Manufacturing

PATHWAY: Manufacturing Production Process Development

Pathway Topic: Customer Needs

Pathway KS Statement: Produce a product to satisfy customer desires.

Performance Element: Conduct in-depth investigation to identify customer needs.

Measurement Criteria: Explain the impact of the customers’ intended use of a product on every phase of the manufacturing process.

Measurement Criteria: Meet needs of both internal and external customers.

Measurement Criteria: Maintain liaison with customer contacts.

Measurement Criteria: Review, maintain, and communicate customer needs and specifications.

Measurement Criteria: Identify issues that prevent proactive handling of customer needs.

Performance Element: Verify that needed resources are available for the production process.

Measurement Criteria: Use work orders when handling raw materials, while setting up of tools and equipment, and when scheduling workers to maximize productivity.


Measurement Criteria: Identify consequences of not reporting discrepancies in production.

Performance Element: Relate workers’ skills to equipment management to set up equipment for the production process.

Measurement Criteria: Evaluate workers’ skills when setting up, programming, and operating equipment required for production.

Measurement Criteria: Make proper repairs and adjustments to equipment prior to putting into service.

Measurement Criteria: Verify that the first piece or production meets both product specifications and production capacities.

Measurement Criteria: Examine how set-up procedures are documented for repeatability.

Measurement Criteria: Identify possible consequences resulting from failure to meet production standards.

Performance Element: Use process control data to monitor fabrication of the product.

Measurement Criteria: Use process control data to indicate that the manufacturing process complies with standards.

Measurement Criteria: Make the manufacturing process cycle time meet customer and business needs.

Measurement Criteria: Identify possible consequences resulting from failure to perform operations safely.

Measurement Criteria: Verifying that the product meets customer specifications.

Measurement Criteria: Complete, maintain, and forward to proper parties product and process documentation.

Measurement Criteria: Verify that production operations comply with all health, safety, and environmental policies and procedures.
Pathway Topic: Customer Needs

Performance Element: Inspect the product to verify that it meets specifications.

**Measurement Criteria:** Verify the calibration of the testing equipment.

**Measurement Criteria:** Follow the established sampling plan and inspection policies/procedures.

**Measurement Criteria:** Predict consequences of failure to identify promptly any product and production process that do not meet specifications.

**Measurement Criteria:** Complete inspection documents accurately and forward them to proper parties.

**Measurement Criteria:** Following appropriate testing/production tools and procedures.

**Measurement Criteria:** Make adjustments needed to bring the production process back into specification.

**Measurement Criteria:** Make necessary adjustment in the manufacturing process in a timely manner.

Performance Element: Document product and process to assure formal compliance with customer requirements.

**Measurement Criteria:** Write compliance documents legibly in the appropriate format and store them in a safe, secure place.

**Measurement Criteria:** Completing compliance documentation, obtain “sign off”, and forward to the proper parties.

**Measurement Criteria:** Distinguish between products that are labeled appropriately for compliance and products that are not appropriately labeled for compliance.

Performance Element: Check for specified quantities and proper documentation to prepare a final product for shipping or distribution.

**Measurement Criteria:** Package materials to meet packaging and shipping specifications (including proper labeling).

**Measurement Criteria:** Complete package documentation and customer shipping instructions to accompany the product to the next destination.

**Measurement Criteria:** Communicate product availability to the proper parties in a timely manner.

**Measurement Criteria:** Check relevant information such as quantity, destination and packaging instructions against the work order.

**Measurement Criteria:** Verify that product is correctly stored or staged for shipping.

**Measurement Criteria:** Explain the significance of following all laws and regulations related to labeling, packaging, and transport.

**Measurement Criteria:** Verify that material handling procedures are followed to prevent product damage.

Pathway Topic: New Manufacturing Process

**Pathway KS Statement:** Implement new manufacturing process.

Performance Element: Research the new manufacturing process.

**Measurement Criteria:** Review current processes completely to determine any changes that are needed to meet customer requirements.

**Measurement Criteria:** Provide research to correct parties to confirm
Pathway Topic: New Manufacturing Process

Manufacturing manufacturability.

**Measurement Criteria:** Confirm resource requirements accurately.

**Measurement Criteria:** Review project materials and processes thoroughly to establish cost estimates.

**Measurement Criteria:** Hold customer meetings to confirm customer needs when appropriate.

**Performance Element:** Create standard operating procedures (SOPs) for new process.

**Measurement Criteria:** Identify new tooling and materials.

**Measurement Criteria:** Specify new training where required.

**Measurement Criteria:** Document new standard operating procedures according to company procedure.

**Measurement Criteria:** Make sure that correct parties review new standard operating procedures.

**Measurement Criteria:** Verify that standard operating procedures meet customer needs including cost effectiveness.

**Performance Element:** Develop new tooling and fixtures.

**Measurement Criteria:** Fabricate new tooling and fixtures according to design specifications.

**Measurement Criteria:** Properly document new tooling and fixtures development process with new material suggestions noted.

**Measurement Criteria:** Verify that new tooling and fixtures increase efficiency and cost effectiveness of the process.

**Measurement Criteria:** Verify that new tooling and fixtures result in improvement of product quality and a decrease in nonconformance.

**Performance Element:** Set up and program equipment for new processes.

**Measurement Criteria:** Verify that new equipment or process works to specification and runs efficiently.

**Measurement Criteria:** Program equipment to maximize output and quality.

**Measurement Criteria:** Make sure that equipment program is concise and understandable by others.

**Measurement Criteria:** Set up equipment or process in a timely way.

**Measurement Criteria:** Continue test runs until product specifications and efficiency levels are met.

**Measurement Criteria:** Download equipment program and store correctly.

**Performance Element:** Schedule and test new processes.

**Measurement Criteria:** Verify that schedules for testing new processes are complete and detailed.

**Measurement Criteria:** Follow standard procedures when making a testing schedule.

**Measurement Criteria:** Conduct review on the new process to determine readiness for implementation.

**Measurement Criteria:** Verify that testing is specific and done on a timely basis.

**Measurement Criteria:** Include data on usefulness and efficiency with documentation of test results.

**Measurement Criteria:** Obtain proper approvals to implement the changes in process.
Pathway Topic: New Manufacturing Process

determined by the test results.

Measurement Criteria: Use new or updated processes according to specifications.

Performance Element: Monitor production performance data for new processes.

