing of individual components
Planning	may involve: • activities performed in accordance with established procedures • and may require: • modification of procedures to deal with unforeseen developments • and will be: • related to work tasks and environments which are familiar to individual undertaking planning activity
Plan	may include: • may or may not be documented • may include tasks involving one or more steps or functions
Documentation, procedures and reports	may include: • SOP • quality procedures • environmental sustainability requirements/practices • enterprise policies and procedures • safe work documentation e.g. plant clearance, job safety analysis, permit systems
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • internal/external customers and suppliers • team members • production/service co-ordinators • maintenance services • operational support personnel • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in planning and undertaking a routine task
Underpinning Knowledge and Attitudes	Demonstrates knowledge of - • Procedures, regulations and legislative requirements relevant to planning and undertaking a routine task including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Planning the completion of a task • Technical, quality and time requirements to complete a task
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in planning and undertaking a routine task • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Develop plans for a task from information provided, incorporating technical, quality and time requirements, which is capable of achieving appropriate results • Modify plans as a result of outcomes achieved
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor and Control Coated Paper Processes**
Unit Code	**IND PPO2 13 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control coated paper processes in the pulp and paper industry.

Element	Performance Criteria
1. Monitor and maintain process	1.1. Process is monitored and maintained within Occupational Health and Safety (OHS) ***regulations***, environmental, safe working and ***productivity requirements/***practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan the day's activities as required. 1.3. Operational status is confirmed by inspection, observation and other information. 1.4. Process ***materials and supplies*** are maintained to production requirements. 1.5. ***Coated paper process*** is monitored to ensure coating system operations are within specification. 1.6. Process levels are monitored and maintained. 1.7. Operator level preventative ***maintenance*** schedules are carried out as required. 1.9 Operator level ***equipment, electronic control systems,*** and adjustments are conducted. 1.9. Routine process and system variations from specification are identified, rectified and/or reported. 1.10. ***Situational awareness*** is monitored.
2. Monitor and maintain product	2.1. Product is monitored and maintained within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Product is monitored and maintained to quality requirements. 2.3. Routine visual observations and assessments are conducted on product, equipment and systems operations. 2.4. Test samples are taken and results interpreted and recorded as required. 2.5. Systems operations adjustments are made to rectify out-of-specification product.
3. Record and report product and process performance data	3.1. Product and process performance data is ***recorded documented and reported*** within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements.

	3.2. Production data is interpreted and entered into recording system. 3.3. Problems or variations with the process or product are communicated through ***sensory information*** in different ***forms of communication*** to relevant personnel.

Variable	**Range**
regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials and supplies	may include: • chemicals and polymers • power • water • additives • steam • labels • felts • equipment • gas • accessories (parts) • air • base paper
Coated paper processes	may include: • tail feed systems • chemical and material batching • laminating and coating • splicing

	• clay plant operation • calendar • pre-reeled operations • super calendaring • monitoring systems • rewind ring • drying systems • internal unloading • combine rollers • testing
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Equipment	may include: • coater • splicer • pre-reelers • calendar • super-calendar • parent rolls and reels • cranes • pigment • coating make down plant • starch cooker • slitter • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to the coated paper process
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstructions • unexpected movement

Recorded, documented and reported	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • enterprise policies and procedures • Material Safety Data Sheets (MSDS) • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • product specifications and schedules • maintenance logs • job sheets • site agreements • safety instructions • process and instrument diagrams • machine manuals • troubleshooting guides • incidents reports
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in monitoring and controlling coated paper processes

Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to coated paper processes including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Safe handling of materials and chemicals • Quality requirements • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Working knowledge of coated paper processes, system layout and associated services including operating parameters, variation and associated adjustments within level of responsibility • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Effect of process adjustments during monitoring and operation • Application of high risk load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control coated paper processes, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling coated paper processes • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Monitor, analyse and interpret data • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Identify and monitor process control points • Maintain situational awareness in the work area • Takes samples, conducts tests and interprets and records results if required • Use measuring equipment as required • Maintain a clear and hazard free plant work area • Operate high risk load shifting equipment as required • Maintain quality specifications • Inspect and maintain equipment and systems to specifications • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Undertake Operator Level Preventative Maintenance**
Unit Code	**IND PPO2 14 0613**
Unit Descriptor	This unit describes the outcomes required to undertake operator level preventative maintenance in the pulp and paper industry.

Element	Performance Criteria
1. Carry out preventative maintenance inspections of plant and equipment	1.1. Preventative maintenance inspections of plant and equipment are carried out within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating. 1.2. ***Routine preventative maintenance inspections*** are undertaken. 1.3. Faulty plant and ***equipment*** are identified. 1.4. Faulty plant and equipment, as identified, are ***communicated*** in different ***forms of communication*** through ***sensory information*** and ***documented***. 1.5 Equipments***, electronic control systems,*** and adjustments are conducted. 1.6 ***Situational awareness*** is carried.
2. Carry out preventative maintenance of plant and equipment	2.1. Preventative ***maintenance*** of plant and equipment is carried out within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Location of plant and equipment is identified. 2.3. Routine preventative maintenance sequence of activities is determined. 2.4. Isolation procedures are followed as required. 2.5. Process and navigation controls are interpreted. 2.6. Preventative maintenance activities are undertaken. 2.7. Appropriate tools, materials and equipment are selected and used for operator level preventative maintenance. 2.8. Preventative maintenance activities are documented.
3. Action faults	3.1. Faults are actioned within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Faulty plant and equipment is actioned within limits of responsibility. 3.3. ***Action*** on faulty plant and equipment is communicated and documented.

Variable	Range
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth)
Routine preventative maintenance inspections	may include: • levels in sight glasses • belt fatigue • gear backlash • stretch and slack in chains • sprocket wear • gear box noise and heat • damaged equipment or components • control panel indicators • electronic control indicators • air and oil pressure gauges • flow levels • pressure checks
Equipment	may include: • personal protective equipment and clothing • compressed air • hand and power tools • machine systems • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to undertaking preventative maintenance
Communication	may include: • internal/external customers and suppliers • team members • production/service co-ordinators • maintenance services • operational support personnel • operational management • statutory authorities
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access
Sensory information	may include: • visual

	• sound • feel • touch • smell • vibration • temperature
Documentation	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • enterprise policies and procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
Maintenance	may include: • operator level maintenance as per site agreement • operator maintenance schedules • maintenance systems • maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Routine preventative maintenance activities	may include: • oil top ups • blade changes • filter changes or cleaning • greasing • lubricating • housekeeping • pressure checks • removal or replacing • maintaining or replacing consumables
Actions	may include: • shutdown

	• isolation • by-passing systems • making adjustments • assisting in remedial maintenance • communicating with maintenance and engineering personnel • confirming availability of parts • containment of potential hazards, spillage and leaks • process adjustments • reporting to authorised person • rectifying problem within level of responsibility

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in undertaking operator level preventative maintenance
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to undertaking operator level preventative maintenance including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Use of instrumentation data as an indication of plant and equipment requiring preventative maintenance • Consequences of inadequate preventative maintenance • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in undertaking operator level preventative maintenance • Read and interpret required documentation, procedures and reports • Communicate preventative maintenance with team and related service personnel • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Interpret instruments, gauges and other recording equipment

	• Interpret process and instrumentation diagrams • Report faulty plant and equipment according to SOP • Interpret instrumentation data as an indication of plant and equipment requiring preventative maintenance • Identify and investigate reasons for faulty equipment • Identify and monitor process control points • Apply isolation procedure, when required, according to site policy • Remove isolations according to site policy • Identify locations or items of potential hazards and procedures to overcome them • Apply methods to contain potential hazards, spillages and leaks • Maintain a clean and hazard free work area • Select appropriate hand and/or power tools according to task requirements • Check tools before use and unsafe or faulty items are identified and marked for repair according to SOP • Complete minor maintenance tasks in accordance with SOP • Make appropriate adjustments as required to meet changing conditions • Follow maintenance inspection routines • Maintain situational awareness in the work area • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor, Control and Shut Down Finishing and Converting Operations**
Unit Code	**IND PPO2 15 0613**
Unit Descriptor	This unit describes the outcomes required to monitor, control and shut down finishing and converting operations in the pulp and paper industry.

Element	Performance Criteria
1. Operate and monitor processes and systems	1.1. Processes and systems are operated and monitored within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan day's activities as required. 1.3. Planned production requirements, ***materials and supplies*** are confirmed and communicated to relevant personnel. 1.4. ***Equipment***s, Operations and systems are monitored and maintained within process parameters (range of variables) consistent with production requirements. 1.5. Monitoring displays and devices are interpreted and responded to. 1.6. Setup for product change is undertaken as required. 1.7. ***Auxiliary systems*** are maintained for operation. 1.8. ***Electronic control systems,*** and adjustments are conducted. 1.9 Operator level ***maintenance*** is carried out.
2. Control product quality and production	2.1. Product ***quality checks*** and production is controlled within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Product is monitored and controlled to production and quality requirements. 2.3. Routine observations and assessments are conducted on product and system operations. 2.4. Adjustments and ***action*** are made to control production and quality requirements. 2.5. Test results are interpreted and recorded as required. 2.6. Changes to product requirements are communicated to relevant personnel. 2.7. ***Situational awareness*** is carried.

3. Conduct equipment shutdown	3.1. Equipment shutdown is conducted within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Shutdown plan is communicated with relevant personnel. 3.3. Shutdown procedures are carried out. 3.4. Cause of unplanned shutdown is identified and rectified. 3.5. Shutdown details are recorded as required. 3.6. ***Finishing and converting operations*** are carried out.
4. Record process and system information	4.1. Recording process and system information is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. System and production information is recorded. 4.3. Problems or variations in performance are recorded and ***communicated*** through ***sensory*** in different ***forms of communication***. 4.4. Enterprise ***documentation, procedures and reports*** are carried out.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials and supplies	may include: • parent roll or reel • lotion

	• shrink and stretch wraps • pallets • sheet paper • labelling and stencilling • wrap paper • customer rolls • boxes • polythene wrap • glues • cartons • strapping • printing inks • shippers • reams • signs and labels • core board • scent • rolls
Equipment	may include: • separate servo controlled motors and drives • electronic sensors and proximity system • light curtains • category three plus guarding • program formatting • programmable production configurations • pre-set • modifiable • quick change parts e.g. snap lock • reels and winding equipment • wrapping and packing equipment • guillotine, knives and cutting equipment • conveying systems • materials handling equipment • flexographic printing equipment used for decorating • overhead cranes • testing and measuring equipment • roll grab attachments • warehousing equipment • warehousing control systems • electronic, pneumatic and hydraulic process controls • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to finishing and converting operations

Auxiliary systems	may include: • air • lubrication • vacuum • dust extraction system
Electronic control systems	may include: • portable control device • touch screens • robotics
Maintenance	may include: • operator level maintenance as per site agreement • operator maintenance schedules • maintenance supplies • maintenance systems • maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Quality checks	may include: • roll density • core slippage • damaged packaging • reel hardness • core size • colour matching • bulk • core strength • sheet size • roll appearance • print quality • cut quality • MD&CD tensile • core scenting • packaged product • stretch • roll size • perforations • product identification • warehousing records
Actions	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Situational awareness	may include: • traffic • pedestrians • location of equipment • product

	• hazards • obstruction • unexpected movement
Finishing and converting operations	may include: • winding and re-winding • decorating • lot ionising • calendaring • water marking • perforating • slitting and cutting • embossing • laminating • folding • printing • bonding • core making • wrapping and packing
Communications	may include: • warehousing personnel • internal/external customers and suppliers • maintenance services • team members • operational management • statutory authorities
Sensory information	may include: • visual • sound • feel • touch • smell • vibration and temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access
Documentation, procedures and reports	may include: • SOP • enterprise policies, procedures and guidelines • environmental sustainability requirements/practices • plant manufacturing operating manuals • production schedules • production plans

	• production specifications • quality certification e.g. ISO • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • reference documents on theory of operation of processes and systems • vendor manuals • checklists and Material Safety Data Sheets (MSDS)

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in monitoring, controlling and shutting down finishing and converting operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to finishing and converting operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Working knowledge of finishing and converting operations, processes, layout and associated services sufficient to monitor, control and shut down finishing and converting operations within level of responsibility • Types, causes and effects of finishing and converting plant shutdowns • Required responses to all unplanned shutdowns (e.g. power outage, mechanical breakdown, blockages, jamming, air supply, control system failure) to ensure safety quality and productivity • Process and procedures for plant shutdowns and unplanned shutdowns • Plant and machinery functions and operations • Emergency procedures and responses • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Equipment setup procedures and adjustments

	• Product types and quality requirements • Designated areas for waste • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control finishing and converting operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring, controlling and shutting down finishing and converting operations • Read and interpret required documentation, procedures and reports • Interpret production requirements and work instructions • Interpret instruments, gauges and data recording equipment • Prepare written information and enters data to support groups and teams • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Identify and monitor process control points • Maintain situational awareness in the work area • Implement isolation or lockout procedures • Identify and respond appropriately to shutdown causes • Respond to problems associated with plant shutdown and unplanned shutdown to ensure safety quality and productivity • Coordinate and plan shutdown activity • Use hand tools • Use cleaning equipment • Perform tests and interprets and record results if required • Use measuring equipment as required • Operate plant and equipment • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor and Control Chemical Recovery Operations**
Unit Code	**IND PPO2 16 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control chemical recovery operations in the pulp and paper industry.

Element	Performance Criteria
1. Monitor and control processes	1.1. Processes are monitored and controlled within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production requirements are checked at start of shift to plan day's activities as required. 1.3. Operational status is confirmed by inspection, observations and other information. 1.4. ***Materials and supplies*** systems are monitored and controlled to ensure availability and suitability. 1.5. Required sampling and testing is conducted. 1.6. Production and by-product storage is monitored and controlled. 1.7. Process variables are monitored and controlled to ensure efficient operation. 1.8. Operator level preventative ***maintenance*** schedules are carried out as required. 1.9. ***Chemical recovery processes*** is carried out. 1.9. Discharges are monitored and controlled. 1.10. ***Situational awareness*** is carried.
2. Monitor and maintain plant	2.1. Plant is monitored and maintained within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Process problems and equipment faults are identified. 2.3. Process problems and equipment faults are rectified within limits of responsibility. 2.4. Plant inspections are undertaken to optimise plant performance. 2.5. Processes and ***equipment*** adjustments are made to optimise production and quality schedules and to comply with environmental licences. 2.6. ***Electronic control systems,*** and adjustments are conducted.
3. Record and document performance data	3.1. Performance data is recorded and documented within OHS regulations, environmental and safe working. requirements/practices, SOP, and housekeeping requirements.

	3.2. Process and plant data is interpreted and recorded. 3.3. Process problems and equipment faults are reported and ***actions*** are carried. 3.4. Problems or variations with systems or product are communicated to relevant personnel ***documented***. 3.5. Hazardous conditions are documented and ***communicated*** through ***sensory*** in different ***forms of communication*** to relevant personnel. 3.6. Problems with environmental releases are recorded and reported as required.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements • hazardous chemical handling requirements
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials and supplies	may include: • steam • compressed air • chemicals • water and power
Maintenance	may include: • operator level maintenance as per site agreement • maintenance systems • operator maintenance schedules • maintenance suppliers

	• proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Chemical recovery processes	may include: • evaporator operations • condensate stripper • lime mud treatment • Wet Air Oxidation (WAO) • caustic sing plant operations • recovery boiler operations • Direct Alkali Reduction System (DARS) operations • foul gas and condensate incineration
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstruction and unexpected movement
Equipment	may include: • power or steam generation • pneumatic systems • water supply systems and equipment • process plant • pumps and transfer equipment • mechanical, hydraulic and electrical systems • process monitoring and management equipment • mobile equipment (e.g. skid steer, forklift, elevated work platform, loaders) • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to chemical recovery operations
Electronic control systems	may include: • Digital Control System (DCS) • touch screens and robotics
Actions	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Documentation	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • work instructions and orders

	• incident reports • log sheets and shift reports • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation (e.g. plant clearance, job safety analysis, permit systems) • Emergency Operational Procedures (EMOs) • process and instrument diagrams • non-conformance reports
Communications	may include: • team members • internal or external customers and suppliers • maintenance services • production/services co-ordinator • operational management • statutory authorities
Sensory information	may include: • visual • sound • feel • touch • smell • vibration and temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in monitoring and controlling chemical recovery operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to chemical recovery operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping

	• Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Sampling and testing processes for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Chemical recovery in-process tests and procedures • Working knowledge of chemical recovery plant, processes, layout and associated services including operating parameters, variation and associated adjustments within level of responsibility • Quality requirements • Application of high risk (and non-high risk) load shifting equipment as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control the chemical recovery operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling chemical recovery operations • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Take samples, conducts tests, interprets and records results if required • Use measuring equipment as required • Identify and monitor process control points • Carry out operator level maintenance as required • Maintain situational awareness in the work area • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Use Organization Computers or Data Systems**
Unit Code	**IND PPO2 17 0613**
Unit Descriptor	This competency covers the use of organisation computers or data systems in order to work effectively. The operator is familiar with the system, can locate and use the appropriate data and is able to accurately record data into the system as required. This competency covers the use of computer equipment and company software programs, including selecting the correct programs for use and identifying minor faults in equipment or software.

Element	Performance Criteria
1. Identify applications of computer or data system for work role.	1.1 Data and information available from the system and its application to work role are identified. 1.2 Data are identified from work role which needs to be entered in the system. 1.3. ***Software applications*** needs to be entered in the system are identified.
2. Use the computer/data system.	2.1 Work station ***tools and equipment*** are adjusted to meet ergonomic requirements and appropriate posture is used and logged-on according to procedures. 2.3 Systems are navigated as required. 2.4 Data is input or changes are made as required. 2.5 Entered or edited data is checked to be correct. 2.6 Required data/information is accessed. 2.7 Output data as required. 2.8 'Help' is used as needed.
3. Save files and exit system.	3.1 Data is saved and stored in appropriate directory or folder. 3.2 File is closed and applications programs are exited without loss of data. 3.3 Data (***documents***) is backed-up if required in accordance with procedures.
4. Respond to routine problems with the system	4.1 Known faults that occur during the operation are recognised. 4.2 ***Key variables*** are identified and action is taken on causes of routine faults. 4.3 Problems are logged as required. 4.4 Non-routine process and quality problems are identified and appropriate action is taken.

Variable	Range
Software applications	May include: • CC mail and email • Internet or intranet • word processing, database and spreadsheet programs • company/process specific software • word processing, database and spreadsheet programs
Tools and equipment	May include: • computers - stand alone and/or networked • mobile terminals and hand held devices • printers • mouse, keyboard • facsimile equipment • onboard terminals • scanners and bar codes.
Documents	may include: • work orders • work instructions/standard operating procedures • email or CC mail • faxes • memos • tables • standard letters and reports.
Key variables	may include: • types of hardware systems • access and log on procedures • types of software packages • Internet/intranet systems • Types of data to be stored and retrieved.

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • in-plant computer programs are correctly utilised • software problems are recognised and solved effectively and efficiently • documents are completed to the standard required • the operation and access to data from the system can be demonstrated • data can be input and output from the system as required • Obvious problems in related to operation of the system are recognised and an appropriate contribution made to their solution.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of : • incorrect or misleading data • system software faults • System equipment faults.

Underpinning Skills	Demonstrates skills to: • demonstrate the operation of and access to data from the system • describe the scope and range of data required from the system, in order to support the solution of problems • describe the nature of the scope and range of available data • describe the causes and remedies of common problems such as those selected in the Range Statement • describe principles of operation of the equipment and software, hazard policies and procedures, job procedures and work instructions • Explain the application of software in relation to work role
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Monitor Process Capability**
Unit Code	**IND PPO2 18 0613**
Unit Descriptor	This unit covers the knowledge and skills required for gathering of data and the interpretation of simple information to determine the compliance of the process and the taking of action as defined by the procedures where the information reveals the process is out of control parameters.

Element	Performance Criteria
1. Collect and process data	1.1. Specified measurements/readings are taken as required 1.2. Data is entered onto log/into computer or other record 1.3. Data is manipulated and/or charted as required by ***procedures***.
2. Identify variations that are not random and take action	2.1. Chart and/or reliability information is/are examined. 2.2. The difference between ***random variations*** and those with an identifiable cause are distinguished 2.3. Action specified in procedures is taken when a variation with an ***identifiable cause*** occurs.
3. Assist in process improvement	3.1. Data is collected for process capability improvement trials as directed. 3.2. Recommendations are made for improvement as required 3.3. Principles and procedures of ***six sigma*** and ***three sigma*** are applied. 3.3. Revised capability monitoring procedures are implemented as required.

