Australian Government

Department of Education, Employment and Workplace Relations

FPPREC320A Prepare and start up chemical recovery operations

Release: 1

FPPREC320A Prepare and start up chemical recovery operations

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to prepare and start up chemical recovery operations in the pulp and paper industry

General legislation, regulatory, licensing and certification requirements applicable to this unit are detailed in the range statement

Specific high risk (and non-high risk) load shifting licensing requirements for this unit may be applicable and are to be met separately and prior to the achievement of this unit

Application of the Unit

Application of the unit

This unit applies to operators who prepare and start up chemical recovery operations in the pulp and paper industry. This work typically involves complex integrated equipment and continuous operations

This unit generally applies to those who:

- determine production requirements for chemical recovery
- inspect and prepare systems for startup
- start up operations, and
- establish and stabilise the production and quality processes

to meet safety, quality and productivity requirements

It does not include shutting down, monitoring and controlling or troubleshooting and rectifying chemical recovery operations.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills This unit contains employability skills

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	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 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 supplies to meet production requirements are determined
	1.4. Readiness and availability of facilities to receive process product and/or by-products is confirmed
2. Inspect and prepare systems for startup	2.1. Systems are inspected and prepared for startup within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements
	2.2. Pre-startup checks are 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
	2.6. Identified faults are rectified
	2.7. Production ready status is confirmed with relevant personnel
3. Startup operations	3.1. Startup 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 startups are co-ordinated for production
	3.4. Process operation is communicated to relevant personnel
	3.5. Production startup details are recorded as required
4. Establish and stabilise the production and quality processes	4.1. Production and quality processes are established and stabilised within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements
	4.2. Chemical recovery systems are monitored and adjusted to rectify variations from specifications
	4.3. Samples are taken as required and appropriately

ELEMENT	PERFORMANCE CRITERIA
	actioned
	4.4. Product tests are verified as within specification where applicable
	4.5. System operation, production and quality data is recorded as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the skills and knowledge required for this unit.

Required skills

- Uses required forms of communication in preparing and starting up chemical recovery operations
- Reads and interprets required documentation, procedures and reports
- Confirms production ready status with team members, suppliers and customers
- Accesses, navigates and enters computer-based information
- Interprets instruments, gauges and data recording equipment
- Identifies and actions problems within level of responsibility
- Responds to faults of process flow-through systems if required
- Identifies and monitors process control points
- Maintains situational awareness in the work area
- Removes isolations
- Conducts pre-startup checks of plant and equipment including instrumentation
- Determines chemical recovery requirements (e.g. temperatures, oxidation, combustion and evaporation rates) for operation
- Conducts checks to ensure availability of incoming supplies
- Conducts checks to ensure readiness and availability of facilities to receive process product and/or by-products
- Inputs operational settings (e.g. set points) in preparation for startup in accordance with SOP
- Activates and confirms operation of chemical recovery system according to SOP
- Makes process control adjustments to stabilise production and quality
- Conducts routine maintenance checks
- Takes samples, conducts tests, interprets and records results, if required
- Uses measuring equipment as required
- Operates high risk (and non-high risk) load shifting equipment as required
- Analyses and uses sensory information to adjust process to maintain and

REQUIRED SKILLS AND KNOWLEDGE

co-ordinate safety, quality and productivity

- Uses electronic and other control systems to control equipment and processes as required

Required knowledge

- 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 startup activities within level of responsibility
- Control points of the preparation for startup procedure
- Purpose of the process controls and how the changes affect the operation's variables
- Control points of the startup 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
- Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control chemical recovery operations, within level of responsibility

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

EVIDENCE GUIDE

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence should be relevant to the work. It should satisfy the requirements of the elements and performance criteria and include consideration of:

- 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

Context of and specific resources for assessment

A workplace assessment must be used to assess:

- the application of required knowledge on the job
- the application of skills on the job, over time and under a range of typical conditions that may be experienced in chemical recovery operations

Access to the full range of equipment involved in integrated continuous manufacturing of chemical recovery operations in a pulp or paper mill is required

Method of assessment

A combination of assessment methods should be used. The following examples are appropriate for this unit:

- observation of applied skills and knowledge on the job
- workplace demonstrations via a mock-up or simulation that replicate part/s of the job
- answers to written or verbal questions about specific skills and knowledge
- third-party reports from relevant and skilled personnel
- written evidence e.g. log sheet entries, checklist entries, test results

Assessment processes and techniques must be culturally appropriate and in keeping with the language and literacy capacity of the learner and the work being performed. This includes conducting an assessment in a manner that allows thoughts to be conveyed verbally so that the learner can both understand and be understood by the assessor (e.g. use plain English and

EVIDENCE GUIDE

	terminology used on the job) A holistic assessment with other units relevant to the pulp and paper industry, mill and job role is recommended Additional information on approaches to assessment for the pulp and paper industry is provided in the Assessment Guidelines for this Training Package

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

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
Chemical recovery processes may include:	• evaporator operations • condensate stripper • lime mud treatment • Wet Air Oxidation (WAO)

RANGE STATEMENT

	• causticising plant operations • recovery boiler operations • direct alkali reduction system (DARS operations) • foul gas and condensate incineration
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
Materials and supplies may include:	• steam • compressed air • chemicals • water • power
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

RANGE STATEMENT

	• robotics
Legislation, regulatory, licensing and certification requirements 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
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
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)

RANGE STATEMENT

Actions may include:	• process adjustments • reporting to authorised person • rectifying problem within level of responsibility
Communications may include	interaction with: • team members • internal or external customers and suppliers • maintenance services • production/services co-ordinator • operational management • statutory authorities
Situational awareness may include	awareness of: • traffic • pedestrians • location of equipment • product • hazards • obstruction • unexpected movement
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

Unit Sector(s)

Not Applicable