Measurement Criteria: Use up-to-date charts and available statistics to properly document monitoring.

Measurement Criteria: Used the proper test equipment to monitor production performance.

Measurement Criteria: Perform the appropriate tests based on customer or manufacturer specifications or company policy.

Measurement Criteria: Communicate problems effectively to proper parties.

Measurement Criteria: Use proper measurements.

Performance Element: Train employees on new processes.

Measurement Criteria: Make sure that training covers appropriate material and is delivered clearly.

Measurement Criteria: Make sure that employees meet standards on newly trained skills.

Measurement Criteria: Evaluate training.

Measurement Criteria: Use evaluations to improve training.

Measurement Criteria: Verify that training records show training has been delivered.

Measurement Criteria: Use training to establish certification.

Performance Element: Prepare documentation on new processes.

Measurement Criteria: Make sure that documentation is complete, accurate, and legible.

Measurement Criteria: Use company procedures to complete documentation in a timely way.

Measurement Criteria: File documentation properly.

Measurement Criteria: Solicit input from workers to ensure that documentation is useful.

Pathway Topic: Safety

Pathway KS Statement: Maintain a safe and productive workplace.

Performance Element: Follow local, federal and company regulations to perform environmental and safety inspections.

Measurement Criteria: Identify, report and monitor potential hazards in the workplace.

Measurement Criteria: Take corrective action to correct potential hazards.

Measurement Criteria: Review health, safety, and environmental documentation and policies thoroughly and regularly.

Measurement Criteria: Ensure that inspections meet all relevant, health, safety, and environmental laws and regulations.

Measurement Criteria: Completed inspections according to company schedule and procedures.

Measurement Criteria: Document inspection records and store them correctly.

Performance Element: Participate in emergency response teams to perform emergency drills.
Pathway Topic: Safety

Measurement Criteria: Confirm that first aid training and certification on emergency and first aid procedures are complete and up-to-date.

Measurement Criteria: Comply with company and regulatory policies and procedures to respond to emergencies.

Measurement Criteria: Document emergency drills and incidents according to company and regulatory procedures promptly.

Performance Element: Identify unsafe conditions and take corrective action.

Measurement Criteria: Identify, report, and document conditions presenting a threat to health, safety, and the environment.

Measurement Criteria: Identify corrective actions.

Measurement Criteria: Consult appropriate parties about corrective actions and take corrective actions following company procedures promptly.

Measurement Criteria: Track and report ongoing safety concerns until corrective action is taken.

Performance Element: Provide safety orientation to train other employees in safe practices and emergency procedures.

Measurement Criteria: Verify that all topics and procedures are covered in orientation to facilitate employee safety.

Measurement Criteria: Observe orientation to ensure that it makes clear the need and processes for employees to raise safety concerns, ask questions, and receive additional training.

Measurement Criteria: Use company requirements to document orientation.

Measurement Criteria: Verify that orientation meets all relevant laws, policies, and regulations.

Measurement Criteria: Deliver safety instruction and updates on a regular schedule.

Pathway Topic: Quality Improvement

Pathway KS Statement: Maintain quality and implement continuous improvement processes.

Performance Element: Perform periodic internal quality audit activities.

Measurement Criteria: Complete all audit forms correctly in a timely manner.

Measurement Criteria: Forward forms to the correct parties.

Measurement Criteria: Verify that audit data is relevant and correct.

Measurement Criteria: Make sure that conformance to quality standards are properly assessed and documented.

Measurement Criteria: Include observation of operation in audit when appropriate to ensure performance meets specifications.

Measurement Criteria: Follow company and other required schedules and procedures to perform audit.

Performance Element: Check calibration of gauges and other data collection equipment.

Measurement Criteria: Follow specifications to implement calibration schedule.

Measurement Criteria: Review documents and use thorough careful observation to check instrument certification during use.

Measurement Criteria: Recalibrate instruments that are out of calibration or refer
Pathway Topic: Quality Improvement

Performance Element: Suggest continuous improvements.

**Measurement Criteria:** Use observations and data analysis to generate potential improvements.

**Measurement Criteria:** Verify that suggestions communicate measurable and data-driven benefits to the company, its customers, and employees.

**Measurement Criteria:** Use proper procedures and documentation to make suggestions.

**Measurement Criteria:** Make sure that all suggestions show that all data was reviewed prior to making recommendation.

Performance Element: Inspect materials at all stages of process to determine quality or condition.

**Measurement Criteria:** Follow schedule and procedures to complete sampling and inspection.

**Measurement Criteria:** Select and use inspection tools and procedures correctly.

**Measurement Criteria:** Inspect materials against correct specifications.

**Measurement Criteria:** Identify materials that do not meet specification correctly.

**Measurement Criteria:** Take corrective action on out-of-specification material.

**Measurement Criteria:** Document inspection results properly.

**Measurement Criteria:** Report inspection results to correct parties.

Performance Element: Document the results of quality tests.

**Measurement Criteria:** Check data forms to ensure that they are complete and accurate.

**Measurement Criteria:** Make sure that information is evaluated and interpreted correctly.

**Measurement Criteria:** Forward data to correct parties.

**Measurement Criteria:** Select and use correct analytical tools properly.

Performance Element: Make adjustments to restore or maintain quality.

**Measurement Criteria:** Make sure that appropriate corrective actions are identified and approvals received when needed.

**Measurement Criteria:** Make adjustments to eliminate deviations and bring the process back into control.

**Measurement Criteria:** Make adjustments in a timely manner.

**Measurement Criteria:** Document adjustments properly.

Pathway Topic: Communications

**Pathway KS Statement:** Communicate with co-workers and/or external customers to ensure production meets business requirements.

Performance Element: Use speaking and presentation skills to effectively communicate safety, training, and job-specific needs.

**Measurement Criteria:** Ensure that safety issues are understood and safety practices are being used.

**Measurement Criteria:** Explain the significance of on-the-job issues and concerns.
Pathway Topic: Communications

beings discussed and quickly resolved.

**Measurement Criteria:** Identify current and future training issues in a timely way.

**Measurement Criteria:** Verify that communication shows knowledge of both customer and business needs.

**Measurement Criteria:** Be clear and relevant with communications related to safety, training, and job-specific needs.

**Measurement Criteria:** Communicate in a timely and accurate manner to the correct parties.

**Measurement Criteria:** Evaluate, track, and report back safety, training, and job-specific issues to original communicator.