Variable	Range
Procedures	• Procedures includes all work instructions, standard operating procedures, formulas/recipes, batch sheets, temporary instructions and similar instructions provided for the smooth running of the plant. They may be written, verbal, computer based or in some other form. • For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (e.g. Good Manufacturing Practice (GMP), Responsible Care) and government regulations.
Random variation	• Random variation is the term used in statistical control to refer to those variations for which no cause can be found.
Identifiable cause	• Also referred to as an 'assignable cause' or a 'special cause' are those variations for which a cause can be found and so the cause of the variation eliminated.

Six sigma	May include: • Six sigma is a process improvement methodology based on statistical process control with six sigma limits which equates to 3.4 defects per million opportunities for each product or service transaction. • Six sigma is also often used as a general term covering a competitive manufacturing approach. Six sigma training typically covers several units of competency in this Training Package.
Three sigma	May include: • Three sigma includes statistical process control with three sigma limits which equates to 3 defects per thousand opportunities for each product or service transaction.

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • Evidence should be available of data collected and processed. There may also be evidence of assignable causes recognized and action taken. • recognition of identifiable causes in accordance with procedures
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • data collection methods • data processing techniques required • basic variability and normal distribution • recognition of identifiable causes in accordance with procedures • causes of different types of identifiable causes as defined by procedures • actions to be taken for the different causes
Underpinning Skills	Demonstrates skills in: • problem solving • statistical control • planning • communication
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Prepare Equipment for Emergency Response**
Unit Code	**IND PPO2 19 0613**
Unit Descriptor	This competency unit covers the preparation and minor servicing of equipment used to respond to emergency situations.

Element	Performance Criteria
1. Identify emergency equipment.	1.1. ***Hazards*** and ***emergency response equipment*** are located. 1.2. Ensure access is provided to emergency equipment.
2. Inspect and assemble emergency equipment.	2.1. Emergency equipment and ***emergency situations*** are inspected for faults or damage. 2.2. Couplings/connections and operational condition are secured 2.3. Equipment is assembled in accordance with manufacturer specifications. 2.4. Any missing or damaged components is/are identified and reported.
3. Carry out minor servicing of equipment.	3.1. Equipment is maintained and cleaned according to specifications/procedures. 3.2. Servicing is conducted in accordance with specifications/procedures and ***Health, safety and environment*** (***HSE***) regulations. 3.3. Ensure equipment is 'made-ready' in a ***context*** and stored in designated location 3.4. Ensure equipment ***functions*** are carried out in accordance with specifications.
4. Report and record equipment status.	4.1. Equipment status are recorded and reported. 4.2. Maintenance requests are raised as required 4.3. Corrective actions are undertaken as required.

Variable	Range
Hazards	may include: • chemicals and hazardous materials • gases and liquids under pressure • moving machinery • materials handling • working at heights, in restricted or confined spaces, or • Environments subjected to heat, noise, dusts or vapours.
Emergency response equipment	may include: • fire extinguishers • fire hoses

	• fire blankets • pumps • branches, fittings and nozzles • foam equipment/units • personal protective clothing • breathing apparatus • Deluge/safety showers.
Emergency situations	may include: • accidents • fires • chemical or oil spills • gas leak or vapour emission • utilities failure • Bomb scares.
Health**,** safety and environment **(**HSE**)**	• All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between Performance Criteria and HSE requirements, the HSE requirements take precedence.
Context	• This unit of competency includes all items of equipment that are required for emergency response.
Functions	May include: • inspections • visual • mechanical • servicing • lubrication • pressure checks • refilling • communication • maintenance and external authorities.

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • early warning signs of equipment in need of servicing are recognised • equipment is always 'made ready' • equipment is always stored in the designated location at all times when not in use • access to equipment is available at all times when not in use
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • the emergency response procedures and equipment, sufficient to recognise standard and non-standard situations with regards to the equipment used, and then determine the appropriate action which is consistent with operating guidelines. These include:

	➢ principles of operation of the emergency response equipment ➢ hazards policies and procedures ➢ Emergency, fire and accident procedures. • the relevant OHS and environmental requirements, and enterprise Standard Operating Procedures (SOPs), along with an ability to implement them in a manner that is relevant to emergency response practices. These include procedures for the use of personal protective clothing and equipment.
Underpinning Skills	Demonstrates skills in: • hand skills • follow procedures • observation • completing records • assembling and operating various pieces of emergency response equipment • servicing various pieces of emergency response equipment • Storing various pieces of emergency response equipment.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Identify and Rectify Problems in the Workplace**
Unit Code	**IND PPO2 20 0613**
Unit Descriptor	This unit describes the outcomes required to identify and rectify workplace problems in the pulp and paper industry within limits of responsibility.

Element	Performance Criteria
1. Identify and describe the problem and its effects	1.1. Problem and its effects is identified and described within Occupational Health and Safety (OHS) regulations, environmental and safe working requirements/practices, Standard ***Operation*** Procedures (SOP), and housekeeping requirements. 1.2. Problem is clearly described. 1.3. Effect of the problem on personal safety, equipment safety, quality and productivity is identified. 1.4. Mill procedures are instituted where personal safety is identified.
2. Analyse the problem and determine priority of causes	2.1. ***Type and extent of the Problem*** is analysed and priority of causes is determined within OHS ***regulations***, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Possible causes are identified by inspecting ***resources.*** 2.3. Impact of the problem on ***machinery performance*** is determined. 2.4. Likelihood of each possible cause occurring is considered. 2.5. Ability to do a quick check on each cause is determined. 2.6. Possible causes and ***chances*** for investigation are prioritised. 2.7. Analysis and determination of possible causes is completed in a time they manner. 2.8. ***Situational awareness*** is carried.
3. Apply possible solutions	3.1. Possible solutions are applied within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. ***Sampling and testing*** operations are conducted. 3.2. Quick checks are conducted if possible. 3.3. Possible solutions are applied. 3.4. Outcome is reviewed.

	3.5. Next possible solution is ***actioned*** in prioritised order. 3.6. ***Electronic control systems, equipment*** and adjustments are conducted.
4. Document and report problems and solutions	4.1. Completion of ***documentation and reporting*** within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Problem and the solution are documented as required. 4.3. Problem and solution is reported to relevant personal as required and ***communicated*** through ***sensory*** in different ***forms of communications***.

Variable	**Range**
Operations	may include: • coating systems • handling and preparing primary resources • steam generation • electrical power generation • handling and preparing waste paper for pulp production • waste paper operations • pulping operations • chemical recovery operations • finishing and converting • stock preparation operations • wet end operations • dry end operations • water services
Type and extent of the problem	may include: • quality or equipment problem • position/location of defect or problem • continuous or intermittent • deterioration • how long it has been occurring • when/who first observed the problem • paper quality
Regulation	may include: • OHS and environmental requirements (local, state and commonwealth) • statutory requirements (local, state and commonwealth) • operator licences and endorsements
Resources	may include: • personnel • equipment • production process • materials or supplies • trouble shooting guides

Machinery performance	may include: • significant, moderate, minor or no equipment damage • short or prolonged machine shut • quality outside acceptable parameters • quality compromises • substantial, moderate or minor increases in waste • significant, moderate or minor productivity losses
Chances	may include: • almost certain • likely • possible • unlikely • rare
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
Sampling and testing	may include: • stock consistency • stock colour • stock brightness • water quality • waste paper quality • visual assessments • stickies
Action	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Electronic control systems	may include: • Digital Control Systems (DCS) • touch screens • robotics
Equipment	may include: • communication equipment and 2-way radios • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to plant operations and systems
Documentation and reports	may include: • SOP

	• quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation (e.g. plant clearance, job safety analysis, permit systems) • Material Safety Data Sheets (MSDS) • furnish sheets • tally sheets • process and instrument diagrams • process improvement systems • planning documents • small group presentations • minutes of meeting
Communications	may include: • internal/external customers and suppliers • team members • maintenance services • operational management
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms • signage e.g. safety access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in identifying and rectifying problems in the workplace

Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to pulp and paper operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Working knowledge of system, processes and associated services sufficient for problem solving within level of responsibility, and may include: ➢ plant layout ➢ theory of operation ➢ causes and effects of adjustments made to equipment and processes ➢ relationships between system, processes and associated services ➢ effects of process variables on production and quality • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Plant operation and control mechanisms, within level of responsibility • Sensory information that indicates a deviation from standard operating parameters, within level of responsibility • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control pulp and paper operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Identify, access and interpret relevant historical and operational data and information • Use required forms of communication in identifying and rectifying problems in the workplace • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Identify and action systems, quality and equipment faults within level of responsibility • Identify causes and effects of faults and corrective action on associated processes • Take timely corrective action to maximise safety, quality and productivity • Undertake necessary calculations to aid troubleshooting, as required • Use troubleshooting guides and diagnostic procedures • Interpret instruments, gauges and data recording equipment • Maintain situational awareness in the work area • Take samples, conducts tests and interprets results if required

	• Analyse and use sensory information to adjust process to maximise safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Estimate and Calculate Basic Operation Data**
Unit Code	**IND PPO2 21 0613**
Unit Descriptor	This unit describes the outcomes required to estimate and calculate basic data in the pulp and paper industry.

Element	Performance Criteria
1. Estimate, calculate and record basic workplace data	1.1. Workplace data is ***estimated, calculated*** and recorded within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. ***Arithmetic calculations*** are used to meet process points and production requirements. 1.3. ***Product characteristics*** and process points are measured and variations from standard. 1.4. ***Productivity and efficiency measures*** are conducted. 1.4. Addition, subtraction, multiplication and division are used for workplace calculations. 1.5. ***Manual or electronic calculations*** are used.
2. Use routine measuring instruments	2.1. Routine measuring instruments are used within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Measuring instruments are selected and used to accurately measure equipment settings and product characteristics. 2.3. Measuring instrument faults are identified and reported to ensure that they are available for subsequent use for ***actions***.
3. Record data	3.1. Data is recorded within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Results are recorded using standard methods as required. 3.3. Incorrect ***recordings*** are identified and amended to ensure that faults are rectified. 3.4. ***Documentation, procedures and reports*** are carried for subsequent works and different ***forms of communication***.

Variable	Range
Estimates and calculation	may be applied to: • product characteristics e.g. weight, length, volume • production tallies • time

Regulations	may include: • OHS and environmental requirements (local, state and commonwealth)
Arithmetic calculations	may include: • addition • subtraction • multiplication • division • percentages • ratios and proportions • volumes
Product characteristics	may include: • length • weight • capacity • time • temperature • moisture
Productivity and efficiency measures	may include: • delay • waste • speed • tonnage • through put • asset utilisation • machine efficiency
Manual or electronic calculations	may include: • percentages • proportions • ratio • results using decimals, simple factions and whole numbers
Actions	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
recording	may include: • statistical process charts • production tally sheets
Documentation, procedures and reports	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems

Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • internal/external customers and suppliers • team members • production/service co-ordinators • maintenance services • operational support personnel • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in estimating and calculating basic data
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to estimating and calculating basic data including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Basic problem-solving techniques consistent with level of responsibility • Purpose of measuring instruments • Purpose of recording statistical data
Underpinning Skills	Demonstrates skills to: • Use required forms of communication when estimating and calculating basic data • Record statistical data on standard forms • Write numbers accurately and legibly • Record information accurately in company format • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Identify routine faults in measuring instruments

	• Estimate measures using whole numbers and decimals
	• Operate instruments to measure dimensions
	• Calculate routine measures using arithmetic processes involving:
	  ➢ whole numbers
	  ➢ fractions
	  ➢ decimals
	• Calculate results using whole numbers and/or fractions and decimals
	• Verify estimations by relevant calculations

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Provide Initial First Aid Response**
Unit Code	**IND PPO2 22 0613**
Unit Descriptor	This unit deals with the provision of essential First Aid in recognising and responding to an emergency using basic life support measures.

Element	Performance Criteria
1. Assess the situation.	1.1 Identify physical ***hazards*** to own and others' health and safety. 1.2 Minimise immediate ***risk*** of hazard to self and casualty's health and safety in accordance with OHS requirements. 1.3 Assess the casualty's vital signs and physical condition in accordance with workplace procedures.
2. Apply basic First Aid techniques.	2.1 Provide First Aid management in accordance with established First Aid procedures. 2.2 Reassure and make casualty comfortable in a caring and calm manner using available resources. 2.3 Seek First Aid assistance from others in a timely manner and as appropriate. 2.4 Monitor and respond to casualty's condition in accordance with effective First Aid principles and workplace procedures. 2.5 Accurately record details of casualty's physical condition, changes in conditions, management and response to management in line with organisational procedures. 2.6 Finalise casualty management details according to casualty's needs and First Aid principles. 2.6 ***Tools and equipment*** are used according to first aid procedure
3. Communicate details of the incident.	3.1 Request medical assistance using relevant communication media and equipment. 3.2 Accurately convey a detail of casualty's condition and management activities to emergency services/relieving personnel. 3.3 Prepare ***key variables*** for reports to supervisors in a timely manner, presenting all relevant facts according to established company procedures.

Variable	Range
Hazards	May include: • workplace hazards • environmental hazards

	• proximity of other people • Hazards associated with the casualty management process.
Risks	may include: • worksite equipment, machinery and substances • environmental risks • bodily fluids • risk of further injury to the casualty • risks associated with the proximity of other workers and bystanders
Tools and equipment	May include: • defibrillation units • pressure bandages • thermometers • First Aid kits • eyewash • thermal blankets • pocket face masks • rubber gloves • dressing • spacer device • cervical collars • mobile phones • satellite phones • HF/VHF radio • flags • flares • two way radio • email • electronic equipment
Key variables	• Vital signs, including breathing, circulation, consciousness. • Variables indicating the casualty's condition, including: ➢ abdominal injuries ➢ allergic reactions ➢ bleeding ➢ burns - thermal, chemical, friction, electrical ➢ cardiac conditions ➢ chemical contamination ➢ cold injuries ➢ crush injuries ➢ dislocations ➢ drowning ➢ envenomation - snake, spider, insect and marine bites ➢ environmental conditions such as hypothermia, dehydration, heat stroke ➢ epilepsy, diabetes, asthma and other medical conditions ➢ eye injuries ➢ fractures

	➢ head injuries ➢ minor skin injuries ➢ neck and spinal injuries ➢ needle stick injuries ➢ poisoning and toxic substances ➢ respiratory management of asthma and/or choking ➢ shock ➢ smoke inhalation ➢ soft tissue injuries, including sprains, strains, dislocations ➢ substance abuse, including drugs ➢ Unconsciousness, including not breathing and no pulse.

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • Work individually, under supervision or as part of a First Aid team. • basic anatomy and physiology • duty of care • resuscitation • bleeding control • care of unconscious • infection control • airway management • State/Territory regulatory requirements relating to currency of skills and knowledge • decision-making • legal requirements • assertiveness skills • Communication skills.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of - • basic anatomy and physiology • company Standard Operating Procedures (SOPs) • legal responsibilities and duty of care • dealing with confidentiality • knowledge of the first aiders' skills and limitations • Occupational Health and Safety legislation and regulations and requirements • how to gain access to and interpret Materials Safety Data Sheets (MSDSs) • First Aid management • State and Territory workplace health and safety requirements • allergies the casualty may have • location and nature of the workplace • the environmental conditions, e.g. electricity, biological risks, weather, motor vehicle accidents • location of emergency service personnel • the use and availability of First Aid equipment and resources • infection control

	• established First Aid principles, including: ➢ checking the site for danger to self, casualty and others and minimising the danger ➢ checking and maintaining the casualty's airway, breathing and circulation
Underpinning Skills	Demonstrates skills in: • resuscitation • demonstration of First Aid casualty management principles - assessing and minimising danger, maintaining the casualty's airway, breathing and circulation • safe manual handling of casualty • consideration of the welfare of the casualty • report preparation • communication skills • Ability to interpret and use listed documents.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Store and Dispatch Waste Paper**
Unit Code	**IND PPO2 23 0613**
Unit Descriptor	This unit describes the outcomes required to store and dispatch waste paper in the pulp and paper industry.

Element	Performance Criteria
1. Analyse order to identify work requirements	1.1. Order is analysed to identify work requirements within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Order requirements are interpreted. 1.3. Required schedules for dispatch are identified. 1.4. Products from order are identified. 1.5. Workplace and product knowledge is used to plan sequence of work. 1.6. Appropriate ***materials and supplies*** handling ***equipment*** is selected within timeframe for the dispatch.
2. Prepare goods for dispatch	2.1. Goods are prepared for dispatch within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Goods for dispatch are selected, checking against product knowledge, labels and other identification systems. 2.3. Products are sorted, assembled and placed in storage or dispatch zones, in accordance with schedule. 2.4. Orders are placed in storage or dispatch zones in accordance with schedule. 2.5. Order is checked against dispatch schedule and order form.
3. Dispatch product	3.1. Product is dispatched within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Load requirements are communicated to carrier. 3.3. Products are loaded for dispatch using appropriate ***accessories*** and materials handling equipment. 3.4. Damaged product are identified and processed during loading. 3.5. Checks are made with the carrier to confirm the load has been secured.

	3.6 ***Electronic control systems*** and adjustments are conducted if required. 3.7. Operator level ***Maintenance*** and ***actions*** is carried. 3.8. ***Situational awareness*** is carried.
4. Finalise documentation	4.1. Finalisation of ***documentation*** is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Final check of documentation is completed and communicated through ***sensory*** in different ***forms of communications***. 4.3. Security seals are attached as required.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimisation • evaporation minimisation, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilisation, including fibre efficiency • minimising delays • chemical recovery maximisation • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials and supplies	may include: • waste paper • blocks • pallets • loose • reels • product
Equipment	may include: • conveyor systems • cranes • sorting tables

	• fork lift • straddle truck • trailer or tipper • articulated loader • side loader • mobile crane or other materials • handling equipment • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to storage and dispatch of waste paper
Accessories	may include: • protective and high visibility safety clothing and equipment • break down tools and equipment • electronic communication equipment
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Maintenance	may include: • operator level maintenance as per site agreement • maintenance system • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Actions	may include: • process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstruction and unexpected movement
Documentation	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • weighbridge dockets

	• work orders • tally sheets • truck delivery dockets • invoices • non-conformance reports • test results and reports • log sheets (production and equipment) • equipment performance data and tonnage • input or conversion • stock inventory • process and instrument diagrams
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature • internal/external suppliers and customers • maintenance services • team members and operational management
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in storing and dispatching waste paper
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to storage and dispatch of waste paper operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping

	• Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Working knowledge of storage and dispatch area processes, layout and associated services sufficient to carry out storage and dispatch of waste paper within level of responsibility • Warehouse organisation and workflow • Freight carrying and load restraint requirements • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application that control storage and dispatch operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in storing and dispatching waste paper • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Maintain inventory systems with accurate information • Identify and action problems within level of responsibility • Identify and monitor process control points • Maintain situational awareness in the work area • Select product • Pack or wrap product to customer requirements • Operate packaging, wrapping and labelling equipment • Operate and maintain materials handling equipment • Use measuring equipment as required • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to alter work sequence to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Participate in Workplace Communication**
Unit Code	**IND PPO2 24 0613**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

Elements	Performance Criteria
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources***. 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information. 1.3 Appropriate ***medium*** is used to transfer information and ideas. 1.4 Appropriate non- verbal communication is used. 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed. 1.6 Defined workplace procedures for the location and ***storage*** of information are used. 1.7 Personal interaction is carried out clearly and concisely.
2. Participate in workplace meetings and discussions	2.1 Team meetings are attended on time. 2.2 Own opinions are clearly expressed and those of others are listened to without interruption. 2.3 Meeting inputs are consistent with the meeting purpose and established ***protocols***. 2.4 ***Workplace interactions*** are conducted in a courteous manner. 2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded to. 2.6 Meetings outcomes are interpreted and implemented.
3. Complete relevant work related documents	3.1 Range of ***forms*** relating to conditions of employment is completed accurately and legibly. 3.2 Workplace data is recorded on standard workplace forms and documents. 3.3 Basic mathematical processes are used for routine calculations. 3.4 Errors in recording information on forms/ documents are identified and properly acted upon. 3.5 Reporting requirements to supervisor are completed according to organizational guidelines.

Variable	Range
Appropriate sources	• Team members • Suppliers • Trade personnel • Local government • Industry bodies
Medium	• Memorandum • Circular • Notice • Information discussion • Follow-up or verbal instructions • Face to face communication
Storage	• Manual filing system • Computer-based filing system
Protocols	• Observing meeting • Compliance with meeting decisions • Obeying meeting instructions
Workplace interactions	• Face to face • Telephone • Electronic and two way radio • Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
Forms	• Personnel forms, telephone message forms, safety reports

Evidence Guide	
Critical Aspects of Competency	Assessment requires evidence that the candidate to: • Prepare written communication following standard format of the organization • Access information using communication equipment • Make use of relevant terms as an aid to transfer information effectively • Convey information effectively adopting the formal or informal communication
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Effective communication • Different modes of communication • Written communication • Organizational policies • Communication procedures and systems • Technology relevant to the enterprise and the individual's work responsibilities
Underpinning Skills	Demonstrate skills to: • Follow simple spoken language • Perform routine workplace duties following simple written notices

	• Participate in workplace meetings and discussions • Complete work related documents • Estimate, calculate and record routine workplace measures • Basic mathematical processes of addition, subtraction, division and multiplication • Ability to relate to people of social range in the workplace • Gather and provide information in response to workplace Requirements
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Work in Team Environment**
Unit Code	**IND PPO2 25 0613**
Unit Descriptor	This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

Elements	Performance Criteria
1. Describe team role and scope	1.1 The ***role and objective of the team*** are identified from available ***sources of information***. 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources.
2. Identify own role and responsibility within team	2.1 Individual role and responsibilities within the team environment are identified. 2.2 Roles and responsibility of other team members are identified and recognized. 2.3 Reporting relationships within team and external to team are identified.
3. Work as a team member	3.1 Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives. 3.2 Effective and appropriate contributions are made to complement team activities and objectives, based on individual skills and competencies and ***workplace context***. 3.3 Protocols are observed in reporting using standard operating procedures. 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.

Variable	Range
Role and objective of team	• Work activities in a team environment with enterprise or specific sector • Limited discretion, initiative and judgment maybe demonstrated on the job, either individually or in a team environment
Sources of information	• Standard operating and/or other workplace procedures • Job procedures • Machine/equipment manufacturer's specifications and instructions • Organizational or external personnel • Client/supplier instructions

	• Quality standards • OHS and environmental standards
Workplace context	• Work procedures and practices • Conditions of work environments • Legislation and industrial agreements • Standard work practice including the storage, safe handling and disposal of chemicals • Safety, environmental, housekeeping and quality guidelines

Evidence Guide	
Critical aspects of competence	Assessment requires evidence that the candidate to: • Operate in a team to complete workplace activity • Work effectively with others • Convey information in written or oral form • Select and use appropriate workplace language • Follow designated work plan for the job • Report outcomes
Underpinning Knowledge and Attitude	Demonstrate knowledge of: • Communication process • Team structure • Team roles • Group planning and decision making
Underpinning Skills	Demonstrate skills to: • Communicate appropriately, consistent with the culture of the workplace
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Develop Business Practice**
Unit Code	**IND PPO2 26 0613**
Unit Descriptor	This unit specifies the outcomes required to establish a business operation from a planned concept. It includes researching the feasibility of establishing a business operation, planning the setting up of the business, implementing the plan and reviewing operations once commenced.

Elements	Performance Criteria
1. Identify business opportunity	1.1 ***Business opportunities*** are investigated and identified. 1.2 Feasibility study is undertaken to determine likely ***business viability***. 1.3 Market research on product or service is undertaken. 1.4 Assistance with feasibility study of ***specialist and relevant parties*** is sought as required. 1.5 Impact of emerging or changing technology including e-commerce, on business operations is evaluated. 1.6 Practicability of business opportunity is assessed in line with perceived risks, returns sought and resources available. 1.7 Business plan is completed for operation.
2. Identify personal business skills	2.1 Financial and business skills available are identified and taken into account when business opportunities are researched. 2.2 ***Personal skills/attributes*** are assessed and matched against those perceived as necessary for a particular business opportunity. 2.3 ***Business risks*** are identified and assessed according to resources available and personal preferences.
3. Plan for establishment of business operation	3.1 Business structure and operations are determined and documented. 3.2 Procedures are developed and documented to guide operations. 3.3 Financial backing is secured for business operation. 3.4 Business legal and regulatory requirements are identified and complied. 3.5 ***Human and physical resources*** required to commence business operation are determined. 3.6 Recruitment strategies are developed and implemented.
4. Implement establishment plan	4.1 Marketing of business operation is undertaken. 4.2 Physical and human resources are obtained to implement business operation.

	4.3 ***Operational unit*** is established to support and coordinate business operation. 4.4 Monitoring process is developed and implemented for managing operation. 4.5 ***Legal documents*** are carefully maintained and relevant records are kept and updated to ensure validity and accessibility. 4.6 Contractual procurement rights for goods and services including ***contracts with relevant people***, negotiated and secured as required in accordance with the business plan. 4.7 Options for leasing/ownership of business premises identified and contractual arrangements are completed in accordance with the business plan.
5. Review implementation process	5.1 Review process for implementation of business operation is developed and implemented. 5.2 Improvements in business operation and associated management process are identified. 5.3 Identified improvements are implemented and monitored for effectiveness.

Variable	Range
Business opportunities	maybe influenced by: • expected financial viability • skills of operator • amount and types of finance available • returns expected or required by owners • likely return on investment • finance required • lifestyle issues
Business viability	may include: • opportunities available • market competition • timing/ cyclical considerations • skills available • resources available • location and/ or premises available • risk related to a particular business opportunity, especially • in regard to Occupational Health and Safety and • environmental considerations
Specialist and relevant parties	• Chamber of commerce • Financial planners and financial institution representatives, business planning specialists and marketing specialists • accountants • lawyers and providers of legal advice • government agencies

	• industry/trade associations • online gateways • business brokers/business consultants
Personal skills/attributes	may include: • technical and/ or specialist skills • business knowledge and skills • entrepreneurship • willingness to take risks
Business risks	May include but are not restricted to: • occupational health and safety and environmental • considerations • relevant legislative requirements • security of investment • market competition • security of premises/ location • supply and demand • resources available
Human and physical resources	may include: • software and hardware • office premises • communications equipment • specialist services through outsourcing, contracting and • consultancy • staff and vehicles
Operational unit	refers to: • office location staffed with required personnel and equipped to service and support business • home-based site or other location such as leased or owned property
Legal documents	may include: • partnership agreements, constitution documents, statutory books for companies (Register of Members, Register of Directors and Minute Books), Certificate of Incorporation, Franchise Agreements and financial documentation, appropriate software for financial records • recordkeeping including personnel, financial, taxation, OHS and environmental
Contracts with relevant people	may include owners, suppliers, employees, landlords, agents, distributors, customers or any person with whom the business has, or seeks to have, a performance-based relationship

Evidence Guide	
Critical Aspects of Competence	A person must be able to provide evidence: • that a business operation has been planned and implemented from initial research into feasibility of the business and completion of the plan, through to implementing the plan and commencing operations

	• the ability to evaluate the results of research and assess the likely viability and practicability of a business opportunity, taking into account the current business/market climate and resources available
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Federal and regional government legislative requirements affecting business operations, especially in regard to Occupational Health and Safety (OHS), Equal Employment Opportunity (EEO), industrial relations and anti-discrimination • Technical or specialist skills relevant to the business operation • Financing options • Business systems and operations • Relevant marketing, management, sales and financial concepts • Methods for researching business opportunities • Principles of risk management relevant to the business • Methods of identifying relevant specialist services to complement the business • Forms and administrative systems • Services available and charges • Planning and control systems (sales, • Advertising and promotion, distribution and logistics • Financial recording systems • Legal rights and responsibilities • Record keeping duties • Operational factors relating to the business (provision of professional services, products)
Underpinning Skills	Demonstrate skills of: • Literacy skills to interpret legal requirements, company policies and procedures and immediate, day-to-day demands • Marketing skills • Business planning skills • Entrepreneurial skills • Problem-solving skills • OHS skills • Time management skills • Belief in services and products offered by the business • Communication skills including questioning, clarifying, reporting, and giving and receiving constructive feedback • Technical and analytical skills to interpret business documents, reports and financial statements and projections • Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities • Problem solving skills to develop contingency plans • Using computers and software packages to record and manage data and to produce reports • Literacy skills to enable interpretation of business information, numeracy skills for data analysis to aid research

	• Research skills to identify a business opportunity and to conduct a feasibility study • Analytical skills to assess personal attributes and to identify business risks • Observation skills for identifying appropriate people, resources and to monitor work
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Papermaking Operations Level II	
Unit Title	**Standardize and Sustain 3S**
Unit Code	**IND PPO2 27 0613**
Unit Descriptor	This unit of competence covers the knowledge, skills and attitudes required by worker to standardize and sustain 3S to his/her workplace. It covers responsibility for the day- to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized.

Elements	Performance Criteria
1. Prepare for work.	1.1 Work instructions are used to determine job requirements, including method, material and equipment. 1.2 Job specifications are read and interpreted following working manual. 1.3 ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work. 1.4 ***Safety equipment and tools*** are identified and checked for safe and effective operation. 1.5 ***Tools and equipment*** are prepared and used to implement 3S.
2. Standardize 3S.	2.1 Plan is prepared and used to standardize 3S activities. 2.2 ***Tools and techniques*** to standardize 3S are prepared and implemented based on ***relevant procedures***. 2.3 Checklists are followed for standardize activities and ***reported*** to ***relevant personnel***. 2.4 The workplace is kept to the specified standard. 2.5 Problems are avoided by standardizing activities.
3. Sustain 3S.	3.1 Plan is prepared and followed to standardize 3S activities. 3.2 ***Tools and techniques*** to sustain 3S are discussed, prepared and implemented based on relevant procedures. 3.3 Workplace is inspected regularly for compliance to specified standard and sustainability of 3S techniques. 3.4 Workplace is cleaned up after completion of job and before commencing next job or end of shift. 3.5 Situations are identified where compliance to standards is unlikely and actions specified in procedures are taken. 3.6 Improvements are recommended to lift the level of compliance in the workplace. 3.7 Checklists are followed to sustain activities and reported to relevant personnel. 3.8 Problems are avoided by sustaining activities.

Variable	Range
OHS requirements	May include but not limited to: • Are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances. • Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices. • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization. • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Safety equipment and tools	May include but not limited to: • dust masks / goggles • glove • working cloth • first aid • safety shoes
Tools and equipment	May include but not limited to: • paint • hook • sticker • signboard • nails • shelves • chip wood • sponge • broom • pencil • shadow board/ tools board
Tools and techniques	May include but not limited to: • 5S Job Cycle Charts • Visual 5S • The Five Minute 5S • Standardization level checklist • 5S checklist • The five Whys and one How approach(5W1H) • Suspension • Incorporation • Use Elimination

Relevant procedures	May include but not limited to: • Assign 3S responsibilities • Integrate 3S duties into regular work duties • Check on 3S maintenance level • OHS measures such as signage, symbols / coding and labeling of workplace and equipment • Creating conditions to sustain your plans • Roles in implementation
Reporting	May include but not limited to: • verbal responses • data entry into enterprise database • brief written reports using enterprise report formats
Relevant personnel	May include but not limited to: • supervisors, managers and quality managers • administrative, laboratory and production personnel • internal/external contractors, customers and suppliers
Tools and techniques	May include but not limited to: • 5S slogans • 5S posters • 5S photo exhibits and storyboards • 5S newsletter • 5S maps • 5S pocket manuals • 5S department/benchmarking tours • 5S months • 5S audit • Awarding system • Big cleaning day • Patrolling system may include: ➢ Top management Patrol ➢ 5S Committee members and Promotion office Patrol ➢ Mutual patrol ➢ Self-patrol ➢ Checklist patrol ➢ Camera patrol

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Discuss the relationship between Kaizen elements. • Standardize and sustain 3S activities by applying appropriate tools and techniques.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Elements of Kaizen • Ways to improve Kaizen elements • Benefits of improving kaizen elements • Relationship between Kaizen elements • The fourth pillar of 5S

	• Benefits of standardizing and sustaining 3S • Procedures for standardizing and sustaining 3S activities • Tools and techniques to sustain 3S • Relevant Occupational Health and Safety (OHS) and environment requirements • Plan and report • Method of communication
Underpinning Skills	Demonstrates skills of: • improving Kaizen elements by applying 5S • standardizing and sustaining procedures and techniques to avoid problems • technical drawing • procedures to standardizing 3S activities • analyzing and preparing shop layout of the workplace • standardizing and sustaining checklists • preparing and implementing tools and techniques to sustain 3S • working with others • reading and interpreting documents • observing situations • solving problems by applying 5S • communication skills • preparing labels, slogans, etc. • gathering evidence by using different means • using Kaizen board properly in accordance the procedure • reporting activities and results using report formats
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

NTQF Level III

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Manage Steam Boiler Start up**
Unit Code	**IND PPP3 01 0613**
Unit Descriptor	This unit describes the outcomes required to manage steam boiler start-up in the pulp and paper industry.

Elements	Performance Criteria
1. Conduct pre-operational safety checks	1.1. Pre-operational safety checks are conducted within Occupational Health and Safety (OHS) regulations, environmental and safe working ***productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Plant status is confirmed by inspection, observations and other information. 1.3. Potential work area hazards are identified, reported and prevention or control measures implemented. 1.4. Work and output requirements are established ***pre-operational and safety checks*** are conducted. 1.5. Isolations are removed. 1.6. Availability of process, materials and supplies are confirmed. 1.7. ***Equipments*** of the process are checked. 1.8. ***Electronic control systems*** are checked for proper functioning.
2. Conduct startup procedures	2.1. Starts up procedures are conducted within OHS ***regulations***, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Pre-light conditions are established. 2.3. ***Boiler types*** condition during start up is monitored to detect abnormal conditions. 2.4. ***Materials and supplies*** are checked. 2.5. Boiler is started and brought on-line. 2.6. System and plant is observed for correct operational response. 2.7. Deviations from required operating conditions are detected and corrective action and ***maintenance*** undertaken to rectify. 2.8. Responses to corrective ***actions*** are ***documented*** as required and communication is carried in different ***forms of communications***. 2.9. Start up information is recorded and reported as required. 2.10. Electronic control systems are used.

Variable	Range
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tonnes per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Pre-operational and safety checks	may include: • low water level alarm • high water level alarm • low water level alarm lockout • hydrostatic test • burner management system • safety valve test
Equipment	may include: • boiler and auxiliary plant • boiler heating systems • steam distribution system • fuel and fuel delivery system plant • dust removal and combustion waste • fuel management system • extraction systems • water distribution systems • compressed air systems • steam temperature control plant • chemical dosing system • water treatment system • flame detection equipment • hand and power tools • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to steam generation operations

Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk licensing requirements • appropriate boiler/pressure vessel operator certification • confined space standards and regulations
Boiler types	• fire tube • water tube • and may be operated in conjunction with other steam driven plant and operations including: • paper making machines • turbines • digesters • evaporators • heating plant
Material and supplies	may include: • chemicals • coal • oil • gas • additives • air • water • wood waste • steam • recovery process products • power
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Actions	may include • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Documentation	may include • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals

	• oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • enterprise policies and procedures • job sheets • manufacturer's specifications • maintenance documentation • statutory requirements • Materials Safety Data Sheets (MSDS) • operator's log • process and instrument diagrams
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • internal/external customers and suppliers • team members • production/service coordinators • maintenance services • operational management and statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in managing a steam boiler startup
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to steam generation operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Working knowledge of steam generation plant, processes, layout and associated services sufficient to carry out startup activities within level of responsibility

	• Boiler water treatment system and reasons for treatment • Pre-operational checks and requirements • Application of high risk equipment as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control steam generation systems, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in managing a steam boiler startup • Read and interpret required documentation, procedures and reports • Interpret instruments, gauges and data recording equipment • Prepare written information and enters data to support groups and teams • Interpret specifications and customer orders • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Identify and monitor process control points • Maintain situational awareness in the work area • Implement isolation and access procedures • Maintain a clean and hazard free work area • Set up and start boiler within an appropriate time • Use measuring equipment as required • Operate high risk equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Troubleshoot and Rectify Water Systems**
Unit Code	**IND PPP3 02 0613**
Unit Descriptor	This unit describes the outcomes required to troubleshoot and rectify water systems in the pulp and paper industry.

Elements	Performance Criteria
1. Identify and analyse causes of faults	1.1. Causes of faults are identified and analyzed within Occupational Health and Safety (OHS) ***regulations,*** environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Visual checks are conducted. 1.3. Alarms and visual checks are interpreted to determine fault type. 1.4. ***Sampling and testing*** results are interpreted to identify variations from specifications. 1.5. Cause and source of problem is identified and located using appropriate analysis. 1.6. Relevant sources of information are accessed to assist analysis. 1.7. ***Water source*** and ***Water type*** points are checked. 1.8. Availability of ***Materials and supplies*** are checked. 1.9. Proper functioning of ***electronic control systems*** is checked. 1.10. ***Situational awareness*** is carried to proper personnel.
2. Rectify plant and equipment faults	2.1. Plant and ***equipment*** faults are rectified within OHS, housekeeping, SOP, environmental and safe working requirements and practices. 2.2 Equipment is shut down and isolation procedures are implemented prior to fault rectification as required. 2.3 Faulty equipment is identified and repaired or replaced. 2.4 Running adjustments and operator level ***maintenance*** are carried out. 2.5 Plant and equipment are returned to normal operation. 2.6 Restoration to normal operation is verified and communicated to relevant personnel.
3 Rectify water quality faults	3.2 Water quality faults are rectified within OHS, housekeeping, SOP, environmental and safe working requirements and practices. 3.3 Quality faults or variations are identified by observation, systematic sampling and testing. 3.4 Samples for a range of tests are taken.

	3.5 Test results are interpreted and operational adjustments made as required. 3.6 Faults are rectified or recommendations made for further action as required. 3.7 Out-of-specification water is auctioned as required.
4. Record and report water system information	2.2. ***Water system*** information is recorded and reported within OHS, housekeeping, SOP, environmental and safe working requirements and practices. 2.3. ***Hazards and risks in water systems*** are identified and necessary actions are taken. 2.4. Variations from specification are documented. 2.5. Performance variations are documented. 2.6. Causes of deviation and corrective action undertaken are recorded as required. 2.7. Relevant information is communicated through sensory in different forms of ***communication*** to appropriate personnel and ***documented for report.***

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk and small boat licensing requirements • water and chemical legislation and regulations • safety instructions
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate

Sampling and testing	may include: • sludge consistency • pH • conductivity • flocculation • colour • suspended solids • caustic strength • alkalinity • impurities • brine • bacteria • colour • acid strength
Water sources	may include: • raw water • mains water • recycled water
Water type	may include: • fresh water • treated water • de-mineralized water • softened water • filtrate-clarified water • potable water • dilution water (filtrate) ex-vacuum system • waste water (effluent) • white water (ex-machine) • cloudy water
Materials and supplies	may include: • chemicals • filtering mediums
Electronic control systems:	may include • Digital Control System (DCS) • touch screens • robotics
Situational awareness	may include awareness of: • traffic • pedestrians • location of equipment • product • hazards • obstructions • unexpected movement
Equipment	may include: • flow control and metering devices • pumping systems

	• electronic and digital monitoring and metering • valuing systems • recording systems • pipes • fittings • chemical testing and analysis equipment • chemical dosing equipment • tanks and chests • cranes and hoists • communication equipment • aeration ponds • chemical handling equipment • hand and power tools • pest control equipment • load shifting equipment • small boat • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to water processes and systems • analogue and digital instrumentation
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centered Maintenance (RCM)
Water system	may include: • de-alkalinisation plant • de-mineralization plant • water softening plant • chemical treatment plant • reverse osmosis plant • clarifier plant • chillers • water storage systems • filtration systems • cooling towers • condensers • potable water plant
Hazards and risks in water systems	may include: • confined space • hazardous chemicals and materials • biological hazards • environmental hazards

	• heat • height • slippery surfaces • pressures • fumes • electrical • compressed air • nip points • flooding
Communication	may include interaction with: • team members • production/service coordinators • internal/external customers and suppliers • maintenance services • operational management • statutory authorities • internal/external customers and suppliers
Documented for report	may include: • SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • confined space requirements • vendor documentation • reference manual • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in troubleshooting and rectifying water systems

Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to troubleshooting and rectifying water systems including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Use and handling requirements of chemicals used; their purpose, effects, MSDS and SOP • Relevant forms of communication • Detailed knowledge of water system plant, processes and associated services sufficient to troubleshoot including: ➢ plant layout ➢ theory of operation ➢ causes and effects of adjustments made to water systems and processes ➢ relationships between water system, plant and associated services • An appropriate range of troubleshooting methods • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Causes and effects of unplanned shutdown and appropriate responses • Sensory information that indicates a deviation from standard operating parameters • Application of small boat operation requirements • Application of high risk equipment as required • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control the water system, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in troubleshooting and rectifying water systems • Communicate effectively with personnel to assist with analysis and resolution of operational problems • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interprets instruments, gauges and data recording equipment • Identify and action systems, quality and equipment faults within level of responsibility • Assist others to identify and resolve operational problems in the workplace • Take samples, conducts tests, interprets and records results if required • Identify causes and effects of faults and corrective action on associated processes

	• Select and use appropriate troubleshooting methods • Take timely corrective action to maximize safety, quality and productivity • Undertake necessary calculations to aid troubleshooting as required • Identify, access and interpret relevant historical and operational data and information • Follow procedures for the handling of chemicals and hazardous materials • Use measuring equipment as required • Maintain water quality to specification • Maintain situational awareness in the work area • Operate a small boat as required • Operate high risk equipment as required • Analyse and use sensory information to adjust process to maximize safety, quality and productivity • Use electronic control and other systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Shut down and Bank Steam Boiler**
Unit Code	**IND PPP3 03 0613**
Unit Descriptor	This unit describes the outcomes required to shut down and bank steam boiler/s in the pulp and paper industry.