**Measurement Criteria:** Track and document communications related to safety, training, and job-specific needs.

**Performance Element:** Be timely and accurate in communicating material specifications and delivery schedules.

**Measurement Criteria:** Make sure that communication reflects knowledge of material specifications.

**Measurement Criteria:** Communicate delivery schedules clearly.

**Measurement Criteria:** Make sure that communication shows knowledge of both customer and business needs.

**Measurement Criteria:** Make sure that communication is clear and relevant to material and delivery issues.

**Measurement Criteria:** Communicate in a timely and accurate manner to the correct parties.

**Measurement Criteria:** Evaluate, track, and report back material and delivery issues to original communicator.

**Measurement Criteria:** Track and document material specifications and delivery schedules.

**Performance Element:** Communicate production requirements and product specifications.

**Measurement Criteria:** Make sure that communication reflects knowledge of production requirements, levels, and product specifications.

**Measurement Criteria:** Initiate communication to meet production requirements, product specifications, or other customer or business needs cross-functionally as required.

**Measurement Criteria:** Notify all parties of production issues and problems in a timely way.

**Measurement Criteria:** Make sure that communication shows knowledge of both customer and business needs.

**Measurement Criteria:** Make sure that communication to production and products is clear and relevant.

**Measurement Criteria:** Evaluate, track, and report production and product issues back to original communicator.

**Measurement Criteria:** Track and document communications related to production requirements and product specifications as appropriate.
Pathway Topic: Continuous Improvement

**Pathway KS Statement:** Suggest and/or implement continuous improvement actions.

**Performance Element:** Analyze data to identify potential problems.

**Measurement Criteria:** Apply quality tools and techniques properly to determine the source of potential quality problems.

**Measurement Criteria:** Continuously reassess process capability.

**Measurement Criteria:** Validate process and product measurement systems.

**Measurement Criteria:** Adjust process and product measurement systems as required.

**Measurement Criteria:** Report quality data to appropriate parties in a timely manner.

**Performance Element:** Monitor process capability.

**Measurement Criteria:** Make sure processes meet manufacturer and other quality specifications.

**Measurement Criteria:** Make sure processes meet company or customer capability requirements.

**Measurement Criteria:** Make sure that process meets on-time delivery needs of the customer.

**Measurement Criteria:** Report analyzed process capability data according to procedures.

**Measurement Criteria:** Use results of capability studies to adjust product or process.

**Measurement Criteria:** Distribute results of capability studies to appropriate parties.

**Performance Element:** Monitor customer satisfaction.

**Measurement Criteria:** Use appropriate data to measure customer satisfaction.

**Measurement Criteria:** Implement surveys and other customer data techniques in a timely manner.

**Measurement Criteria:** Report returned goods to appropriate parties for review.

**Measurement Criteria:** Include vendor certifications with customer documentation.

**Measurement Criteria:** Document on-time delivery data appropriately.

**Measurement Criteria:** Review field failure and product life data in a timely manner.

**Performance Element:** Measure and record product and process outcomes.

**Measurement Criteria:** Use proper format to record product and process outcomes within the specified timeframe.

**Measurement Criteria:** Use appropriate quality analysis and statistical techniques to analyze performance.

**Measurement Criteria:** Report outcomes to all appropriate parties.

**Performance Element:** Participate in making new work procedures.

**Measurement Criteria:** Translate recommendations for continuous improvement into new work instructions.

**Measurement Criteria:** Publish work instructions in appropriate format.

**Measurement Criteria:** Distribute work instruction according to standard procedures.

**Measurement Criteria:** Discuss new work procedures or instructions with all stakeholders to ensure support for improvements.

**Performance Element:** Implement approved recommendations.

**Measurement Criteria:** Make recommendations for continuous improvement that are
Pathway Topic: Continuous Improvement

Clear, concise, and based on data trends and patterns.

**Measurement Criteria:** Make recommendations in such a way that draws support for process improvement.

**Measurement Criteria:** Verify that all stakeholders understand their role in process improvement changes.

**Measurement Criteria:** Document accepted process improvements before translating into revised work processes and procedures.