Elements	Performance Criteria
1. Prepare boiler for shutdown	1.1 Boiler is prepared for shutdown within Occupational Health and Safety (OHS) ***regulations,*** environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2 Maintenance requirements are identified and reported. 1.3 Appropriate isolations are initiated. 1.4 Faulty plant is isolated/contained where possible to allow continued production as required. 1.5 Boiler and ancillary plant are shut down.
2. Conduct boiler inspection and maintenance	2. 1. Boiler inspection and ***maintenance*** is conducted within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2. 2. Boiler is prepared for inspection. 2. 3. Condition of boiler is established to ensure safe removal of ***equipment***. 2. 4. Inspections and maintenance are carried out. 2. 5. Internal and external cleaning of boiler and fittings are undertaken as required.
3. Store boiler in shutdown mode	3. 1. ***Boiler type*** is stored in shutdown mode within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3. 2. Storage time and condition of storage are established. 3. 3. Boiler is stored in a safe condition for access in accordance with manufacturer's specifications. 3. 4. Stored boiler water and chemicals are analyzed and handled when boiler is stored for extended periods 3. 5. ***Pre-operational checks*** are carried out.
4. Respond to unplanned or emergency shutdowns	4.1 Unplanned or emergency shutdowns are responded to within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements.

	4.2 Shutdown requirement is responded to immediately. 4.3 Emergency conditions are complied with in accordance with legislative and enterprise procedures, where applicable. 4.4 Cause of shutdown is identified and located where possible. 4.5 Immediate safety of personnel and plant is ensured. 4.6 Continuing plant operation is monitored and maintained in safe working conditions and customers are notified. 4.7 ***Situational awareness*** for relevant personnel are notified to rectify and make plant ready for restart.
5. Record and report shutdown data	5.1 Shutdown data is recorded and reported within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 5.2 Shutdown information is recorded, including corrective ***action*** as required. 5.3 Shutdown information is ***documented, and reported*** to relevant personnel as required and communicated through ***sensory information*** in different ***forms of communication***.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk licensing requirements • appropriate boiler/pressure vessel operator certification • confined space standards and regulations
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate

Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Equipment	may include: • boiler and auxiliary plant • boiler heating systems • steam distribution system • fuel and fuel delivery system plant • dust removal and combustion waste • fuel management system • extraction systems • water distribution systems • compressed air systems • steam temperature control plant • chemical dosing system • water treatment system • flame detection equipment • hand and power tools • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to steam generation operations
Boiler type	may include: • fire tube • water tube • and may be operated in conjunction with other steam driven plant and operations including: • paper making machines • turbines • digesters • evaporators • heating plant
Pre-operational checks	may include: • low water level alarm • high water level alarm • low water level alarm lockout • hydrostatic test • burner management system • safety valve test
Situational awareness	may include: • traffic

	• pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
Action	may include: • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Documented and reported	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • enterprise policies and procedures • job sheets • manufacturer's specifications • maintenance documentation • statutory requirements • Materials Safety Data Sheets (MSDS) • operator's log • process and instrument diagrams
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • internal/external customers and suppliers • team members • production/service coordinators • maintenance services

	• operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in the shutting down and banking of steam boilers
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to steam generation operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Working knowledge of steam generation plant, processes, layout and associated services sufficient to carry out shutdown activities within level of responsibility • Types, causes and effects of steam boiler shutdowns • Required responses to all unplanned shutdowns (e.g. power outage, mechanical breakdown, blockages, jamming, air supply, control system failure) to ensure safety quality and productivity • Process and procedures for plant shutdowns and unplanned shutdowns • Plant and machinery functions and operations • Emergency procedures and responses • Boiler water treatment system and reasons for treatment • Operation of plant and systems • Application of high risk equipment as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control boiler plant operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in shutting down and banking steam boiler/s • Read and interpret required documentation, procedures and reports within level of responsibility • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Interpret specifications and customer orders

	• Prepare written information and enter data to support groups and teams • Identify and action problems within level of responsibility • Identify and monitor process control points • Implement boiler bank, standby or store procedures • Set up boiler and/or re-start within appropriate time • Conduct pre-operational checks • Identify and respond appropriately to shutdown causes • Respond to problems associated with plant shutdown and unplanned shutdown to ensure safety quality and productivity • Coordinate and plan shutdown activity • Maintain situational awareness in the work area • Use measuring equipment as required • Operate high risk equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Manage a Power Generation System Start-up**
Unit Code	**IND PPP3 04 0613**
Unit Descriptor	This unit describes the outcomes required to manage a power generation system start-up in the pulp and paper industry.

Elements	Performance Criteria
1. Conduct local inspections and pre-operational safety checks	1.1. Local inspections and pre-operational safety checks are conducted within Occupational Health and Safety (OHS) ***regulations,*** environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Plant status is confirmed by inspection, observations and other information. 1.3. Potential work area hazards are identified, reported, controlled and measures are employed to contain hazards. 1.4. Work requirements are determined in conjunction with power authorities. 1.5. Availability of ***materials and supplies*** and ***equipment*** are checked. 1.6. Operational requirements are established. 1.7. Sequencing for plant start up to suit current circumstances is determined. 1.8. Operational ***maintenance*** requirements are undertaken as required. 1.9. ***Situational awareness*** are under taken.
2. Initiate start up procedures	2.1 Start-up procedures is initiated within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2 Sequence for plant start-up is commenced. 2.3 System start is coordinated with distribution and ancillary systems and brought on-line. 2.4 ***Management and operation of power generation*** System of plant is observed for correct operational response. 2.5 Deviations from required operating conditions are detected and corrective ***action*** undertaken to rectify. 2.6 Routine documentation is maintained and logs completed. 2.7 Start up information is recorded and reported as required. 2.8 ***Electronic control systems*** are monitored.

Variable	Range
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk licensing requirements • operator endorsement requirements • local power authority rules and regulations
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fibre efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials and supplies	may include: • water • air • steam • electricity and gas
Equipment	may include: • boilers • high and low voltage transformers • steam or gas turbine driven alternators • switchboards • water systems and auxiliary plant • circuit breakers • AC/DC generation and distribution systems • protective equipment • measuring and recording equipment • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to the power generation process
Maintenance	may include: • operator level maintenance as per site agreements

	• operator maintenance schedules • maintenance systems • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Situational awareness	may include awareness of: • traffic, pedestrians, location of equipment, product, hazards, obstruction and unexpected movement
Management and operation of power generation	may include: • availability of required supplies • electricity generation • regulation and distribution systems
Action	may include: • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Electronic control systems	may include: • Digital Control System (DCS) • touch screens and robotics

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in managing a power generation system start up
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to power generation systems including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Power generation plant, processes, layout and associated services sufficient to carry out start up activities within level of responsibility • Effect of steam quality on turbine operation • Pre-start limitations and run-up limitations • AC/DC generation principles • Output control and regulation principles • Power factor characteristics and effects • Electrical isolation procedures

	• Principles of operation of transformers and circuit protection systems within level of responsibility • Operational tolerances of the turbine system and the effect of operating outside these tolerances • Power distribution systems • Application of high risk equipment as required • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control power generation systems, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in managing a power generation system start up • Read and interpret required documentation, procedures and reports • Interpret instruments, gauges and data recording equipment • Access, navigate and enter computer-based information • Prepare written information and enters data to support groups and teams • Communicate with customers and other relevant personnel • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Determine systems faults, causes and effects • Identify and monitor process control points • Maintain situational awareness in the work area • Conduct appropriate adjustments to maintain operation at required levels • Maintain a clean and hazard free workplace • Use measuring equipment as required • Use tools and equipment • Conduct routine checks • Operate high risk equipment as required • Carry out operator level maintenance as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Operate Process Control Equipment**
Unit Code	**IND PPP3 05 0613**
Unit Descriptor	This unit describes the outcomes required to operate process control equipment in the pulp and paper industry.

Elements	Performance Criteria
1. Access and navigate control system	1.1. Accessing and navigating control system is completed within OHS ***regulations***, environmental and safe working requirements/practices, Standard Operating Productivity (SOP), and housekeeping ***requirements***. 1.2. Control systems are identified and interpreted. 1.3. Control systems are accessed as required. 1.4. Control systems are navigated to meet job requirements.
2. Monitor and control process	2.1. Monitoring and controlling process is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Control screen/s is monitored to check process status. 2.3. ***Equipment*** adjustments are made using process control systems. 2.4. ***Electronic control systems*** are monitored. 2.5. Required operational and procedure ***actions*** are carried. 2.6. ***Situational awareness*** is conducted.
3. Respond to process variations and problems	3.1. Response to process variations and ***problems*** is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. ***Process variations*** are identified. 3.3. Equipment adjustments materials supplies and stock are made in response to process variations and alarms. 3.4. ***Typical hazards*** are identified for safety. 3.5. Operate process control information is documented and reported to relevant personnel as required and communicated through ***sensory information*** in different ***forms of communication***.

Variable	Range
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth)

	• HAZCHEM • dangerous goods • external licensing requirements (for example, EPA, water authorities, local councils) • internal environmental control standards
Productivity requirements	may including: • all relevant workplace procedures • work instructions • temporary instructions • relevant industry and government codes and standards
Equipment	may include: • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate to process control equipment
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Actions	may include: • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Situational awareness	may include awareness of: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
Problems	may include: • machine electrical or mechanical malfunction process deviation/variation out of specification product • appropriate action for problems outside of area of responsibility may be reported to an appropriate person • appropriate action for solving problems within area of responsibility includes asking questions and seeking assistance from appropriate persons/sources
Processes variations	may include: • primary resources processes • waste paper handling processes • waste paper operations processes • pulping processes • chemical recovery systems

	• stock preparation systems • wet end processes • dry end processes • finishing and converting processes • warehousing and dispatch processes • water services processes • coated paper processes • steam generation processes • electrical power generation processes
Typical hazards	may include: • noise • debris • chemicals • heavy loads • hazardous materials • moving equipment • equipment operations • nip points • suspended loads • high risk equipment • electrical equipment failure • fire
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • internal/external customers and suppliers • team members • production/service coordinators • maintenance services • operational support personnel • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in operating process control equipment
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to operating process control equipment including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem solving techniques consistent with level of responsibility • Materials, equipment and process sufficient to recognize material and equipment conditions which may lead to out of specification production • Risk management using the hierarchy of controls applied to the operation of computer controlled machines/processes • Approved hazard control, safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup • Symbols used in process controls • Computer-controlled machine operating procedures • Typical equipment malfunctions • Procedures for reporting equipment malfunctions • Procedures for reporting product or part deviations • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in operating process control equipment • Read and interpret required documentation, procedures and reports • Access and navigate control systems • Make process adjustments using the control system • Identify and action problems within level of responsibility • Interpret instruments, gauges and other recording equipment • Understand the effect of adjustments on part or product specifications

	• Maintain situational awareness in the work area • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Prepare and Start up Wet End Operations**
Unit Code	**IND PPP3 06 0613**
Unit Descriptor	This unit describes the outcomes required to prepare and start up wet end operations in the pulp and paper industry.

Elements	Performance Criteria
1. Determine production requirements	1.1 Production requirements are determined within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2 Planned production requirements are confirmed and communicated through to relevant personnel. 1.3 Availability of machine supplies are confirmed. 1.4 Availability of ***materials, supplies and stock*** are confirmed.
2. Inspect and prepare systems for start up	2.1. ***Systems*** are inspected and prepared for start up within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Isolations are removed as required. 2.3. Operational settings are made and confirmed. 2.4. Pre-start up checks are completed. 2.5. Monitoring devices and systems are checked and confirmed operational. 2.6. Faults are identified and rectified as required. 2.7. Required maintenance and ***actions*** are carried out. 2.8. Confirmation for start up is communicated to relevant personnel. 2.9 ***Electronic control systems*** checked and confirmed. 2.10 ***Hazards and risks*** are identified for safe work. 2.11 ***Situational awareness*** under taken.
3. Start up dry end operations	3.1. Wet end operations are started up within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. ***Equipment*** start ups are co-ordinate and implemented. 3.3. System functions are confirmed by monitoring plant, equipment and control system and display monitors.

	3.4. Process operation is communicated to relevant personnel. 3.5. Production start-up details is documented as required.
4. Establish start up at dry end	4.1. Start up is established at wet end within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Sheet is established and stabilized through dry end sections to parent reel. 4.3. Systems are monitored and adjusted to rectify variations from specifications. 4.4. Adjustments or modifications are made to stabilize sheet quality within specification. 4.5. System operation, production and quality data is recorded as required start up wet end operations information is ***documented, and reported*** to relevant personnel as required and communicated through ***sensory information*** in different ***forms of communication***.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fibre efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials supplies and stock	may include: • chemicals • compressed air • water • electricity

	• gas • additives • machine clothing • ropes and belts
Systems	may include: • wet end processes • chemical additive system • monitoring systems • vacuum systems • cleaning showers
Actions:	may include • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Hazards and risks	may include: • steam and/or gas leaks • electrical • slip hazards/falls • energy • pressures • chemicals • confined spaces
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstructions • unexpected movement
Equipment	may include: • scales • tape turner • hand and power tools • computer systems • electronic screens and alarms • process control systems • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to the dry end process

Documented and reported	may include: • SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • may include confined space requirements • vendor documentation • reference manual • grade specifications • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets • reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings, data entry • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • team members • production/service coordinators • internal/external customers and suppliers • maintenance services • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in the preparation and starting up of dry end operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to wet end operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Wet end plant, processes, layout and associated services sufficient to carry out start up activities within level of responsibility • Quality requirements • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control the wet end, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in preparing and starting up dry end operations • Read and interpret required documentation, procedures and reports • Interpret instruments, gauges and data recording equipment • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Identify and monitor process control points • Plan and organize start up • Maintain situational awareness in the work area • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Prepare and Start up Dry End Operations**
Unit Code	**IND PPP3 07 0613**
Unit Descriptor	This unit describes the outcomes required to prepare and start up wet end operations in the pulp and paper industry General legislation, regulatory, licensing and certification requirements applicable to this unit are detailed in the range statement.

Elements	Performance Criteria
1. Determine production requirements	1.1. Production requirements are determined within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Planned production requirements are confirmed and communicated through to relevant personnel. 1.3. Availability of machine supplies is confirmed. 1.4 Availability of ***materials, supplies and stock*** are confirmed.
2. Inspect and prepare systems for start up	2.1. ***Systems*** are inspected and prepared for start up within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Isolations are removed as required. 2.3. Operational settings are made and confirmed. 2.4. Pre-start up checks are completed. 2.5. Monitoring devices and systems are checked and confirmed operational. 2.6. Faults are identified and rectified as required. 2.7 Required ***maintenance*** and ***actions*** are carried out. 2.8. Confirmation for start up is communicated to relevant personnel. 2.9 **Electronic control systems** checked and confirmed. 2.10 ***Hazards and risks*** are identified for safe work. 2.11 ***Situational awareness*** under taken.
3. Start up dry end operations	3.1. Wet end operations are started up within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. ***Equipment*** start ups are co-ordinate and implemented. 3.3. System functions are confirmed by monitoring plant, equipment and control system and display monitors.

	3.4. Process operation is communicated to relevant personnel. 3.5. Production start up details is documented as required.
4. Establish start up at dry end	4.1. Start up is established at dry end within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Sheet is established and stabilized through dry end sections to parent reel. 4.3. Systems are monitored and adjusted to rectify variations from specifications. 4.4. Adjustments or modifications are made to stabilize sheet quality within specification. 4.5. System operation, production and quality data is recorded as required. 4.6 Start-up wet end operations information is ***documented, and reported*** to relevant personnel as required and communicated through ***sensory*** in different ***forms of communication***.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials, supplies and stock	may include: • chemicals • compressed air • water

	• electricity • gas • steam • additives • machine clothing • ropes and belts
Systems	may include: • drying processes • reeling operations • chemical additive system • monitoring systems • sheet treatment processes • tail feed systems • broke system • on-line coating systems • calendaring systems • vacuum systems • laser systems • slitter systems • sheet transfer systems • accumulator • cleaning showers
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Actions	may include • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Hazards and risks	may include: • steam and/or gas leaks • fires • nip points • compressed air • hot surfaces • electrical • entanglement • slip hazards/falls • energy

	• pressures • chemicals • fumes • confined spaces • dust
Situational awareness	may include awareness of: • traffic • pedestrians • location of equipment • product • hazards • obstructions • unexpected movement
Equipment	may include: • scales • tape turner • hand and power tools • computer systems • electronic screens and alarms • process control systems • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to the dry end process
Documented and reported	may include: • SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • may include confined space requirements • vendor documentation • reference manual • grade specifications • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams

Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets • reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings, data entry • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • team members • production/service coordinators • internal/external customers and suppliers • maintenance services • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in the preparation and starting up of dry end operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to wet end operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Working knowledge of dry end plant, processes, layout and associated services sufficient to carry out startup activities within level of responsibility • Quality requirements • Application of high risk (and non-high risk) load shifting equipment, as required

	• Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control the dry end, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in preparing and starting up dry end operations • Read and interpret required documentation, procedures and reports • Interpret instruments, gauges and data recording equipment • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Identify and monitor process control points • Plan and organize startup • Maintain situational awareness in the work area • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Co-ordinate and Implement Wet End Shutdown**
Unit Code	**IND PPP3 08 0613**
Unit Descriptor	This unit describes the outcomes required to co-ordinate and implement wet end shutdown in the pulp and paper industry.

Elements	Performance Criteria
1. Assess causes and effects of shutdown	1.1. Causes and effects of shutdown are assessed within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Work area instructions or maintenance schedules are used to co-ordinate a planned shutdown. 1.3. Cause of unplanned shutdown is identified and located. 1.4. Effects of unplanned shutdown are assessed to determine impact on operations. 1.5. Unplanned shutdown is communicated and ***actions*** are taken as required. 1.6. Availability of ***materials***, ***supplies*** and ***equipment*** are monitored. 1.7. ***Electronic control systems*** is monitored. 1.8. ***Hazards and risks*** are identified for safe work.
2. Implement shutdown procedures	2.1 ***Systems*** shutdown procedures are implemented within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Planned shutdown is implemented. 2.3. Unplanned shutdown is responded to and rectified. 2.4. Isolation requirements are implemented as required. 2.5. Shutdown information is communicated to relevant personnel as required.
3. Record and report shutdown information	3.1. Shutdown information is reported within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Shutdown information is recorded, including corrective action as required. 3.3. Shutdown information is reported to relevant personnel. 3.4 Implementation wet end shutdown information is ***documented, and reported*** to relevant personnel as required and communicated through ***sensory*** in different ***forms of communication***.