**Performance Element:** Check that final product meets customer and business needs.

**Measurement Criteria:** Verify that final test results meet customer requirements.

**Measurement Criteria:** Produce product within company time and cost parameters.

**Measurement Criteria:** Take action to minimize negative customer feedback on quality issues.

Pathway Topic: New Product Development

**Pathway KS Statement:** Produce new product to meet customer needs.

**Performance Element:** Conduct research for new products.

**Measurement Criteria:** Document research and test results properly.

**Measurement Criteria:** Complete testing, including trial runs, on new products and services.

**Measurement Criteria:** Use research to modify production processes as appropriate.

**Measurement Criteria:** Provide research on new products to the customer for approval before producing new product.

**Performance Element:** Obtain required supplies.

**Measurement Criteria:** Make correct supplies available at workstation.

**Measurement Criteria:** Communicate inventory shortages and defects effectively to correct parties.

**Measurement Criteria:** Check supplies against work order.

**Measurement Criteria:** Review supply records and history completely.

**Performance Element:** Execute process to produce new product.

**Measurement Criteria:** Follow standard operating procedures.

**Measurement Criteria:** Meet production timeline.

**Measurement Criteria:** Continually check product for quality.

**Measurement Criteria:** Analyze production sequence for capability and efficiency.

**Measurement Criteria:** Perform production sequence safely.

**Measurement Criteria:** Deliver product that meets specification to next production station in a timely way.

**Performance Element:** Inspect product for deviations from specifications.

**Measurement Criteria:** Evaluate product quality against specifications.

**Measurement Criteria:** Communicate deviations from specifications effectively to correct parties.

**Measurement Criteria:** Handle out-of-specification products properly according to company procedures.

**Measurement Criteria:** Document inspections properly according to company procedures.
Manufacturing

Pathway Topic: New Product Development

**Measurement Criteria:** Conduct inspections continuously.

**Performance Element:** Evaluate prototypes for manufacturability.

**Measurement Criteria:** Pilot test prototype for manufacturability thoroughly.

**Measurement Criteria:** Check manufacturing plans for the prototype against existing resources.

**Measurement Criteria:** Communicate results of the evaluation effectively to correct parties in a timely way.

**Measurement Criteria:** Document evaluation properly according to company procedures.

**Measurement Criteria:** Solicit feedback from operators and accurately document it.

**Measurement Criteria:** Verify that resulting product meets customer requirements and specifications.

**Performance Element:** Solve production process problems.

**Measurement Criteria:** Document problems and suggested solutions properly.

**Measurement Criteria:** Communicate problems and solutions effectively to the correct parties.

**Measurement Criteria:** Solve problems with minimum downtime.

**Measurement Criteria:** Minimize negative impact on other workstations and the overall process while solving problems.

**Measurement Criteria:** Implement approved solutions efficiently and effectively.

**Performance Element:** Deliver finished product to next stage in production process.

**Measurement Criteria:** Deliver product according to schedule and customer delivery timelines.

**Measurement Criteria:** Include complete shipping records and documentation with the product.

**Measurement Criteria:** Notify customers of product status properly.

**Measurement Criteria:** Label package properly.

Pathway Topic: Production Process

**Pathway KS Statement:** Improve production processes.

**Performance Element:** Conduct research for new products.

**Measurement Criteria:** Collect all relevant data for the audit in a timely way.

**Measurement Criteria:** Use past production data and current production goals to evaluate audit data.

**Measurement Criteria:** Perform audits according to the proper schedule.

**Measurement Criteria:** Communicate discrepancies to the proper parties in a timely way.

**Measurement Criteria:** Make sure that audit report is complete including all supporting data and analyses.

**Measurement Criteria:** Submit audit report according to company procedure.

**Measurement Criteria:** Verify that problems are identified because audit results are used in a timely way.

**Performance Element:** Propose changes to improve products and processes.

**Measurement Criteria:** Make suggestions for improvement in a timely way.
Pathway Topic: Production Process

Measurement Criteria: Verify that product quality improves.
Measurement Criteria: Verify that production time decreases.
Measurement Criteria: Follow-up on proposals containing supporting materials for justifications with correct parties.
Measurement Criteria: Use company procedures to make proposals.
Measurement Criteria: Evaluate suggestions for effectiveness.
Measurement Criteria: Verify that suggestions meet quality and safety standards.
Measurement Criteria: Implement proposed changes.

Performance Element: Develop production improvement goals.

Measurement Criteria: Set realistic and attainable goals.
Measurement Criteria: Make sure that goals meet technical standards.
Measurement Criteria: Write goals that are specific, simple, understandable, and measurable.
Measurement Criteria: Verify that goals are consistent with business objectives.
Measurement Criteria: Document goals properly according to company procedures.
Measurement Criteria: Communicate goals to correct parties in a timely way.

Performance Element: Inspect product for deviations from customer and product standard(s).

Measurement Criteria: Compare product to the correct customer and company standards.
Measurement Criteria: Perform inspections according to company procedures in a timely way.
Measurement Criteria: Verify that inspections completely and accurately identify deviation from specifications.
Measurement Criteria: Document inspections properly according to customer specifications and company procedures.
Measurement Criteria: Conduct inspections continuously to ensure that standards are maintained throughout the process.
Measurement Criteria: Handle out-of-compliance product correctly according to company procedure.

Performance Element: Correct product or process problems.

Measurement Criteria: Make corrections according to company procedures.
Measurement Criteria: Identify underlying or root cause of problem.
Measurement Criteria: Address underlying or root cause of problem.
Measurement Criteria: Test corrective actions to determine if the problem is solved.
Measurement Criteria: Document problems and corrections properly.
Measurement Criteria: Communicate problems and corrections effectively to correct parties.
Measurement Criteria: Handle out-of-compliance product correctly according to company procedure.
Measurement Criteria: Perform any rework or remediation needed to bring product into specifications in a timely way.
Manufacturing

PATHWAY: Production

Pathway Topic: Quality Process

Pathway KS Statement: Correct processes to assure that products meet quality standards.

Performance Element: Communicate quality problems.

Measurement Criteria: Review quality problems with production operators.
Measurement Criteria: Communicate quality problems promptly to appropriate parties.
Measurement Criteria: Use established processes to document quality problems.
Measurement Criteria: Summarize defect trends and report them to appropriate parties.

Performance Element: Suggest or perform corrective actions to correct quality problems.

Measurement Criteria: Make minor quality issues or adjustments immediately.
Measurement Criteria: Document quality issues or adjustments properly.
Measurement Criteria: Make sure that recommendations for action are clear and concise, and supported by data.
Measurement Criteria: Make recommendations in a timely way to appropriate parties.
Measurement Criteria: Indicate that follow-up activities indicate that corrective action was taken.
Measurement Criteria: Document product quality following corrective action.

Performance Element: Determine appropriate action for sub-standard product.

Measurement Criteria: Execute quality control procedures to catch sub-standard products promptly within the defined quality systems.
Measurement Criteria: Distribute documentation required for customers to appropriate parties.

Performance Element: Record process outcomes and trends to identify trends and recognize needs.

Measurement Criteria: Maintain records on quality process to appropriate standards.
Measurement Criteria: Chart outcomes of quality processes according to appropriate methods and standards.
Measurement Criteria: Check data on quality processes for accuracy.
Measurement Criteria: Analyze quality process performance data to identify trends.
Measurement Criteria: Report quality process performance data to appropriate parties in a timely way.

Performance Element: Identify and report performance and training issues to assess their affect on quality.

Measurement Criteria: Identify performance and training issues related to quality in a timely manner.
Measurement Criteria: Take corrective action for quality issues impacting the health or safety of workers.
Pathway Topic: Quality Process

Performance Element: Implement closed-loop corrective action to provide for ongoing production feedback.

*Measurement Criteria:* Document evidence of corrective action in a timely manner.
*Measurement Criteria:* Report change resulting from the corrective action to appropriate parties in the correct format.
*Measurement Criteria:* Use spot checks to verify implementation of the corrective action.
*Measurement Criteria:* Store reports properly for the required amount of time.
*Measurement Criteria:* Perform ongoing audits to optimize the outcomes of the corrective actions.
*Measurement Criteria:* Examine previous documentation on similar process issues to identify possible solutions.

Pathway Topic: Maintenance

*Pathway KS Statement:* Maintain equipment, tools and workstations.

Performance Element: Contact proper people and assure supplies are available to perform preventive maintenance and routine repair.

*Measurement Criteria:* Verify that preventive maintenance schedule is in place and checked as appropriate.
*Measurement Criteria:* Verify that preventive maintenance is performed to schedule and documented completely in a timely manner.
*Measurement Criteria:* Use the right procedures and forms to communicate repair needs to the correct parties.
*Measurement Criteria:* Verify that necessary repair work is checked through follow-up.
*Measurement Criteria:* Have necessary supplies available to perform preventive maintenance.
*Measurement Criteria:* Predict the results of failing to effectively communicate the preventive maintenance schedule, documentation, equipment needs, and outstanding repairs from shift-to-shift, to team members, to managers, and to others as required.
*Measurement Criteria:* Follow all safety regulations when doing repairs.

Performance Element: Monitor equipment indicators to ensure it is operating correctly.

*Measurement Criteria:* Compare equipment performance to optimal equipment operations on a regular schedule.
*Measurement Criteria:* Investigate and correct abnormal equipment conditions in a timely manner.
*Measurement Criteria:* Monitored equipment to ensure that the corrective action solved the problem.
*Measurement Criteria:* Keep documentation of equipment repair history complete, up-to-date, and accurate.

Performance Element: Provide documented training to assure maintenance activities meet company regulations.

*Measurement Criteria:* Conduct training in an effective and appropriate manner.
*Measurement Criteria:* Make documented preventive maintenance training materials
Pathway Topic: Maintenance

Measurement Criteria: Keep training records updated and readily available.
Measurement Criteria: Examine the relevancy of training for use of equipment, tools, materials, and processes at the workstation continuously.
Measurement Criteria: Provide cross-training when appropriate.
Measurement Criteria: Verify that training and training documentation meet all company and regulatory requirements.

Performance Element: Perform daily housekeeping to maintain production schedules and provide a safe working environment.

Measurement Criteria: Store tools and materials safely in proper locations.
Measurement Criteria: Identify and report unsafe conditions promptly.
Measurement Criteria: Take corrective action to correct unsafe conditions.
Measurement Criteria: Keep workstations clean and clear of safety hazards.
Measurement Criteria: Verify that scheduled housekeeping inspections are passed.
Measurement Criteria: Organize workstations to maximize efficiency.
Measurement Criteria: Verify that safety equipment is present and in proper working order.

Pathway Topic: Safety

Pathway KS Statement: Maintain a safe and productive workplace.

Performance Element: Follow local, federal and company regulations to perform environmental and safety inspections.

Measurement Criteria: Identify, report and monitor potential hazards in the workplace.
Measurement Criteria: Take corrective action to correct potential hazards.
Measurement Criteria: Review health, safety, and environmental documentation and policies thoroughly and regularly.
Measurement Criteria: Ensure that inspections meet all relevant, health, safety, and environmental laws and regulations.
Measurement Criteria: Completed inspections according to company schedule and procedures.
Measurement Criteria: Document inspection records and store them correctly.

Performance Element: Participate in emergency response teams to perform emergency drills.

Measurement Criteria: Confirm that first aid training and certification on emergency and first aid procedures are complete and up-to-date.
Measurement Criteria: Comply with company and regulatory policies and procedures to respond to emergencies.
Measurement Criteria: Document emergency drills and incidents according to company and regulatory procedures promptly.

Performance Element: Identify unsafe conditions and take corrective action.

Measurement Criteria: Identify, report, and document conditions presenting a threat to health, safety, and the environment.
Measurement Criteria: Identify corrective actions.
Measurement Criteria: Consult appropriate parties about corrective actions and take corrective actions following company procedures promptly.
Pathway Topic: Safety

Measurement Criteria: Track and report ongoing safety concerns until corrective action is taken.

Performance Element: Provide safety orientation to train other employees in safe practices and emergency procedures.

Measurement Criteria:
- Verify that all topics and procedures are covered in orientation to facilitate employee safety.
- Observe orientation to ensure that it makes clear the need and processes for employees to raise safety concerns, ask questions, and receive additional training.
- Use company requirements to document orientation.
- Verify that orientation meets all relevant laws, policies, and regulations.
- Deliver safety instruction and updates on a regular schedule.

Pathway Topic: Quality Improvement

Pathway KS Statement: Employ audits and inspections to maintain quality and continuous improvement processes.

Performance Element: Use company audit procedures to perform periodic internal quality audits.

Measurement Criteria:
- Perform audits in accordance with company and other required schedules and procedures.
- Complete all audit forms correctly in a timely manner and forward to the correct parties.
- Verify that audit data that is relevant and correct.
- Verify that conformances to quality standards are properly assessed and documented.
- Include observation of operations to ensure performances meet specifications when appropriate.

Performance Element: Check calibration of gauges and other data collection equipment.

Measurement Criteria:
- Implement calibration schedule according to specifications.
- Make thorough careful observations and review documentation to check instrument certification.
- Recalibrate out-of-caliber instruments immediately or refer them to the appropriate parties for recalibration or repairs.

Performance Element: Suggest improvements to accomplish continuous improvement.

Measurement Criteria:
- Use observation and data analysis to generate potential improvements.
- Communicate suggestions that are measurable and have data-driven benefits to the company, its customers, and employees.
- Use proper procedures and documentation to make suggestions.
- Assure that all data is reviewed prior to making suggestions.

Performance Element: Inspect materials at all states of process to determine quality
Pathway Topic: Quality Improvement

Measurement Criteria: Sample and inspect in accordance with the schedule and procedures.

Measurement Criteria: Select correct inspection tools and procedures and use them correctly.

Measurement Criteria: Inspect materials against correct specifications.

Measurement Criteria: Identify materials not meeting specifications correctly.

Measurement Criteria: Take corrective action on out-of specification material.

Measurement Criteria: Document inspection results properly and report them to the correct parties in a timely manner.

Performance Element: Use reliable data to document the results of quality testing.

Measurement Criteria: Check data forms for completeness and accuracy.

Measurement Criteria: Evaluate and interpret information correctly.

Measurement Criteria: Forward data to correct parties.

Measurement Criteria: Select and use the correct analytical tools properly.

Performance Element: Make adjustments to restore or maintain quality.

Measurement Criteria: Identify appropriate correction actions and make sure that approvals are received when needed.

Measurement Criteria: Make adjustments to eliminate deviations and bring the process back into control.

Measurement Criteria: Make adjustments and document them in a timely manner.

Pathway Topic: Communications

Pathway KS Statement: Communicate with co-workers and/or external customers to ensure production meets business requirements.