Variable	Range
regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fibre efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Actions	may include: • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Materials and supplies	may include: • water • air • stock • chemicals • additives • steam • machine clothing • baled pulp
Equipment	may include: • screens • forming section • water, chemical, vacuum or stock systems • former • pumps • consistency meter • flow meter • refiner

	• control valves • cleaning showers • chemical showers • presses • cleaners • waste hood recovery unit • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to the wet end process
Electronic control systems	may include: • Digital Control System (DCS) • touch screens and robotics
Hazards and risks	may include: • steam and/or gas leaks • fires • nip points • compressed air • hot surfaces • electrical • entanglement • vehicle movement • slip hazards/falls • energy • pressures • chemicals • fumes • confined spaces and dust
Systems	May include: • stock approach systems • forming system • pressing systems • cleaning and screening system
Documentation and reports	may include: • SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • confined space requirements • vendor documentation • reference manual • grade specifications • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping

	• safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams
Sensory information	may include: • visual • sound • feel • touch • smell • vibration and temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • team members • production/service coordinators • internal/external customers and suppliers • maintenance services • operational management and statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in coordinating and implementing of wet end shutdowns
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to wet end operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility

	• Types, causes and effects of wet end shutdowns • Required responses to all unplanned shutdowns (e.g. power outage, mechanical breakdown, blockages, jamming, air supply, control system failure) to ensure safety quality and productivity • Process and procedures for plant shutdowns and unplanned shutdowns • Plant and machinery functions and operations • Emergency procedures and responses • Working knowledge of wet end plant, processes, layout and associated services sufficient to carry out shutdown activities within level of responsibility • Application of high risk (and non-high risk) load shifting equipment as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control wet end operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in coordinating and implementing wet end operations shutdown • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Identify and monitor process control points • Identify and respond appropriately to shutdown causes • Respond to problems associated with plant shutdown and unplanned shutdown to ensure safety quality and productivity • Coordinate and plan shutdown activity • Maintain situational awareness in the work area • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Troubleshoot and Rectify Finishing and Converting Systems**
Unit Code	**IND PPP3 09 0613**
Unit Descriptor	This unit describes the outcomes required to troubleshoot and rectify finishing and converting systems in the pulp and paper industry.

Elements	Performance Criteria
1. Identify and analyze causes of system and quality faults	1.1. Causes of system and quality faults are identified and analyzed within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Control system readouts are monitored to identify ***Finishing and converting process*** variations. 1.3. Trends and warning devices are interpreted to determine fault type and location. 1.4. Quality checks are interpreted to identify variations from specifications or schedule. 1.5. Cause and source of problem is identified and located. 1.6. Relevant sources of information are accessed and interpreted to assist analysis. 1.7 ***Materials and supplies*** and ***equipment*** of systems are checked. 1.8 ***Auxiliary systems*** are checked for troubleshooting. 1.9 ***Situational awareness*** is carried out for appropriate personals.
2. Rectify system faults	2.1. System faults are rectified within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Equipment is shut down and isolation procedures are implemented prior to fault rectification if required. 2.3. Faulty equipment is identified, repaired or replaced. 2.4. Faulty equipment is by-passed as required. 2.5. Corrective adjustments are made and operator level maintenance requirements are undertaken. 2.6. Restoration of machine or system to normal operation is verified and communicated to relevant personnel. 2.7 ***Electronic control systems*** are checked.

3. Rectify or re-work product with quality faults	3.1. Product with quality faults is rectified or reworked within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Product quality faults or variations are identified by observation, systematic sampling, testing or quality checks. 3.3. ***Quality checks*** are conducted. 3.4. Quality tests are undertaken and results interpreted as required. 3.5. Process adjustments are made as required. 3.6. Out-of-specification product is ***actioned as required maintenance*** is carried.
4. Record and report system performance and product quality data	4.1. System performance and product quality data is recorded and reported within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Variations from process specifications are recorded. 4.3. Actions undertaken to troubleshoot and rectify faults are recorded. 4.4. Indications of performance variation are documented. 4.5. Troubleshoot and rectify finishing and converting systems information is ***documented, and reported*** to relevant personnel as required and communicated through ***sensory*** in different ***forms of communication***.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks

	• meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Finishing and converting processes	may include: • winding and re-winding • decorating • lotion sing • calendaring • water marking • perforating • slitting and cutting • embossing • laminating • folding • printing • bonding • core making • wrapping and packing
Materials and supplies	may include: • parent roll or reel • lotion • shrink and stretch wraps • pallets • sheet paper • labelling and stencilling • wrap paper • customer rolls • boxes • polythene wrap • glues • cartons • strapping • printing inks • shippers • reams • signs and labels • core board • scent • rolls
Equipment	may include: • separate servo controlled motors and drives • electronic sensors and proximity system • light curtains • category three plus guarding • program formatting • programmable production configurations include:

	➢ pre-set ➢ modifiable • quick change parts e.g. snap lock • reels and winding equipment • wrapping and packing equipment • guillotine, knives and cutting equipment • conveying systems • materials handling equipment • flexographic printing equipment used for decorating • overhead cranes • testing and measuring equipment • roll grab attachments • warehousing equipment • warehousing control systems • electronic, pneumatic and hydraulic process controls • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to finishing and converting operations
Auxiliary systems	may include: • air • lubrication • vacuum • dust extraction system
Situational awareness	may include awareness of: • traffic • pedestrians • location of equipment • product • hazards • obstruction and unexpected movement
Electronic control systems	may include: • portable control device • touch screens and robotics
Quality checks	may include: • roll density • core slippage • damaged packaging • reel hardness • core size • colour matching • bulk • core strength • sheet size • roll appearance

	• print quality • cut quality • MD&CD tensile • core scenting • packaged product • stretch • roll size • perforations • product identification and warehousing records
Required action	may include: • operator level maintenance • involvement of maintenance personnel • replacement of component • communication with appropriate personnel
Maintenance	may include: • operator level maintenance as per site agreement • operator maintenance schedules • maintenance supplies • maintenance systems • maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Documenting and reporting	may include: • SOP • enterprise policies, procedures and guidelines • environmental sustainability requirements/practices • plant manufacturing operating manuals • production schedules • production plans • production specifications • quality certification e.g. ISO • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • reference documents on theory of operation of processes and systems • vendor manuals • checklists and Material Safety Data Sheets (MSDS)
Sensory information	may include: • visual • sound • feel • touch • smell • vibration and temperature

Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings, data entry • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • warehousing personnel • internal/external customers and suppliers • maintenance services • team members • operational management and statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in troubleshooting and rectifying finishing and converting operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to finishing and converting system operation including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Finishing and converting system, processes and associated services sufficient to troubleshoot including: ➢ plant layout ➢ theory of operation ➢ causes and effects of adjustments made to finishing and converting plant and processes ➢ relationships between finishing and converting system, processes and associated services • An appropriate range of troubleshooting methods • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Operator level maintenance requirements • Application of high risk (and non-high risk) load shifting equipment as required • Sensory information that indicates a deviation from standard operating parameters

	• Electronic and other control systems, operation and application to make appropriate adjustments that control finishing and converting systems within level of responsibility
Underpinning Skills	Demonstrates skills to: • Identify, access and interpret relevant historical and operational data and information • Use required forms of communication in troubleshooting and rectifying finishing and converting systems • Read and interpret required documentation, procedures and reports • Operate communications equipment • Interpret instruments, gauges and data recording equipment • Interpret troubleshooting guides, operational data, trend analysis and test results • Access, navigate and enter computer-based information • Communicates effectively with personnel to assist with analysis and resolution of operational problems • Assist others to identify and resolve operational problems in the workplace • Identify and action systems, quality and equipment faults within level of responsibility • Identify causes and effects of faults and corrective action on associated processes • Select and use appropriate troubleshooting methods • Take timely corrective action to maximize safety, quality and productivity • Undertake necessary calculations to aid troubleshooting as required • Identify and monitor process control points • Maintain situational awareness in the work area • Implement isolation and lockout procedures as required • Operate required measuring and testing devices • Perform tests and interprets and record results if required • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maximize safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Handle Dangerous Goods/Hazardous Substances**
Unit Code	**IND PPP3 10 0613**
Unit Descriptor	This unit involves the skills and knowledge required to handle dangerous goods and hazardous substances, including identifying requirements for working with dangerous goods and/or hazardous substances; confirming site incident procedures; and selecting handling techniques.

Elements	Performance Criteria
1. Identify requirements for working with dangerous goods and/or hazardous substances	1.1 ***Dangerous goods*** and/or hazardous substances are identified from information including class labels, manifests and other documentation. 1.2 Storage requirements for ***hazardous*** substances and/or dangerous goods are identified and applied. 1.3 Legislative requirements for hazardous substances and/or dangerous goods are known and used to plan work activities. 1.4 Handling procedures for different classes and characteristics of goods are observed. 1.5 Confirmation is sought from relevant personnel where dangerous goods or hazardous materials do not appear to be appropriately marked.
2. Confirm site incident procedures	2.1 Incident reporting processes are identified. 2.2 Emergency equipment is located and checked according to ***workplace*** procedures and statutory regulations. 2.3 Emergency procedures are identified and confirmed.
3. Select handling techniques	3.1 Load handling and shifting procedures are selected in accordance with ***Identification of goods*** Handling equipment is checked for conformity with ***workplace requirements*** and manufacturers guidelines. 3.2 Where relevant, suitable signage is checked for compliance with workplace procedures. 3.3 ***Hazard management*** is carried. 3.4 ***Personal protective equipment*** is used. 3.5 Handle dangerous goods/hazardous substances ***information*** is documented.

Variable	Range
Dangerous goods	may be: • for short-term storage • for long-term storage • in transit

Hazards	may include: • hazardous or dangerous materials • contamination of, or from, materials being handled • noise, light, energy sources • stationary and moving machinery, parts or components • service lines • spills, leakages, ruptures • fire or ignition and dust/vapours
Workplace	may include: • company procedures • enterprise procedures • organisational and established procedures
Identification of goods	may be from: • material safety data sheets • packaging labels • manifests • stock lists and HAZCHEM interpretative advice
Workplace requirements	may include: • site restrictions and procedures • use of safety and personal protective equipment • communications equipment • specialised lifting and/or handling equipment • incident breakdown procedures • authorities and permits • hours of operations • noise restrictions • additional gear and equipment • segmentation procedures • emergency procedures, including response to spillage/leaks, evacuation and fire fighting
Hazard management	May include consistent with the principle of hierarchy of control with elimination, substitution, isolation and engineering control measures being selected before safe working practices and personal protective equipment
Personal protective equipment	may include: • gloves • safety headwear and footwear • safety glasses • mask and respirator • protective clothing and breathing apparatus
Information	may include: • goods identification numbers and codes • manifests, stock lists, packaging labels, bar codes, stock lists • goods and container identification • workplace procedures and policies concerning the handling of dangerous goods and hazardous substances • supplier and/or client instructions

	• Material Safety Data Sheets (MSDS) • current Ethiopian Dangerous Goods Code • HAZCHEM interpretative advice • relevant legislation, codes, regulations and related documentation concerning the handling of dangerous goods and hazardous substances • award, enterprise bargaining agreement, other industrial arrangements • standards and certification requirements • quality assurance procedures • emergency procedures pertaining to dangerous goods and hazardous substances

Evidence Guide	
Critical Aspects of Competence	The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of: • identifying dangerous goods/hazardous substances (from labels, International Maritime Dangerous Goods (IMDG) markings, HAZCHEM signs and other relevant identification criteria) • identifying and selecting the safely requirements for handling dangerous goods/hazardous substances • maintaining workplace records and documentation • determining (any) required permits • identifying job and site hazards and planning work to minimise risks • selecting appropriate equipment and work systems including personal protection equipment • estimating weight and dimensions of load and any special requirements • identifying and assessing handling and storage precautions and requirements for dangerous goods/hazardous substances
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • All relevant regulations and codes concerning the handling of dangerous goods and hazardous substances • Application of relevant aspects of current Ethiopian Dangerous Goods Code and relevant Ethiopian Standards • Permit and licence requirements • Workplace procedures for handling and storing dangerous goods/hazardous substances • Problems that may arise during the handling of dangerous goods and hazardous substances and actions that should be taken to prevent or solve them • Risks when handling dangerous goods and hazardous substances and related precautions to control the risk • Equipment applications, capacities, configurations, safety hazards and control mechanisms • Housekeeping standards procedures required in the workplace

Underpinning Skills	Demonstrates skills to: • Communicate effectively with others when handling dangerous goods and hazardous substances • Read and interpret instructions, procedures, regulations, information and signs relevant to the handling of dangerous goods and hazardous substances • Identify containers and goods coding, markings and, where applicable, emergency information panels for the mode of transport storage selected • Interpret and follow operational instructions and prioritise work • Complete documentation related to work activities • Operate electronic communication equipment to required protocol • Work collaboratively with others when handling dangerous goods and hazardous substances • Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others • Promptly report and/or rectify any identified problems, faults or malfunctions that may occur when handling dangerous goods and hazardous substances in accordance with regulatory requirements and workplace procedures • Plan own work including predicting consequences and identifying improvements • Implement contingency plans for unanticipated situations that may arise when handling dangerous goods and hazardous substances • Recognise hazards and apply precautions and required action to minimise, control or eliminate hazards that may exist during the handling of dangerous goods and hazardous substances • Monitor work activities in terms of planned schedule • Modify activities depending on differing operational contingencies, risk situations and environments • Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment • Operate and adapt to differences in equipment in accordance with standard operating procedures • Select and use required personal protective equipment conforming to industry and OH&S standards
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Co-ordinate and Implement Dry End Shutdown**
Unit Code	**IND PPP3 11 0613**
Unit Descriptor	This unit describes the outcomes required to co-ordinate and implement dry end shutdowns in the pulp and paper industry.

Elements	Performance Criteria
1. Assess causes and effects of shutdown	1.1. Causes and effects of shutdown are assessed within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Work area instructions or maintenance schedules are used to co-ordinate a planned shutdown. 1.3. Cause of unplanned shutdown is identified and located. 1.4. Effects of unplanned shutdown are assessed to determine impact on operations. 1.5. Unplanned shutdown is communicated as required. 1.6 ***Materials, stock supplies*** and ***equipment*** are checked accordingly. 1.7 ***Electronic control systems*** are checked. 1.8 ***Hazards and risks*** are identified for safe work. 1.9 ***Situational awareness*** is conducted for work place personals.
2. Implement shutdown procedures	2.1. Shutdown procedures are implemented within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Planned shutdown is implemented. 2.3. Unplanned shutdown is responded to and rectified. 2.4. Isolation requirements are implemented as required. 2.5. Shutdown information is communicated to relevant personnel as required. 2.6 ***Systems and functions involved in wet end operations*** are identified and sorted. 2.7 Electronic control systems are monitored.
3. Record and report shutdown information	3.1. Recording and reporting is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Shutdown information is recorded, including corrective action as required.

	3.3. Shutdown information is reported to relevant personnel. 3.4 Co-ordinate and implement dry end shutdown information is reported and ***documented*** through ***Sensory information*** in different ***forms of communication***.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials, supplies and stock	may include: • chemicals • compressed air • water • electricity • gas • steam • additives • machine clothing • ropes and belts
Equipment	may include: • scales • tape turner • hand and power tools • computer systems • electronic screens and alarms • process control systems • computer systems

	• electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to the dry end process
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Hazards and risks	may include: • steam and/or gas leaks • fires • nip points • compressed air • hot surfaces • electrical • entanglement • slip hazards/falls • energy • pressures • chemicals • fumes • confined spaces • dust
Situational awareness	may include awareness of: • traffic • pedestrians • location of equipment • product • hazards • obstructions • unexpected movement
Systems and functions involved in wet end operations	may include: • drying processes • reeling operations • chemical additive system • monitoring systems • sheet treatment processes • tail feed systems • broke system • on-line coating systems • calendaring systems • vacuum systems • laser systems • slitter systems • sheet transfer systems • accumulator • cleaning showers

Documentation	may include: • SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • confined space requirements • vendor documentation • reference manual • grade specifications • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • team members • production/service coordinators • internal/external customers and suppliers • maintenance services • operational management and statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace

	• applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in coordinating and implementing dry end shutdowns
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to wet end operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Effects of shutdowns on the rest of the systems • Types, causes and effects of dry end shutdowns • Required responses to all unplanned shutdowns (e.g. power outage, mechanical breakdown, blockages, jamming, air supply, control system failure) to ensure safety quality and productivity • Process and procedures for plant shutdowns and unplanned shutdowns • Plant and machinery functions and operations • Emergency procedures and responses • Working knowledge of dry end plant, processes, layout and associated services sufficient to carry out shutdown activities within level of responsibility • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control the dry end, within level of responsibility
Underpinning Skills	Demonstrates skill to: • Use required forms of communication in coordinating and implementing shutdowns of dry end operations • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Identify and monitor process control points • Identify and respond appropriately to shutdown causes • Respond to problems associated with plant shutdown and unplanned shutdown to ensure safety quality and productivity • Coordinate and plan shutdown activity • Maintain situational awareness in the work area

	• Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Prepare and Start up Coated Paper Processes**
Unit Code	**IND PPP3 12 0613**
Unit Descriptor	This unit describes the outcomes required to prepare and start up coated paper processes in the pulp and paper industry.

Elements	Performance Criteria
1. Determine production requirements	1.1. Production requirements are determined within Occupational Health and Safety (OHS) ***regulations,*** environmental and safe working ***Productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Production plan is interpreted. 1.3. Grade specifications and limits are confirmed and communicated to relevant personnel. 1.4. ***Process*** requirements are determined. 1.5. ***Materials and supplies*** are confirmed available for production. 1.6. Chemical and material requirements are determined.
2. Inspect and prepare systems for start up	2.1. Systems are inspected and prepared for startup within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Isolations (if any) are removed. 2.3. Pre-start up checks on equipment (e.g. coater and supply systems) are completed. 2.4. Electrical power and process supplies are confirmed as available for production. 2.5. Chemical/material delivery system is prepared for operation. 2.6. Operational settings are made and confirmed within specification. 2.7. Production ready status is confirmed with relevant personnel. 2.8. Monitoring devices/systems are checked and confirmed operational. 2.9. Faults are identified and required ***maintenance*** is carried. 2.10 ***Electronic control systems*** are checked. 2.11 ***Situational awareness*** is conducted.

3. Co-ordinate start up operations	3.1. Start up operations are coordinated within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. ***Equipment*** start ups are coordinated for production. 3.3. System functions are coordinated and confirmed by monitoring plant, equipment and control system/display monitors. 3.4. Process operation status is communicated to relevant personnel and ***documented for report***. 3.5. Production start up details are logged, recorded or filed.
4. Establish and stabilize production and quality processes	4.1. Production and quality processes are established and stabilized within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Processes are monitored and adjusted to rectify variations from specification. 4.3. Adjustments/modifications are made to stabilize coating quality within specification. 4.4. Samples are taken as required to ensure product quality requirements are met. 4.5. Product tests are verified as within specification, where applicable. 4.6. Process operation, production and quality data is recorded as required. 4.7 Prepare and start up coated paper processes is reported and documented through ***sensory information*** in different ***forms of communication***.