Performance Element: Use speaking and presentation skills to effectively communicate safety, training, and job-specific needs.

Measurement Criteria: Ensure that safety issues are understood and safety practices are being used.

Measurement Criteria: Explain the significance of on-the-job issues and concerns being discussed and quickly resolved.

Measurement Criteria: Identify current and future training issues in a timely way.

Measurement Criteria: Verify that communication shows knowledge of both customer and business needs.

Measurement Criteria: Be clear and relevant with communications related to safety, training, and job-specific needs.

Measurement Criteria: Communicate in a timely and accurate manner to the correct parties.

Measurement Criteria: Evaluate, track, and report back safety, training, and job-specific issues to original communicator.

Measurement Criteria: Track and document communications related to safety, training, and job-specific needs.

Performance Element: Be timely and accurate in communicating material specifications and delivery schedules.

Measurement Criteria:
Pathway Topic: Communications

Make sure that communication reflects knowledge of material specifications.

**Measurement Criteria:** Communicate delivery schedules clearly.

**Measurement Criteria:** Make sure that communication shows knowledge of both customer and business needs.

**Measurement Criteria:** Make sure that communication is clear and relevant to material and delivery issues.

**Measurement Criteria:** Communicate in a timely and accurate manner to the correct parties.

**Measurement Criteria:** Evaluate, track, and report back material and delivery issues to original communicator.

**Measurement Criteria:** Track and document material specifications and delivery schedules.

Performance Element: Communicate production requirements and product specifications.

**Measurement Criteria:** Make sure that communication reflects knowledge of production requirements, levels, and product specifications.

**Measurement Criteria:** Initiate communication to meet production requirements, product specifications, or other customer or business needs cross-functionally as required.

**Measurement Criteria:** Notify all parties of production issues and problems in a timely way.

**Measurement Criteria:** Make sure that communication shows knowledge of both customer and business needs.

**Measurement Criteria:** Make sure that communication to production and products is clear and relevant.

**Measurement Criteria:** Evaluate, track, and report production and product issues back to original communicator.

**Measurement Criteria:** Track and document communications related to production requirements and product specifications as appropriate.

Pathway Topic: Work Teams

**Pathway KS Statement:** Coordinate work teams to produce product.

Performance Element: Provide training to other employees.

**Measurement Criteria:** Provide cross training as appropriate.

**Measurement Criteria:** Assess training needs on a regular basis.

**Measurement Criteria:** Identify new requirements and training issues.

**Measurement Criteria:** Use varied approaches to achieve training goals.

**Measurement Criteria:** Document training outcomes.

Performance Element: Set team goals to enhance performance.

**Measurement Criteria:** Make goals specific, measurable, and achievable.

**Measurement Criteria:** Align team goals to customer and business needs.

**Measurement Criteria:** Focus team goals to meet team objectives.

**Measurement Criteria:** Document team goals and share information with all parties.

Performance Element: Make job assignments to avail the use of the best personnel in
Pathway Topic: Work Teams

Key assignments.

**Measurement Criteria:** Make job assignments to match the skills needed for the work to be done and to maximize the use of available skills.

**Measurement Criteria:** Make job assignments to ensure that business and customer needs are met.

**Measurement Criteria:** Confirm that workers are notified of assignments effectively.

Performance Element: Coordinate workflow with team members and other work groups.

**Measurement Criteria:** Make sure that production schedules are met effectively.

**Measurement Criteria:** Notify team members of schedule requirements in a timely way.

**Measurement Criteria:** Make sure that maintenance workers obtain certification to train others in technical skills and knowledge where applicable.

**Measurement Criteria:** Take necessary action to minimize downtime.

**Measurement Criteria:** Explain the significance of relationships with others in facilitating workflow.

**Measurement Criteria:** Make sure trainees have the correct tools to do the job during training.

**Measurement Criteria:** Conduct post-training evaluation to assure that workers can operate equipment safely.

**Measurement Criteria:** Use training and facilitation techniques appropriate for the audience.

**Measurement Criteria:** Document the quality and effectiveness of training appropriately.

**Performance Element:** Suggest processes and procedures to support safety and effectiveness in the work environment.

**Measurement Criteria:** Consult health and safety representatives to develop suggestions.

**Measurement Criteria:** Solicit operator feedback for use in creating a safer, more effective work environment.

Pathway Topic: Equipment Safety

**Pathway KS Statement:** Ensure that equipment is being used safely in the workplace.

**Performance Element:** Train others to use equipment safely.

**Measurement Criteria:** Give new operators a complete orientation of equipment.

**Measurement Criteria:** Make sure that all important information regarding equipment safety is communicated clearly and effectively.

**Measurement Criteria:** Make sure that maintenance workers obtain certification to train others in technical skills and knowledge where applicable.

**Measurement Criteria:** Make suggestions regarding training materials and content to appropriate parties.

**Measurement Criteria:** Use evaluations and feedback to improve training materials and methods.

**Measurement Criteria:** Make sure trainees have the correct tools to do the job during training.

**Measurement Criteria:** Conduct post-training evaluation to assure that workers can operate equipment safely.

**Measurement Criteria:** Use training and facilitation techniques appropriate for the audience.

**Measurement Criteria:** Document the quality and effectiveness of training appropriately.

**Performance Element:** Suggest processes and procedures to support safety and effectiveness in the work environment.

**Measurement Criteria:** Consult health and safety representatives to develop suggestions.

**Measurement Criteria:** Solicit operator feedback for use in creating a safer, more effective work environment.
Pathway Topic: Equipment Safety

Measurement Criteria: Make sure suggestions for training improvement are documented and sent to the appropriate parties.

Measurement Criteria: Make sure that content of suggestions addresses safety, quality, and productivity issues.

Performance Element: Fulfill safety and health requirements for maintenance, installation, and repair.

Measurement Criteria: Make regular safety communications to all employees.

Measurement Criteria: Review job safety analyses regularly according to company policy.

Measurement Criteria: Follow hazardous materials procedures and policies such as Material Safety Data Sheet and “right to know” accurately.

Measurement Criteria: Perform environmental testing of workplace on a regular basis as required by company policy or regulation.

Measurement Criteria: Audit equipment to ensure there are no by-passes of safety guards.

Measurement Criteria: Verify that regulatory and company safety procedures are followed including lock-out & tag-out, confined space, and ergonomics.

Measurement Criteria: Follow good housekeeping procedures.

Measurement Criteria: Verify that safety and personal protective equipment is available, performs correctly, and has current certification.

Performance Element: Monitor equipment and operator performance to assure workplace safety and compliance with both company and national regulations.

Measurement Criteria: Perform monitoring responsibilities regularly.

Measurement Criteria: Report out-of-compliance or unsafe conditions immediately.

Measurement Criteria: Take corrective action on out-of-compliance or unsafe conditions.

Measurement Criteria: Check equipment to ensure it is operating according to specifications.

Measurement Criteria: Check tools for compliance with specifications.

Measurement Criteria: Forward accident and injury data to appropriate personnel for inclusion in OSHA recordables.

Measurement Criteria: Gather information on equipment use from operators to reveal existing or potential problems.

Measurement Criteria: Adjust equipment and processes as required.

Measurement Criteria: Document all monitoring data accurately.

Pathway Topic: Customer Needs

Pathway KS Statement: Produce a product to satisfy customer desires.

Performance Element: Conduct in-depth investigation to identify customer needs.

Measurement Criteria: Meet those needs that differ between internal and external customers as well as those that both share.

Measurement Criteria: Maintain contact with customer about the product aspects and its specifications to ensure thorough understanding of needs.

Measurement Criteria: Review, maintain, and communicate customer needs and
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Pathway Topic: Customer Needs

specifications.

**Measurement Criteria:** Address issues preventing customer needs from being met proactively.

Performance Element: Verify that needed resources are available for the production process.

**Measurement Criteria:** Use work orders when handling raw materials, while setting up of tools and equipment, and when scheduling workers to maximize productivity.

**Measurement Criteria:** Report any discrepancies related to raw materials, tools/equipment, and workers abilities/availability properly.

**Measurement Criteria:** Identify consequences of not reporting discrepancies in production.

Performance Element: Set up equipment for the production process.

**Measurement Criteria:** Make proper repairs and adjustments to equipment prior to putting into service.

**Measurement Criteria:** Verify that set-up meets process specifications of both internal and external customers.

**Measurement Criteria:** Verify that the first piece or production meets both product specifications and production capacities.

**Measurement Criteria:** Document set-up procedures to ensure repeatability.

**Measurement Criteria:** Identify possible consequences resulting from failure to meet ergonomic and other relevant health, safety, and environmental standards.

Performance Element: Use process control data to monitor fabrication of the product.

**Measurement Criteria:** 1. Use process control data to indicate that the manufacturing process complies with standards.

**Measurement Criteria:** 2. Make the manufacturing process cycle time meet customer and business needs.

**Measurement Criteria:** 3. Identify possible consequences resulting from failure to perform operations safely.

**Measurement Criteria:** 4. Verify that the product meets customer specifications.

**Measurement Criteria:** 5. Complete, maintain, and forward product and process documentation to proper parties.

**Measurement Criteria:** 6. Verify that production operations comply with all health, safety, and environmental policies and procedures.

Performance Element: Inspect the product to verify that it meets specifications.

**Measurement Criteria:** Verify the calibration of the testing equipment.

**Measurement Criteria:** Follow the established sampling plan and inspection policies/procedures.

**Measurement Criteria:** Identify product and production process that do not meet specifications promptly.

**Measurement Criteria:** Complete inspection documents accurately and forward them to proper parties.

**Measurement Criteria:** Follow appropriate testing/production tools and procedures.

**Measurement Criteria:** Identify and communicate adjustments needed to bring the
Pathway Topic: Customer Needs

Production process back into specification.

**Measurement Criteria:** Make necessary adjustment in the manufacturing process in a timely manner.

Performance Element: Document product and process to assure formal compliance with customer requirements.

**Measurement Criteria:** Write compliance documents legibly in the appropriate format and store them in a safe, secure place.

**Measurement Criteria:** Complete compliance documentation, obtain “sign off,” and forward to the proper parties.

**Measurement Criteria:** Label products for compliance and non-compliance appropriately.

Performance Element: Check for specified quantities and proper documentation to prepare a final product for shipping or distribution.

**Measurement Criteria:** Package materials to meet packaging and shipping specifications (including proper labeling).

**Measurement Criteria:** Complete package documentation and customer shipping instructions to accompany the product to the next destination.

**Measurement Criteria:** Communicate product availability to the proper parties in a timely manner.

**Measurement Criteria:** Check relevant information such as quantity, destination and packaging instructions against the work order.

**Measurement Criteria:** Verify that product is correctly stored or staged for shipping.

**Measurement Criteria:** Explain the significance of following all laws and regulations related to labeling, packaging, and transport.

**Measurement Criteria:** Verify that material handling procedures are followed to prevent product damage.
Manufacturing

PATHWAY:  Maintenance, Installation & Repair

Pathway Topic:  Safety

Pathway KS Statement:  Maintain a safe and productive workplace.

Performance Element:  Follow local, federal and company regulations to perform environmental and safety inspections.

Measurement Criteria:  Identify, report and monitor potential hazards in the workplace.

Measurement Criteria:  Take corrective action to correct potential hazards.

Measurement Criteria:  Review health, safety, and environmental documentation and policies thoroughly and regularly.

Measurement Criteria:  Ensure that inspections meet all relevant, health, safety, and environmental laws and regulations.

Measurement Criteria:  Completed inspections according to company schedule and procedures.

Measurement Criteria:  Document inspection records and store them correctly.

Performance Element:  Participate in emergency response teams to perform emergency drills.

Measurement Criteria:  Confirm that first aid training and certification on emergency and first aid procedures are complete and up-to-date.

Measurement Criteria:  Comply with company and regulatory policies and procedures to respond to emergencies.

Measurement Criteria:  Document emergency drills and incidents according to company and regulatory procedures promptly.

Performance Element:  Identify unsafe conditions and take corrective action.

Measurement Criteria:  Identify, report, and document conditions presenting a threat to health, safety, and the environment.

Measurement Criteria:  Identify corrective actions.

Measurement Criteria:  Consult appropriate parties about corrective actions and take corrective actions following company procedures promptly.

Measurement Criteria:  Track and report ongoing safety concerns until corrective action is taken.

Performance Element:  Provide safety orientation to train other employees in safe practices and emergency procedures.

Measurement Criteria:  Verify that all topics and procedures are covered in orientation to facilitate employee safety.