Variable	**Range**
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk licensing requirements
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators

	• line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Processes	may include: • tail feed systems • chemical and material batching • laminating and coating • splicing • clay plant operation • calendar • pre realer operations • super calendaring • monitoring systems • rewind ring • drying systems • internal unloading • combine rollers • testing
Materials and supplies	may include: • chemicals and polymers • power • water • additives • steam • labels • felts • equipment • gas • accessories (parts) • air • base paper
Maintenance	may include: • operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centered Maintenance (RCM)
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics

Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
Equipment	may include: • coater • splicer • pre-realer • crimpers • calendar • super-calendar • parent rolls and reels • cranes • pigment • coating make down plant • starch cooker • slitter • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully, automated, semi-automated, manually operated plant and equipment appropriate to the coated paper process
Documentation for reports	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • enterprise policies and procedures • Material Safety Data Sheets (MSDS) • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • product specifications and schedules • maintenance logs • job sheets • site agreements • safety instructions • process and instrument diagrams • machine manuals • troubleshooting guides • incidents reports

Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • internal/external customers and suppliers • team members • production/service coordinators • maintenance services • operator support personnel • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessors should ensure that candidates can: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in preparing and starting up coated paper processes
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Procedures, regulations and legislative requirements relevant to coated paper processes including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Information provided on the production specification sheet • Navigation of computer control system displays • Relationships within the coating area members and with the area's suppliers and customers • Basic problem-solving techniques consistent with level of responsibility • Cause and effect of operational equipment faults

	• Working knowledge of coated paper processes, system layout and associated services sufficient to carry out startup activities within level of responsibility • Sampling and testing process for plant and system operations and process monitoring - purpose, standards and procedures as per site agreements • Purpose of each of the steps in the preparation of the coating system for production • Purpose of each component of the coating system • Purpose and location of the coating chemical supply system • Critical control points of the preparation for startup procedure • Purpose of the process controls and how changes affect the production variables • Critical control points of the startup procedure • Critical control points of the monitoring process during startup • Awareness of high risk load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control coated paper processes, within level of responsibility
Underpinning Skills	Demonstrate skills to: • Use required forms of communication in preparing and starting up coated paper processes • Communicate operational requirements clearly to relevant personnel • Read and interpret required documentation, procedures and reports • Prepare written information and data to support groups and teams • Access, navigate and enter computer-based information • Monitor, analyse and interpret data • Interpret instruments, gauges and data recording equipment • Interpret control systems and display monitors in accordance with SOP and other specifications • Respond to control systems and display alarms in accordance with SOP • Confirm production ready status with team members and relevant personnel • Identify and action problems within level of responsibility • Respond to faults of process flow-through systems if required • Respond to faults of plant if required • Identify and monitor process control points • Maintain situational awareness in the work area • Take samples, conduct tests and interpret and record results if required • Use measuring equipment as required

	• Calculate performance measures • Determine coating production requirements (e.g. sheet, coating chemicals) • Conduct checks to ensure availability of sheet, coating chemicals and electrical power • Conduct checks to ensure space availability for coated sheet where applicable • Ensure isolations are removed according to SOP • Conduct pre-start up checks of plant and equipment including instrumentation • Input operational settings (e.g. set points) in preparation for start up in accordance with SOP • Activate and confirm operation of coating system according to SOP • Operate high risk load shifting equipment as required • Make process control adjustments to stabilise production and obtain product quality • Conduct routine maintenance checks • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Prepare and Start Up Finishing and Converting Operations**
Unit Code	**IND PPP3 13 0613**
Unit Descriptor	This unit describes the outcomes required to prepare and start up finishing and converting operations in the pulp and paper industry.

Elements	Performance Criteria
1. Establish production requirements for startup	1.1. Production requirements for start up are established within Occupational Health and Safety (OHS) regulations, environmental and safe working ***productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2 ***Auxiliary system*** end ***electronic control system*** is checked. 1.3 Production plan is interpreted. 1.3. Product specification is checked. 1.4 ***Situational awareness*** is checked. 1.4. Product ***materials and supplies*** are confirmed available for production. 1.5 ***Equipment and systems*** are monitored for startup finishing and converting operations.
2. Conduct setup for product change	2.1. Setup for product change is conducted within OHS ***regulations***, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Pre-setup checks are conducted on required components. 2.3. Required action is taken if a component is missing or faulty. 2.4. Isolation procedures are followed as required. 2.5. ***Communication*** and coordination with team members during product change occurs as required. 2.6. Components and accessories are loaded, installed and adjusted for setup as required. 2.7. All isolations are confirmed as signed off and lifted where applicable. 2.8. Initial quality checks and component adjustments are made. 2.9. Required ***documentation*** is completed.
3. Start up finishing and converting operations	3.1. ***Finishing and converting*** operations are started up within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements.

	3.2. ***Quality assurance checks and tests*** are conducted from start up to ensure processes are maintained. 3.3. Process adjustments from start up are carried out as required. 3.4. Faults are identified and rectified as required. 3.5. ***Required action in the event of a missing or faulty component*** is taken. 3.5. Confirmation for start up is communicated to relevant personnel though ***sensory information*** and different ***communication form*** as required.

Variable	Range
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Auxiliary systems	may include: • air • lubrication • vacuum • dust extraction system
Electronic control systems	may include: • portable control device • touch screens • robotics
Situational awareness	may include: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement

Materials and supplies	may include: • parent roll or reel • lotion • shrink and stretch wraps • pallets • sheet paper • labeling and stenciling • wrap paper • customer rolls • boxes • polythene wrap • glues • cartons • strapping • printing inks • shippers • reams • signs and labels • core board • scent • rolls
Equipment and systems	may include: • separate servo controlled motors and drives • electronic sensors and proximity system • light curtains • category three plus guarding • program formatting • programmable production configurations include: ➢ pre-set ➢ modifiable • quick change parts e.g. snap lock • reels and winding equipment • wrapping and packing equipment • guillotine, knives and cutting equipment • conveying systems • materials handling equipment • flexographic printing equipment used for decorating • overhead cranes • testing and measuring equipment • roll grab attachments • warehousing equipment • warehousing control systems • electronic, pneumatic and hydraulic process controls • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments

	• fully automated, semi-automated, manually operated plant and equipment appropriate to finishing and converting operations
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Communications	may include: • warehousing personnel • internal/external customers and suppliers • maintenance services • team members • operational management • statutory authorities
Documentation	may include • SOP • enterprise policies, procedures and guidelines • environmental sustainability requirements/practices • plant manufacturing operating manuals • production schedules • production plans • production specifications • quality certification e.g. ISO • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems • reference documents on theory of operation of processes and systems • vendor manuals • checklists and Material Safety Data Sheets (MSDS)
Finishing and converting	may include: • winding and re-winding • decorating • lotion sing • calendaring • water marking • perforating • slitting and cutting • embossing • laminating • folding • printing • bonding • core making • wrapping and packing

Quality assurance checks and tests	may include: • roll density • core slippage • damaged packaging • reel hardness • core size • colour matching • bulk • core strength • sheet size • roll appearance • print quality • cut quality • MD&CD tensile • core scenting • packaged product • stretch • roll size • perforations • product identification and warehousing records
Required action in the event of a missing or faulty component	may include: • operator level maintenance • involvement of maintenance personnel • replacement of component • communication with appropriate personnel
Sensory information:	may include • visual • sound • feel • touch • smell • vibration and temperature
Communication forms	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements

	• applicable aspects of the range statement • practical workplace demonstration of skills in preparing and starting up finishing and converting operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to finishing and converting operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Finishing and converting operations, processes, layout and associated services sufficient to prepare finishing and/or converting systems for production within level of responsibility • Equipment setup procedures and adjustments • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Product types and quality requirements • Designated areas for waste • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control finishing and converting operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in preparing and starting up finishing and converting operations • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Interpret production requirements and work instructions • Interpret instruments, gauges and data recording equipment • Prepare written information and enters data to support groups and teams • Identify and action problems within level of responsibility • Identify and check process control points • Maintain situational awareness in the work area • Implement isolation or lockout procedures • Use hand tools • Use cleaning equipment • Operate plant and equipment • Operate high risk (and non-high risk) load shifting equipment as required

	• Use testing and measuring equipment required for setup as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Co-ordinate and Direct Clothing Changes**
Unit Code	**IND PPP3 14 0613**
Unit Descriptor	This unit describes the outcomes required to co-ordinate and direct clothing changes in the pulp and paper industry.

Elements	Performance Criteria
1. Prepare machine and equipment for clothing change	1.1. Machine, ***equipment*** and ***electronic control system*** are prepared for clothing change within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. ***Clothing problems*** causing production issues are identified and ***actions*** are taken. 1.3. Clothing change need is determined. 1.4. New clothing to be installed is identified. 1.5. ***Systems and functions*** /lock outs and equipment for clothing change are prepared. 1.6. Crew are directed to prepare new clothing as required. 1.7. Machine shut and isolation/lockouts are confirmed as required. 1.8. Clothing removal is prepared as required.
2. Remove and install machine clothing	2.1. Machine clothing is removed and installed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Machine clothing is removed as required. 2.3. ***Materials supplies and stock*** of machine parts are dismantled or removed as required. 2.4. Machine clothing is installed as required. 2.5. Machine parts are installed or replaced as required. 2.6. Isolation/lockouts are removed as required.
3. Prepare machine section for production	3.1. Machine section is prepared for production within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Clothing section is inspected for potential ***hazards and risks***. 3.3. Clothing is tensioned to operating requirements. 3.4. Clothing guiding system is checked to operating requirements. 3.5. Clothing details are recorded as required.

	3.6 ***Documentation, procedures and reports*** on clothing changes is reported to relevant personnel through ***sensory information*** and in different ***forms of communication***.

Variable	Range
Equipment	may include: • crane • slings • frames • computer systems • electronic screens and alarms • process control systems
Electronic control systems:	may include • Digital Control System (DCS) • touch screens
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements
Clothing problems	may include: • end of life • score mark • hole/tear • trial clothing • failed seam • crease • narrow • blind • scold mark • compacted • scorched
Actions	may include: • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Systems and functions	may include: • isolations • crane operation
Materials supplies and stock	may include: • clothing • ropes
Hazards and risks	may include: • steam and/or gas leaks • fires • nip points • compressed air

	• hot surfaces • slippery surfaces • heights • electrical • entanglement • slip hazards/falls • energy • pressures • manual handling
Documentation, procedures and reports	may include: • SOP • risk assessments • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • confined space requirements • vendor documentation • reference manual • grade specifications • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

	• team members • production/service coordinators • internal/external customers and suppliers • maintenance services • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in coordinating and directing clothing changes
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to co-ordination and directing clothing changes including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Detailed knowledge of machine, plant, processes and associated services insofar as they relate to clothing changes including: ➢ plant layout ➢ theory of operation ➢ causes and effects of adjustments made to processes ➢ relationships between plant, processes and associated services • Problem-solving techniques consistent with level of responsibility • Quality requirements • Clothing properties • Clothing problems and impact on productivity and quality • Application of high risk (and non-high risk) load shifting equipment as required • Manual handling risks and techniques • Sensory information that indicates a deviation from standard operating parameters • Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments for clothing changes, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in coordinating and directing clothing changes

	• Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Use electronic control systems to control equipment and processes as required • Identify and action problems within level of responsibility • Identify and monitor process control points • Plan and organize clothing changes • Direct crews during clothing change • Recognize clothing problems • Maintain situational awareness in the work area • Apply manual handling techniques • Operate high risk and (non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Measure and Calculate Routine Workplace Data**
Unit Code	**IND PPP3 15 0613**
Unit Descriptor	This unit describes the outcomes required to measure and calculate routine workplace data in the pulp and paper industry.

Elements	Performance Criteria
1 Use routine measuring instruments	1.1. Routine measuring instruments are used within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Measuring instruments and are selected and used to measure common workplace units. 1.3. Faults with ***measuring devices*** and instruments are identified and reported.
2 Calculate routine workplace measures	2.1. Routine workplace measures are calculated within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Basic ***mathematical processes*** are used to calculate routine workplace measures of ***product characteristics***. 2.3. ***Manual and electronic calculations*** are verified by using estimating techniques.
3 Calculate performance measures	3.1. ***Performance measures*** are calculated within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Percentages, ratios and proportions are calculated to derive information about workplace requirements and performance. 3.3. Deviations in performance are identified and measured to determine the extent of variations.
4 Record routine workplace data	4.1. Routine workplace data is recorded within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Results are recorded on standard graphs or charts. 4.3. Errors in recording information on charts are identified and rectified. 4.4. Graphs or charts are interpreted to identify trends and variations. 4.5 ***Documentation, procedures and reports*** on measuring and calculating of routine workplace data is reported to relevant personnel through ***sensory information*** and in different ***forms of communication***.

Variable	Range
Regulations	may include • OHS and environmental requirements (local, state and commonwealth)
Measuring devices	may include: • scales • veinier callipers • meters • gauges
Mathematical processes	may include: • addition • subtraction • multiplication • division
Product characteristics	may include: • length • weight • capacity • time • temperature • moisture
Manual and electronic calculations	may include: • percentages • proportions • ratio • results using decimals, simple factions and whole numbers percentages
Performance measures	may include: • percentage • proportion • ratio
Documentation, procedures and reports	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems
Sensory information	may include: • visual • sound • feel • touch • smell

	• vibration • temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • internal/external customers and suppliers • team members • production/service coordinators • maintenance services • operational support personnel • operational management and statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in measuring and calculating routine workplace data
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to measuring and calculating routine workplace data including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Basic problem-solving techniques consistent with level of responsibility • Purpose of graphs or charts • Purpose of measuring instruments • Relationship between different measurement scales
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in measuring and calculating routine workplace data • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Source and apply new ideas and techniques to address unfamiliar situations or resolve problems

	• Identify routine faults in measuring instruments • Use numeracy skills and mathematical concepts to solve workplace problems • Select and operate measuring instruments • Use and apply the principles and units of measurement • Use estimations processes • Verify calculations • Achieve consistent levels of accuracy • Interpret mathematical symbols and diagrams • Present mathematical data for use in the workplace
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Prepare and Start up Chemical Recovery Operations**
Unit Code	**IND PPP3 16 0613**
Unit Descriptor	This unit describes the outcomes required to prepare and start up chemical recovery operations in the pulp and paper industry.

Elements	Performance Criteria
1. Determine production requirements for chemical recovery	1.1. Production requirements for ***chemical recovery*** are determined within Occupational Health and Safety (OHS) regulations, environmental and safe working ***productivity requirements/***practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Processing rates for production are determined and communicated to relevant personnel. 1.3. Availability of incoming ***materials and supplies*** are determined to meet production requirements. 1.4. Readiness and availability of facilities is confirmed to receive process product and/or by-products.
2. Inspect and prepare systems for start up	2.1 Systems are inspected and prepared for start up within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Pre-start up checks is completed. 2.3. Operational settings are made and confirmed against specification requirements. 2.4. Delivery systems are set for operation. 2.5. Monitoring devices and systems are checked and confirmed operational level ***maintenance***. 2.6. Identified faults are rectified. 2.7. Production ready status is confirmed with relevant personnel.
3. Start up operations	3.1. Start up operations are completed within OHS ***regulations***, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Systems are activated and confirmed operational. 3.3. ***Equipment*** and ***electronic control systems*** start ups are coordinated for production. 3.4. Process operation is communicated to relevant personnel. 3.5. Production start up details are recorded as required.

4. Establish and stabilize the production and quality processes	4.1. Production and quality processes are established and stabilized within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2 ***Chemicals*** and chemical recovery systems are monitored and adjusted to rectify variations from specifications. 4.3. Samples are taken as required and appropriately ***actions***. 4.4. Product tests are verified as within specification where applicable. 4.5. System operation, production and quality data is recorded as required. 4.6 ***Documentation, procedures and reports*** on start up information is reported to relevant personnel through ***sensory information*** and in different ***forms of communication***.

Variable	**Range**
Chemical recovery	may include • evaporator operations • condensate stripper • lime mud treatment • Wet Air Oxidation (WAO) • caustic sing plant operations • recovery boiler operations • Direct Alkali Reduction System (DARS) operations • foul gas and condensate incineration
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate
Materials and supplies	may include: • steam • compressed air

	• chemicals • water • power
Maintenance	may include: • operator level maintenance as per site agreement • maintenance systems • operator maintenance schedules • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centered Maintenance (RCM)
regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) licensing requirements • hazardous chemical handling
Equipment	may include: • power or steam generation • pneumatic systems • water supply systems and equipment • process plant • pumps and transfer equipment • mechanical, hydraulic and electrical systems • process monitoring and management equipment • mobile equipment (e.g. skid steer, forklift, elevated work platform, loaders) • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to chemical recovery operations
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Chemicals:	may include • white liquor • green liquor • black liquor • condensates • non-condensable gases • thick liquor • spent liquor • quench liquor • weak wash • anthraquinone (AQ)

	• caustic • magnesium oxide • sulphur
Actions	may include: • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Documentation, procedures and reports	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • work instructions and orders • incident reports • log sheets and shift reports • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation (e.g. plant clearance, job safety analysis, permit systems) • Emergency Operational Procedures (EMOs) • process and instrument diagrams • non-conformance reports
Sensory information	may include: • visual • sound • feel • touch • smell • vibration • temperature
Forms of communications	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • team members • internal or external customers and suppliers • maintenance services • production/services coordinator • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in preparing and starting up chemical recovery operations
Underpinning Knowledge and Attitudes	Demonstrates knowledge of : • Procedures, regulations and legislative requirements relevant to chemical recovery operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Relationships within the chemical recovery area members and with the area's suppliers and customers • Basic problem-solving techniques consistent with level of responsibility • Cause and affects of operational equipment faults • Working knowledge of chemical recovery operations, processes, layout and associated services sufficient to carry out start up activities within level of responsibility • Control points of the preparation for start up procedure • Purpose of the process controls and how the changes affect the operation's variables • Control points of the start up procedure • Purpose of each of the steps in the preparation of the chemical recovery system for production • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Application of high risk (and non-high risk) load shifting equipment, as required • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control chemical recovery operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in preparing and starting up chemical recovery operations • Read and interpret required documentation, procedures and reports • Confirm production ready status with team members, suppliers and customers • Access, navigate and enter computer-based information

	• Interpret instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Respond to faults of process flow-through systems if required • Identify and monitor process control points • Maintain situational awareness in the work area • Remove isolations • Conduct pre-start up checks of plant and equipment including instrumentation • Determine chemical recovery requirements (e.g. temperatures, oxidation, combustion and evaporation rates) for operation • Conduct checks to ensure availability of incoming supplies • Conduct checks to ensure readiness and availability of facilities to receive process product and/or by-products • Input operational settings (e.g. set points) in preparation for start up in accordance with SOP • Activate and confirm operation of chemical recovery system according to SOP • Make process control adjustments to stabilize production and quality • Conduct routine maintenance checks • Take samples, conducts tests, interprets and records results, if required • Use measuring equipment as required • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Co-ordinate and Implement Chemical Recovery Shutdowns**
Unit Code	**IND PPP3 17 0613**
Unit Descriptor	This unit describes the outcomes required to co-ordinate and implement chemical recovery shutdowns in the pulp and paper industry.

Elements	Performance Criteria
1. Assess causes and effects of shutdown	1.1 Causes and effects of ***chemicals*** and ***chemical recovery process*** shutdown are assessed within Occupational Health and Safety (OHS) ***regulations***, environmental safe working and ***productivity requirements***/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2 ***Equipment***s and ***Electronic control systems*** are checked to coordinate chemical recovery shutdowns. 1.3 Work area instructions or ***maintenance*** schedules are used to co-ordinate a planned shutdown. 1.4 ***Situational awareness*** is undertaken. 1.5 Cause of unplanned shutdown is identified and located. 1.6 Effects of unplanned shutdown are assessed to determine impact on operations. 1.7 Unplanned shutdown is communicated as required.
2. Implement shutdown procedures	2.1. Shutdown procedures are implemented within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Planned shutdown is implemented. 2.3. Unplanned shutdown is responded to and rectified. 2.4. Isolation requirements are implemented as required. 2.5. Shutdown information is ***communicated*** to relevant personnel as required.
3. Record and report shutdown information	3.1. Shutdown information is recorded and reported within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Shutdown information is recorded, including corrective ***action*** as required. 3.3. Shutdown ***information is reported*** to relevant personnel through ***sensory information*** and in different ***forms of communication***.

Variable	Range
Chemicals	may include: • white liquor • green liquor • black liquor • condensates • non-condensable gases • thick liquor • spent liquor • quench liquor • weak wash • anthraquinone (AQ) • caustic • magnesium oxide • sulphur
Chemical recovery processes	may include: • evaporator operations • condensate stripper • lime mud treatment • Wet Air Oxidation (WAO) • caustic sing plant operations • recovery boiler operations • Direct Alkali Reduction System (DARS) operations • foul gas and condensate incineration
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk (and non-high risk) load shifting licensing requirements • hazardous chemical handling
Productivity requirements	may include: • energy efficiency • waste minimization • evaporation minimization, including landfill and waste water reduction • environmentally safe waste disposal • consideration of resource utilization, including fiber efficiency • minimizing delays • chemical recovery maximization • meeting key performance indicators • line speed • handovers • quality checks • meeting output targets i.e. net tones per employee per annum • machine/process time availability i.e. time the machine or process is making product • machine/process production rate

Equipment	may include: • power or steam generation • pneumatic systems • water supply systems and equipment • process plant • pumps and transfer equipment • mechanical, hydraulic and electrical systems • process monitoring and management equipment • mobile equipment (e.g. skid steer, forklift, elevated work platform, loaders) • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to chemical recovery operations
Electronic control systems:	may include • Digital Control System (DCS) • touch screens and robotics
Maintenance	may include: • operator level maintenance as per site agreement • maintenance systems • operator maintenance schedules • maintenance suppliers • proactive maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Situational awareness	may include • traffic • pedestrians • location of equipment • product • hazards • obstruction and unexpected movement
Communication	may include • team members • internal or external customers and suppliers • maintenance services • production/services coordinator • operational management and statutory authorities
Action	may include: • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Information is reported	may include: • SOP • quality procedures • environmental sustainability requirements/practices

	• plant manufacturing operating manuals • work instructions and orders • incident reports • log sheets and shift reports • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation (e.g. plant clearance, job safety analysis, permit systems) • Emergency Operational Procedures (EMOs) • process and instrument diagrams • non-conformance reports
Sensory information	may include: • visual • sound • feel • touch • smell • vibration and temperature
Forms of communication	may include • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in co-ordinating and implementing chemical recovery shutdowns
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to chemical recovery operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Required responses to all unplanned shutdowns to ensure safety, quality and productivity

	• Chemical recovery operations, processes, layout and associated services sufficient to carry out shutdown activities within level of responsibility • Effects of shutdowns on the rest of the system • Types, causes and effects of chemical recovery plant shutdowns • Process and procedures for plant shutdowns and unplanned shutdowns • Plant and machinery functions and operations • Emergency procedures and responses • Impact of inappropriate responses • Application of high risk (and non-high risk)load shifting equipment as required • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control chemical recovery operations, within level of responsibility
Underpinning Skills	Demonstrates skills to: • Use required forms of communication in coordinating and implementing chemical recovery shutdowns • Read and interpret required documentation, procedures and reports • Identify sources of operational data • Access, navigate and enter computer-based information • Interprets instruments, gauges and data recording equipment • Identify and action problems within level of responsibility • Identify and monitor process control points • Co-ordinate and plan shutdown activity • Identify and respond appropriately to shutdown causes • Respond to problems associated with plant shutdown and unplanned shutdown to ensure safety quality and productivity • Maintain situational awareness in the work area • Operate high risk (and non-high risk) load shifting equipment as required • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Solve systemic problems in the workplace**
Unit Code	**IND PPP3 18 0613**
Unit Descriptor	This unit describes the outcomes required to solve systemic problems in the pulp and paper industry within limits of responsibility.

Elements	Performance Criteria
1. Identify and describe the problem	1.1. Problem is identified and described within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. Information is gathered to define the ***type and extent of problem***. 1.3. Information is gathered on the effect of the problem with regard to quality or productivity.
2. Assess the situation and determine actions	2.1. Situation is assessed and actions are determined within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 2.2. Immediate action is taken if safety, quality or productivity is compromised. 2.3. Personnel are notified as required. 2.4. Problem is referred to appropriate group or department if required. 2.5. Possible types of problem solving activities/methodologies available are assessed and most appropriate is determined. 2.6 ***Equipment*** system and plant is observed for correct operational solve problems. 2.7 ***Electronic control systems*** are checked to solve systematic problems in the work place.
3. Conduct analysis	3.1. Analysis is conducted within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 3.2. Team is assembled for analysis, if required. 3.3. Selected ***problem solving methodology*** is used. 3.4. Possible solutions are determined. 3.5. Quick fixes are conducted if required. 3.6. Favoured solutions are determined.

4. Determine action plan	4.1. Action plan is determined within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. Action plan is developed including ***contingencies***. 4.3. Plan is documented following workplace procedures. 4.4. Plan is communicated to appropriate personnel. 4.5. Plan is approved by appropriate personnel.
5. Implement plan	5.1. Plan is implemented within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 5.2. ***Resources*** are identified and organized to implement the plan. 5.3. Plan is scheduled. 5.4. Plan is communicated to team and other personnel. 5.5. Team members are assisted where required. 5.6. Planned changes are made to solve the problem.
6. Monitor and evaluate the solution	6.1. The solution is monitored and evaluated within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 6.2. Changes are monitored. 6.3. Effectiveness of the solution is evaluated. 6.4. Contingency plans are implemented if required.
7. Document and report changes	7.1. Changes are documented and reported within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 7.2. Required ***documentation*** is finalized. 7.3. Outcome of the solution is reported. 7.4. Outcomes of the solution are communicated to team and appropriate personnel through ***sensory information*** and indifferent ***forms of communication***.

Variable	**Range**
Regulations	May include: • OHS and environmental requirements (local, state and commonwealth) • statutory requirements (local, state and commonwealth) • relevant operator licenses and endorsements
Type and extent of problem	may include: • quality or equipment problem

	• position/location of defect or problem • continuous or intermittent • deterioration • how long has it been occurring • when/who first observed the problem • paper quality
Equipment	may include: • communication equipment and 2-way radios • computer systems • electronic screens and alarms • process control systems • analogue and digital instruments • fully automated, semi-automated, manually operated plant and equipment appropriate to plant operations and systems
Electronic control systems:	may include: • Digital Control Systems (DCS) • touch screens • robotics
Problem solving methodology	may include: • industry specific methodologies includes: ➢ e-learning tool ➢ lean • root cause analysis techniques are: ➢ 5 whys ➢ fish bone ➢ serf roundtable method ➢ cause and effect diagrams ➢ six sigma ➢ Kepner-Tregoe
Contingencies:	may include: • prioritized list of other possible solutions • back up plans
Resources	may include: • personnel • equipment • production process • materials or supplies • trouble shooting guides
Documentation	may include • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation (e.g. plant clearance, job safety analysis, permit systems)

	• Material Safety Data Sheets (MSDS) • furnish sheets • tally sheets • process and instrument diagrams • process improvement systems • planning documents • small group presentations • minutes of meeting
Sensory information	may include: • visual • sound • feel • touch • smell • vibration and temperature
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety access • internal/external customers and suppliers • team members • maintenance services and operational management

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in solving systemic problems in the workplace
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Procedures, regulations and legislative requirements relevant to pulp and paper operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Leading and managing team processes • Resource and planning requirements • System, processes and associated services sufficient for problem solving including:

	➢ plant layout ➢ theory of operation ➢ causes and effects of adjustments made to equipment and processes ➢ relationships between system, processes and associated services ➢ effects of process variables on production and quality • An appropriate range of problem solving methodologies • Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements • Plant operation and control mechanisms • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments that control pulp and paper operations, within level of responsibility
Underpinning Skills	• Identify, access and interpret relevant historical and operational data and information • Use required forms of communication in solving systemic problems in the workplace • Read and interpret required documentation, procedures and reports • Access, navigate and enter computer-based information • Read complex text • Demonstrate leadership • Identify resources and undertakes planning • Communicate effectively with personnel to assist with analysis and resolution of operational problems • Assist others to identify and resolve operational problems in the workplace • Identify and action systems, quality and equipment faults within level of responsibility • Identify causes and effects of faults and corrective action on associated processes • Select and use appropriate problem solving methods • Take timely corrective action to maximize safety, quality and productivity • Undertake necessary calculations to aid troubleshooting, as required • Use troubleshooting guides and diagnostic procedures • Interpret instruments, gauges and data recording equipment • Maintain situational awareness in work area • Take samples, conduct tests and interpret results if required • Analyse and use sensory information to adjust process to maximize safety, quality and productivity • Use electronic and other control and other systems to control equipment and processes as required

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Monitor and Control Environmental Hazards First Aid**
Unit Code	**IND PPP3 19 0613**
Unit Descriptor	This unit describes the outcomes required to monitor and control environmental hazards in the pulp and paper industry.

Elements	Performance Criteria
1. Identify environmental hazards	1.1. Identification of environmental hazards is completed within Occupational Health and Safety (OHS) ***regulations***, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements. 1.2. ***Emissions/discharges*** environmental hazards are identified. 1.3. Location and severity of hazard is assessed and communicated to appropriate personnel. 1.4. Cause and/or source of environmental hazard is diagnosed.
2. Respond to environmental hazards	2.1. Environmental hazards are responded to within OHS regulations, environmental and safe working requirements and/or practices, SOP and housekeeping requirements. 2.2. Environmental alarms are activated where appropriate ***Equipments*** are used. 2.3. An ***action*** environmental hazards are measured and controlled. 2.4. Hazardous incidents are documented and reported.
3. Liaise with internal and external bodies	3.1. Internal and external bodies are liaised with in accordance with OHS regulations, environmental and safe working requirements and/or practices, SOP, and housekeeping requirements. 3.2. Relevant licensing authorities/bodies of ***indicative function*** are identified and notified. 3.3. Status of the environmental hazard is monitored and communicated with appropriate personnel on an on-going basis of ***electronic control systems***.
4. Participate in the investigation of environmental incident	4.1. Participation in investigation of environmental incidents is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements. 4.2. ***Documentation and reports*** are completed in different ***Forms of communication***. 4.3. Investigations are undertaken. 4.4. Findings are documented and reported.

Variable	Range
Regulations	may include: • OHS and environmental requirements (local, state and commonwealth) • HAZCHEM • dangerous goods handling requirements • external licensing requirements (for example, Environmental Protection Authority (EPA), water authorities, local councils) • internal environmental control standards
Emissions/discharges	may include: • noise • light • odour • gas • smoke • vapour • liquid and solids • particulates • fumes
Equipment	may include • containment equipment • personal protective equipment • monitoring equipment • computer systems • electronic screens and alarms • process control systems • analogue and digital instrumentation • fully automated, semi-automated, manually operated plant and equipment appropriate environmental monitoring
Action	may include: • process adjustments • reporting to authorized person • rectifying problem within level of responsibility
Indicative function	may include: • monitoring of all physical sensors and instrumentation • compliance with licensing arrangements
Electronic control systems	may include: • Digital Control System (DCS) • touch screens • robotics
Documentation and reports	may include: • SOP • quality procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals

	• enterprise policies and procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • safe work documentation e.g. plant clearance, job safety analysis, permit systems
Forms of communication	may include: • written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. SOP, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access • internal/external customers and suppliers • team members • production/service coordinators • maintenance services • operational support personnel • operational management • statutory authorities

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate: • the required knowledge and skills tailored to the needs of the specific workplace • applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements • applicable aspects of the range statement • practical workplace demonstration of skills in monitoring and controlling environmental hazards
Underpinning Knowledge and Attitudes	Demonstrates knowledge of : • Procedures, regulations and legislative requirements relevant to monitoring and controlling environmental hazards including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping • Relevant forms of communication • Basic problem-solving techniques consistent with level of responsibility • Company procedures for identifying, recording and reporting environmental hazards • Sensory information that indicates a deviation from standard operating parameters • Electronic and other control systems, operation and application to make appropriate adjustments, within level of responsibility

Underpinning Skills	Demonstrates skills to: • Use required forms of communication in monitoring and controlling environmental hazards • Communicate with appropriate internal and external bodies • Read and interpret required documentation, procedures and reports • Take emergency action associated with environmental hazard • Interpret instruments, gauges and other recording equipment • Access, navigate and enter computer-based information • Identify and action problems within level of responsibility • Identify and investigate reasons for environmental hazard • Maintains situational awareness in the work area • Analyse and use sensory information to adjust process to maintain safety, quality and productivity • Use electronic and other control systems to control equipment and processes as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Monitor Implementation of Work Plan/Activities**
Unit Code	**IND PPP3 20 0613**
Unit Descriptor	This unit covers competence required to oversee and monitor the quality of work operations within an enterprise. This unit may be carried out by team leaders or supervisors.

Elements	Performance Criteria
1. Monitor and improve workplace operations	1.1 Efficiency and service levels are monitored on an ongoing basis. 1.2 Operations in the workplace support overall enterprise goals and quality assurance initiatives. 1.3 Quality ***problems*** and issues are promptly identified and adjustments are made accordingly. 1.4 Procedures and systems are changed in consultation with colleagues to improve efficiency and effectiveness. 1.5 Colleagues are consulted about ways to improve efficiency and service levels.
2. Plan and organise workflow	2.1 Current workload of colleagues is accurately assessed. 2.2 Work is scheduled in a manner which enhances efficiency and customer service quality. 2.3 Work is delegated to appropriate people in accordance with principles of delegation. 2.4 Workflow is assessed against agreed objectives and timelines and colleagues are assisted in prioritisation of workload. 2.5 Input is provided to appropriate management regarding staffing needs.
3. Maintain workplace records	3.1 ***Workplace records*** are accurately completed and submitted within required timeframes. 3.2 Where appropriate completion of records is delegated and monitored prior to submission.
4. Solve problems and make decisions	4.1 Workplace problems are promptly identified and considered from an operational and customer service perspective. 4.2 Short term action is initiated to resolve the immediate problem where appropriate. 4.3 Problems are analysed for any long term impact and potential solutions are assessed and actioned in consultation with relevant colleagues. 4.4 Where problem is raised by a team member, they are encouraged to participate in solving the problem.

	4.5 Follow up action is taken to monitor the effectiveness of solutions in the workplace.

Variables	**Range**
Problems	May include but not limited to: • difficult customer service situations • equipment breakdown/technical failure • delays and time difficulties • competence
Workplace records	May include but is not limited to: • staff records and regular performance reports

Evidence Guide	
Critical Aspects of Competence	Assessment must confirm appropriate knowledge and skills to: • ability to effectively monitor and respond to a range of common operational and service issues in the workplace • understanding of the role of staff involved in workplace monitoring • knowledge of quality assurance, principles of workflow planning, delegation and problem solving
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • roles and responsibilities in monitoring work operations • overview of leadership and management responsibilities • principles of work planning and principles of delegation • typical work organization methods appropriate to the sector • quality assurance principles and time management • problem solving and decision making processes • industrial and/or legislative issues which affect short term work organization as appropriate to industry sector
Underpinning Skills	Demonstrate skills of: • monitoring and improving workplace operations • planning and organizing workflow • maintaining workplace records
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Apply Quality Control**
Unit Code	**IND PPP3 21 0613**
Unit Descriptor	This unit covers the knowledge, attitudes and skills required in applying quality control in the workplace.

Elements	Performance Criteria
1. Implement quality standards	1.1 Agreed quality standard and procedures are acquired and confirmed. 1.2 Standard procedures are introduced to organizational staff/personnel. 1.3 Quality standard and procedures documents are provided to employees in accordance with the organization policy. 1.4 Standard procedures are revised / updated when necessary.
2. Assess quality of service delivered	2.1 Services delivered are ***quality checked*** against organization ***quality standards*** and specifications. 2.2 Service delivered are evaluated using the appropriate evaluation ***quality parameters*** and in accordance with organization standards. 2.3 Causes of any identified faults are identified and corrective actions are taken in accordance with organization policies and procedures.
3. Record information	3.1 Basic information on the quality performance is recorded in accordance with organization procedures. 3.2 Records of work quality are maintained according to the requirements of the organization.
4. Study causes of quality deviations	4.1 Causes of deviations from final outputs or services are investigated and reported in accordance with organization procedures. 4.2 Suitable preventive action is recommended based on organization quality standards and identified causes of deviation from specified quality standards of final service or output.
5. Complete documentation	5.1 Information on quality and other indicators of service performance is recorded. 5.2 All service processes and outcomes are recorded.

Variable	Range
Quality check	• Check against design / specifications • Visual inspection and Physical inspection
Quality standards	• Materials

	• Components • Process • Procedures
Quality parameters	• Standard Design / Specifications • Material Specification

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate to: • Check completed work continuously against organization standard • Identify and isolate faulty or poor service • Check service delivered against organization standards • Identify and apply corrective actions on the causes of identified faults or error • Record basic information regarding quality performance • Investigate causes of deviations of services against standard • Recommend suitable preventive actions
Underpinning Knowledge	Demonstrates knowledge of: • Relevant quality standards, policies and procedures • Characteristics of services • Safety environment aspects of service processes • Evaluation techniques and quality checking procedures • Workplace procedures and reporting procedures
Underpinning Skills	Demonstrates skills to: • interpret work instructions, specifications and standards appropriate to the required work or service • carry out relevant performance evaluation • maintain accurate work records • meet work specifications and requirements • communicate effectively within defined workplace procedures
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Lead Workplace Communication**
Unit Code	**IND PPP3 22 0613**
Unit Descriptor	This unit covers the knowledge, attitudes and skills needed to lead in the dissemination and discussion of information and issues in the workplace.

Elements	Performance Criteria
1. Communicate information about workplace processes	1.1 Appropriate ***communication method*** is selected. 1.2 Multiple operations involving several topics areas are communicated accordingly. 1.3 Questions are used to gain extra information. 1.4 Correct sources of information are identified. 1.5 Information is selected and organized correctly. 1.6 Verbal and written reporting is undertaken when required. 1.7 Communication skills are maintained in all situations.
2. Lead workplace discussion	2.1 Response to workplace issues is sought. 2.2 Response to workplace issues are provided immediately. 2.3 Constructive contributions are made to workplace discussions on such issues as production, quality and safety. 2.4 Goals/objectives and action plan undertaken in the workplace are communicated.
3. Identify and communicate issues arising in the workplace	3.1 Issues and problems are identified as they arise. 3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication. 3.3 Dialogue is initiated with appropriate staff/personnel. 3.4 Communication problems and issues are raised as they arise.

Variable	Range
Methods of communication	• Non-verbal gestures • Verbal • Face to face • Two-way radio • Speaking to groups • Using telephone • Written • Using Internet • Cell phone

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Deal with a range of communication/information at one time • Make constructive contributions in workplace issues • Seek workplace issues effectively • Respond to workplace issues promptly • Present information clearly and effectively written form • Use appropriate sources of information • Ask appropriate questions • Provide accurate information
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Organization requirements for written and electronic communication methods • Effective verbal communication methods
Underpinning Skills	Demonstrates skills to: • Organize information • Understand and convey intended meaning • Participate in variety of workplace discussions • Comply with organization requirements for the use of written and electronic communication methods
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Lead Small Teams**
Unit Code	**IND PPP3 22 0613**
Unit Descriptor	This unit covers the skills, knowledge and attitudes required to determine individual and team development needs and facilitate the development of the work group.

Elements	Performance Criteria
1. Provide team leadership	1.1 ***Learning and development needs*** are systematically identified and implemented in line with ***organizational requirements***. 1.2 Learning plan to meet individual and group training and developmental needs is collaboratively developed and implemented. 1.3 Individuals are encouraged to self-evaluate performance and identify areas for improvement. 1.4 ***Feedback on performance*** of team members is collected from relevant sources and compared with established team learning process.
2. Foster individual and organizational growth	2.1 Learning and development program goals and objectives are identified to match the specific knowledge and skills requirements of competence standards. 2.2 ***Learning delivery methods*** are appropriate to the learning goals, the learning style of participants and availability of equipment and resources. 2.3 Workplace learning opportunities and coaching/ mentoring assistance are provided to facilitate individual and team achievement of competencies. 2.4 Resources and timelines required for learning activities are identified and approved in accordance with organizational requirements.
3. Monitor and evaluate workplace learning	3.1 Feedback from individuals or teams is used to identify and implement improvements in future learning arrangements. 3.2 Outcomes and performance of individuals/teams are assessed and recorded to determine the effectiveness of development programs and the extent of additional support. 3.3 Modifications to learning plans are negotiated to improve the efficiency and effectiveness of learning. 3.4 Records and reports of competence are maintained within organizational requirement.

4. Develop team commitment and cooperation	4.1 Open communication processes to obtain and share information is used by team. 4.2 Decisions are reached by the team in accordance with its agreed roles and responsibilities. 4.3 Mutual concern and camaraderie are developed in the team.
5. Facilitate accomplishment of organizational goals	5.1 Team members actively participated in team activities and communication processes. 5.2 Teams' members developed individual and joint responsibility for their actions. 5.3 Collaborative efforts are sustained to attain organizational goals.

Variable	**Range**
Learning and development needs	May include: • Coaching, mentoring and/or supervision • Formal/informal learning program • Internal/external training provision • Work experience/exchange/opportunities • Personal study • Career planning/development • Performance appraisals • Workplace skills assessment & Recognition of prior learning
Organizational requirements	May include: • Quality assurance and/or procedures manuals • Goals, objectives, plans, systems and processes • Legal and organizational policy/guidelines and requirements • Safety policies, procedures and programs • Confidentiality and security requirements • Business and performance plans • Ethical standards • Quality and continuous improvement processes and standards
Feedback on performance	May include: • Formal/informal performance appraisals • Obtaining feedback from supervisors and colleagues • Obtaining feedback from clients • Personal and reflective behavior strategies • Routine and organizational methods for monitoring service delivery
Learning delivery methods	May include: • On the job coaching or mentoring • Problem solving • Presentation/demonstration • Formal course participation • Work experience and Involvement in professional networks • Conference/seminar attendance and induction

Evidence Guide	
Critical Aspects of Competence	Assessment requires evidence that the candidate to: • identify and implement learning opportunities for others • give and receive feedback constructively • facilitate participation of individuals in the work of the team • negotiate learning plans to improve the effectiveness of learning • prepare learning plans to match skill needs • access and designate learning opportunities
Underpinning Knowledge and Attitude	Demonstrates knowledge of: • coaching and mentoring principles • how to work effectively with team members who have diverse work styles, aspirations, cultures and perspective • how to facilitate team development and improvement • methods and techniques for eliciting and interpreting feedback • methods for identifying and prioritizing personal development opportunities and options • career paths and competence standards in the industry
Underpinning Skills	Demonstrates skills to: • ability to read and understand a variety of texts, prepare general information and documents according to target audience; spell with accuracy; use grammar and punctuation effective relationships and conflict management • communication skills including receiving feedback and reporting, maintaining effective relationships and conflict management • planning skills to organize required resources and equipment to meet learning needs • coaching and mentoring skills to provide support to colleagues • reporting skills to organize information; assess information for relevance and accuracy; identify and elaborate on learning outcomes • facilitation skills to conduct small group training sessions • ability to relate to people from a range of social, cultural, physical and mental backgrounds
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Lead Small Teams**
Unit Code	**IND PPP3 23 0613**
Unit Descriptor	This unit covers the skills, knowledge and attitudes required to determine individual and team development needs and facilitate the development of the work group.

Elements	Performance Criteria
1. Provide team leadership	1.1 ***Learning and development needs*** are systematically identified and implemented in line with ***organizational requirements***. 1.2 Learning plan to meet individual and group training and developmental needs is collaboratively developed and implemented. 1.3 Individuals are encouraged to self-evaluate performance and identify areas for improvement. 1.4 ***Feedback on performance*** of team members is collected from relevant sources and compared with established team learning process.
2. Foster individual and organizational growth	2.1 Learning and development program goals and objectives are identified to match the specific knowledge and skills requirements of competence standards. 2.2 ***Learning delivery methods*** are appropriate to the learning goals, the learning style of participants and availability of equipment and resources. 2.3 Workplace learning opportunities and coaching/ mentoring assistance are provided to facilitate individual and team achievement of competencies. 2.4 Resources and timelines required for learning activities are identified and approved in accordance with organizational requirements.
3. Monitor and evaluate workplace learning	3.1 Feedback from individuals or teams is used to identify and implement improvements in future learning arrangements. 3.2 Outcomes and performance of individuals/teams are assessed and recorded to determine the effectiveness of development programs and the extent of additional support. 3.3 Modifications to learning plans are negotiated to improve the efficiency and effectiveness of learning. 3.4 Records and reports of competence are maintained within organizational requirement.

4. Develop team commitment and cooperation	4.1 Open communication processes to obtain and share information is used by team. 4.2 Decisions are reached by the team in accordance with its agreed roles and responsibilities. 4.3 Mutual concern and camaraderie are developed in the team.
5. Facilitate accomplishment of organizational goals	5.1 Team members are actively participated in team activities and communication processes. 5.2 Teams' members are developed individual and joint responsibility for their actions. 5.3 Collaborative efforts are sustained to attain organizational goals.

Variable	Range
Learning and development needs	May include but not limited to: • Coaching, mentoring and/or supervision • Formal/informal learning program • Internal/external training provision • Work experience/exchange/opportunities • Personal study • Career planning/development • Performance appraisals • Workplace skills assessment & Recognition of prior learning
Organizational requirements	May include but not limited to: • Quality assurance and/or procedures manuals • Goals, objectives, plans, systems and processes • Legal and organizational policy/guidelines and requirements • Safety policies, procedures and programs • Confidentiality and security requirements • Business and performance plans • Ethical standards • Quality and continuous improvement processes and standards
Feedback on performance	May include but not limited to: • Formal/informal performance appraisals • Obtaining feedback from supervisors and colleagues • Obtaining feedback from clients • Personal and reflective behavior strategies • Routine and organizational methods for monitoring service delivery
Learning delivery methods	May include but not limited to: • On the job coaching or mentoring • Problem solving • Presentation/demonstration • Formal course participation • Work experience and Involvement in professional networks • Conference/seminar attendance and induction

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • identify and implement learning opportunities for others • give and receive feedback constructively • facilitate participation of individuals in the work of the team • negotiate learning plans to improve the effectiveness of learning • prepare learning plans to match skill needs • access and designate learning opportunities
Underpinning Knowledge and Attitude	Demonstrates knowledge of: • coaching and mentoring principles • how to work effectively with team members who have diverse work styles, aspirations, cultures and perspective • how to facilitate team development and improvement • methods and techniques for eliciting and interpreting feedback • methods for identifying and prioritizing personal development opportunities and options • career paths and competence standards in the industry
Underpinning Skills	Demonstrates skills to: • read and understand a variety of texts, prepare general information and documents according to target audience; spell with accuracy; use grammar and punctuation effective relationships and conflict management • receive feedback and report, maintain effective relationships and conflict management • organize required resources and equipment to meet learning needs • provide support to colleagues • organize information; assess information for relevance and accuracy; identify and elaborate on learning outcomes • facilitation skills to conduct small group training sessions • relate to people from a range of social, cultural, physical and mental backgrounds
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Improve Business Practice**
Unit Code	**IND PPP3 24 0613**
Unit Descriptor	This unit covers the skills, knowledge and attitudes required in promoting, improving and growing business operations.

Elements	Performance Criteria
1. Diagnose the business	1.1 ***Data required*** for diagnosis is determined and acquired. 1.2 ***Competitive advantage*** of the business is determined from the data. 1.3 ***SWOT analysis*** of the data is undertaken.
2. Benchmark the business	2.1 Sources of relevant benchmarking data are identified. 2.2 ***Key indicators*** for benchmarking are selected in consultation with key stakeholders. 2.3 Like indicators of own practice are compared with benchmark indicators. 2.4 Areas for improvement are identified.
3. Develop plans to improve business performance	3.1 A consolidated list of required improvements is developed. 3.2 Cost-benefit ratios for required improvements are determined. 3.3 Work flow changes resulting from proposed improvements are determined. 3.4 Proposed improvements are ranked according to agreed criteria. 3.5 An action plan is developed and agreed to implement the top ranked improvements. 3.6 ***Organizational structures*** are checked to ensure they are suitable.
4. Develop marketing and promotional plans	4.1 The practice vision statement is reviewed. 4.2 Practice ***objectives*** are developed/reviewed. 4.3 Target markets are identified/refined. 4.4 ***Market research data*** is obtained. 4.5 ***Competitor analysis*** is obtained. 4.6 ***Market position*** is developed/reviewed. 4.7 ***Practice brand*** is developed. 4.8 ***Benefits*** of practice/practice products/services are identified. 4.9 ***Promotion tools*** are selected /developed.

5. Develop business growth plans	5.1 Plans are developed to increase ***yield per existing client***. 5.2 Plans are developed to add new clients. 5.3 Proposed plans are ranked according to agreed criteria. 5.4 An action plan is developed and agreed to implement the top ranked plans. 5.5 Practice work practices are reviewed to ensure they support growth plans.
6. Implement and monitor plans	6.1 Implementation plan is developed in consultation with all relevant stakeholders. 6.2 Indicators of success of the plan are agreed. 6.3 Implementation is monitored against agreed indicators. 6.4 Implementation is adjusted as required.

Variable	**Range**
Data required	It includes: • organization capability • appropriate business structure • level of client service which can be provided • internal policies, procedures and practices • staff levels, capabilities and structure • market, market definition • market changes/market segmentation • market consolidation/fragmentation • revenue • level of commercial activity • expected revenue levels, short and long term • revenue growth rate • break even data • pricing policy • revenue assumptions • business environment • economic conditions • social factors • demographic factors • technological impacts • political/legislative/regulative impacts • competitors, competitor pricing and response to pricing • competitor marketing/branding • competitor products
Competitive advantage	may include: • services/products • fees • location • timeframe

SWOT analysis	may include: • internal strengths such as staff capability, recognized • quality • internal weaknesses such as poor morale, • under-capitalization, poor technology • external opportunities such as changing market and • economic conditions • external threats such as industry fee structures, strategic • alliances, competitor marketing
Key indicators	may include: • salary cost and staffing • personnel productivity (particularly of principals) • profitability • fee structure • client base • size staff/principal • overhead/overhead control
Organizational structures	it include: • Legal structure (partnership, Limited Liability Company, etc.) • organizational structure/hierarchy • reward schemes
Objectives should be 'SMART' , that:	• S: Specific • M: Measurable • A: Achievable • R: Realistic • T: Time defined
Market research data	It includes: • data about existing clients • data about possible new clients • data from internal sources • data from external sources such as: ➢ trade associations/journals ➢ Yellow Pages small business surveys ➢ libraries ➢ Internet ➢ Chamber of Commerce ➢ client surveys ➢ industry reports and secondary market research • primary market research such as: ➢ telephone surveys ➢ personal interviews and mail surveys
Competitor analysis	may include: • competitor offerings • competitor promotion strategies and activities • competitor profile in the market place
Market position	may include: • product

	• the good or service provided • product mix • the core product - what is bought • the tangible product - what is perceived • the augmented product - total package of consumer • features/benefits • product differentiation from competitive products • new/changed products • Price and pricing strategies (cost plus, supply/demand, ability to pay, etc.) • Pricing objectives (profit, market penetration, etc.) • cost components • market position • distribution strategies • marketing channels • promotion • promotional strategies • target audience • communication and promotion budget
Practice brand	May include: • practice image • practice logo/letter head/signage • phone answering protocol • facility decor • slogans • templates for communication/invoicing • style guide • writing style • AIDA (Attention, Interest, Desire and Action)
Benefits	may include: • features and benefits as perceived by the client
Promotion tools	It include: • networking and referrals • seminars • advertising • press releases • publicity and sponsorship • brochures • newsletters (print and/or electronic) • websites • direct mail • telemarketing/cold calling
Yield per existing client may be increased by:	• raising charge out rates/fees • packaging fees • reduce discounts • sell more services to existing clients

Evidence Guide	
Critical Aspects of Competence	The candidate must be able to demonstrate: • ability to identify the key indicators of business performance • ability to identify the key market data for the business • knowledge of a wide range of available information sources • ability to acquire information not readily available within a business • ability to analyze data and determine areas of improvement • ability to negotiate required improvements to ensure implementation • ability to evaluate systems against practice requirements and form recommendations and/or make recommendations • ability to assess the accuracy and relevance of information
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • data analysis • communication skills • computer skills to manipulate data and present information • negotiation skills • problem solving • planning skills • marketing principles • ability to acquire and interpret relevant data • current product and marketing mix • use of market intelligence • development and implementation strategies of promotion and growth plans
Underpinning Skills	Demonstrates skill in: • data analysis and manipulation • ability to acquire and interpret required data, current practice systems and structures and sources of relevant benchmarking data • applying methods of selecting relevant key benchmarking indicators • communication skills • working and consulting with others when developing plans for the business • planning skills, negotiation skills and problem solving • using computers to manipulate, present and distribute information
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Pulp and Paper Making Operations Level III	
Unit Title	**Prevent and Eliminate MUDA**
Unit Code	**IND PPP3 25 0613**
Unit Descriptor	This unit of competence covers the knowledge, skills and attitude required by a worker to prevent and eliminate MUDA/wastes in his/her their workplace. It covers responsibility for the day-to-day operation of the work and ensures Kaizen elements are continuously improved and institutionalized.

Elements	Performance Criteria
1. Prepare for work.	1.1 Work instructions are used to determine job requirements, including method, material and equipment. 1.2 Job specifications are read and interpreted following working manual. 1.3 ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work. 1.4 Appropriate material is selected for work. 1.5 ***Safety equipment and tools*** are identified and checked for safe and effective operation.
2. Identify MUDA.	2.1 Plan of MUDA identification is prepared and implemented. 2.2 Causes and effects of MUDA are discussed. 2.3 ***Tools and techniques*** are used to draw and analyze current situation of the work place. 2.4 Wastes/MUDA are identified and measured based on ***relevant procedures***. 2.5 Identified and measured wastes are reported to relevant personnel.
3. Eliminate wastes/MUDA.	3. 1. Plan of MUDA elimination is prepared and implemented. 3. 2. Necessary attitude and ***the ten basic principles for improvement*** are adopted to eliminate waste/MUDA. 3. 3. Tools and techniques are used to eliminate wastes/MUDA based on the procedures and OHS. 3. 4. Wastes/MUDA are reduced and eliminated in accordance with OHS and organizational requirements. 3. 5. Improvements gained by elimination of waste/MUDA are reported to relevant bodies.
4. Prevent occurrence of wastes/MUDA.	4.1 Plan of MUDA prevention is prepared and implemented. 4.2 Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement are discussed and prepared.

	4.3 Occurrences of wastes/MUDA are prevented by using ***visual and auditory control methods***. 4.4 Waste-free workplace is created using ***5W and 1H***sheet. 4.5 The completion of required operation is done in accordance with standard procedures and practices. 4.6 The updating of standard procedures and practices is facilitated. 4.7 The capability of the work team that aligns with the requirements of the procedure is ensured.

Variable	**Range**
OHS requirements	May include but not limited to: • Are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances. • Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices. • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization. • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Safety equipment and tools	May include but not limited to: • dust masks / goggles • glove • working cloth • first aid • safety shoes
Tools and techniques	May include but not limited to: • Plant Layout • Process flow • Other Analysis tools • Do time study by work element • Measure Travel distance • Take a photo of workplace • Measure Total steps • Make list of items/products, who produces them and who uses them & those in warehouses, storages etc. • Focal points to Check and find out existing problems • 5S

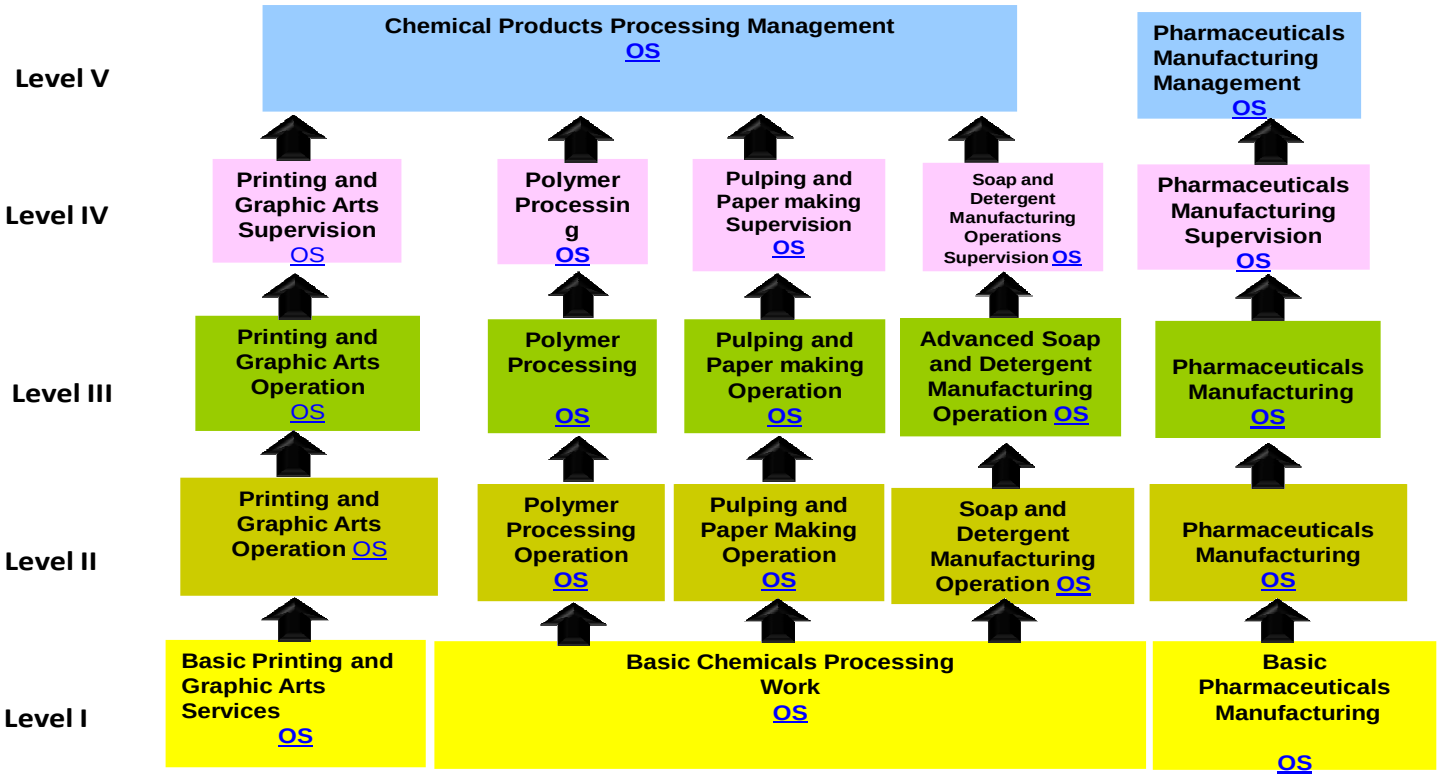
	• Layout improvement • Brainstorming • Andon • U-line • In-lining • Unification • Multi-process handling & Multi-skilled operators • A.B. control (Two point control) • Cell production line • TPM (Total Productive Maintenance)
Relevant procedures	May include but not limited to: • Make waste visible • Be conscious of the waste • Be accountable for the waste. • Measure the waste.
The ten basic principles for improvement	May include but not limited to: • Throw out all of your fixed ideas about how to do things. • Think of how the new method will work- not how it won. • Don't accept excuses. Totally deny the status quo. • Don't seek perfection. A 5o percent implementation rate is fine as long as it's done on the spot. • Correct mistakes the moment they are found. • Don't spend a lot of money on improvements. • Problems give you a chance to use your brain. • Ask "why?" at least five times until you find the ultimate cause. • Ten people's ideas are better than one person's. • Improvement knows no limits.
Visual and auditory control methods	May include but not limited to: • Red Tagging • Sign boards • Outlining • Andons • Kanban, etc.
5W and 1H	May include but not limited to: • Who • What • Where • When • Why and How

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • discuss why wastes occur in the workplace • discuss causes and effects of wastes/MUDA in the workplace • analyze the current situation of the workplace by using appropriate tools and techniques

	• identify, measure, eliminate and prevent occurrence of wastes by using appropriate tools and techniques • use 5W and 1H sheet to prevent
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Targets of customers and manufacturer/service provider • Traditional and kaizen thinking of price setting • Kaizen thinking in relation to targets of manufacturer/service provider and customer • value • The three categories of operations • the 3“MU” • waste/MUDA • wastes occur in the workplace • The 7 types of MUDA • The Benefits of identifying and eliminating waste • Causes and effects of 7 MUDA • Procedures to identify MUDA • Necessary attitude and the ten basic principles for improvement • Procedures to eliminate MUDA • Prevention of wastes • Methods of waste prevention • Definition and purpose of standardization • Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement • Methods of visual and auditory control • TPM concept and its pillars. • Relevant Occupational Health and Safety (OHS) and environment requirements • Plan and report • Method of communication
Underpinning Skills	Demonstrates skills to: • draw & analyze current situation of the work place • use measurement apparatus (stop watch, tape, etc.) • calculate volume and area • use and follow checklists to identify, measure and eliminate wastes/MUDA • identify and measure wastes/MUDA in accordance with OHS and procedures • use tools and techniques to eliminate wastes/MUDA in accordance with OHS procedure • apply 5W and 1H sheet • update and use standard procedures for completion of required operation • work with others • read and interpret documents • observe situations

	• solve problems • communicate • gather evidence by using different means • report activities and results using report formats
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Sector: Industry
Chemical Products Manufacturing



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