Measurement Criteria:  Observe orientation to ensure that it makes clear the need and processes for employees to raise safety concerns, ask questions, and receive additional training.

Measurement Criteria:  Use company requirements to document orientation.

Measurement Criteria:  Verify that orientation meets all relevant laws, policies, and regulations.

Measurement Criteria:  Deliver safety instruction and updates on a regular schedule.

Pathway Topic:  Communication

Pathway KS Statement:  Communicate with others to ensure that maintenance and repairs meet business needs.

Performance Element:  Educate others about benefits of predictive and preventive
Pathway Topic: Communication

**Measurement Criteria:** Use various techniques to clearly communicate the goals and benefits of predictive and preventive maintenance.

**Measurement Criteria:** Include information on operator responsibility for predictive and preventive maintenance in education activities.

**Measurement Criteria:** Follow company procedures for providing education regularly.

**Measurement Criteria:** Make sure that education of production schedulers and managers promotes their understanding of the priorities and benefits of predictive and preventive maintenance.

Performance Element: Consult with others to set repair and maintenance priorities and schedule.

**Measurement Criteria:** Make sure all parties agree on priorities, scheduling conflicts, and task associated with repair and maintenance prior to shutdown.

**Measurement Criteria:** Resolve repair and maintenance scheduling conflicts with all appropriate parties.

**Measurement Criteria:** Use project management tools and feedback where applicable.

**Measurement Criteria:** Accurately take staffing requirements into account.

**Measurement Criteria:** Solicit operator input and consider it appropriately.

**Measurement Criteria:** Give operators appropriate lead-time when notifying them that maintenance is scheduled.

**Measurement Criteria:** Respond to reports of critical problems in a timely way.

Performance Element: Communicate maintenance and repair resource needs.

**Measurement Criteria:** Hold a meeting with stakeholders to determine the timetable, roles, parts, and equipment needs during the pre-planning process.

**Measurement Criteria:** Place resource requests with the appropriate parties.

**Measurement Criteria:** Coordinate with other departments to ensure all resources are on hand, access to equipment is available a needed, and disruptions to the production line are minimized.

Performance Element: Prepare maintenance and repair logs for shift-to-shift communication.

**Measurement Criteria:** Complete documentation in a timely way.

**Measurement Criteria:** Clearly communicate all important information to the next shift.

**Measurement Criteria:** Submit repair report and preventive maintenance reschedule on time.

**Measurement Criteria:** Make documentation accessible to all appropriate parties.

**Measurement Criteria:** Clearly communicate status reports from shift-to-shift.

Performance Element: Suggest ways to prevent future equipment malfunctions.

**Measurement Criteria:** Make suggestions to appropriate parties.

**Measurement Criteria:** Make suggestions based on appropriate and accurate data or observations made during repairs.

**Measurement Criteria:** Document suggestions properly and include all supportive
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Pathway Topic: Communication

- **Measurement Criteria:** Submit suggestions for improvements accurately and on time.
- **Measurement Criteria:** Notify proper authorities fast enough to permit them to correct an urgent problem.

Pathway Topic: Hands-On Knowledge

Pathway KS Statement: Maintain hands-on knowledge of equipment operation to identify maintenance needs.

- **Performance Element:** Observe equipment operation during normal operating cycle to identify potential problems.
- **Measurement Criteria:** Perform observations of equipment regularly.
- **Measurement Criteria:** Report all unusual behaviors or unsafe conditions immediately to appropriate personnel.
- **Measurement Criteria:** Document all aspects of equipment operations.
- **Measurement Criteria:** Make sure that all safety requirements are in place during observations.
- **Measurement Criteria:** Observe equipment and process operations a number of times for consistency.
- **Measurement Criteria:** Analyze equipment and process data regularly.

- **Performance Element:** Maintain up-to-date knowledge of all documentation related to equipment.
- **Measurement Criteria:** Make all relevant materials easily available.
- **Measurement Criteria:** Use machine identifiers, equipment lists, and process data to locate relevant information.
- **Measurement Criteria:** Use all relevant databases in a timely manner.
- **Measurement Criteria:** Pull information relevant and specific to the requirements of the work to be performed from documents quickly.
- **Measurement Criteria:** Discuss interpretations and questions on materials, specifications, and diagnostics.

- **Performance Element:** Maintain information about equipment use and reliability.
- **Measurement Criteria:** Accurately maintain data on equipment life.
- **Measurement Criteria:** Keep document up-to-date.
- **Measurement Criteria:** Accurately document tool change data.
- **Measurement Criteria:** Make contact information on tool vendor is readily available.
- **Measurement Criteria:** Gather information to identify the proper tool for maintenance and repair tasks.

- **Performance Element:** Maintain all relevant equipment operation and repair certifications.
- **Measurement Criteria:** Properly plan certifications and schedule them in advance.
- **Measurement Criteria:** Make sure that only qualified personnel perform certifications.
- **Measurement Criteria:** Document certifications properly and report them to the correct parties.
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Pathway Topic: Hands-On Knowledge

- **Measurement Criteria:** Keep records current and accurate.
- **Measurement Criteria:** Verify that level of detail of certification documentation is appropriate.
- **Measurement Criteria:** Forward information related to tool and equipment obsolescence to certify the repair, rebuild, or replacement.

Performance Element: **Maintain personal certification and licensure.**
- **Measurement Criteria:** Make sure that certifications are performed by the appropriate parties as required.
- **Measurement Criteria:** Update certifications as appropriate.
- **Measurement Criteria:** Communicate new requirements appropriately.
- **Measurement Criteria:** Identify training requirements needed for certifications.
- **Measurement Criteria:** Obtain all necessary training.

Pathway Topic: Equipment Safety

Pathway KS Statement: **Ensure that equipment is being used safely in the workplace.**

Performance Element: **Train others to use equipment safely.**
- **Measurement Criteria:** Give new operators a complete orientation of equipment.
- **Measurement Criteria:** Communicate clearly and effectively all important information regarding equipment safety.
- **Measurement Criteria:** Help maintenance workers obtaining certification to train others in technical skills and knowledge.
- **Measurement Criteria:** Suggest training materials and content to appropriate parties.
- **Measurement Criteria:** Use evaluation and feedback to improve training materials and methods.
- **Measurement Criteria:** Make sure trainees have the correct tools to do the job during training.
- **Measurement Criteria:** Conduct post-training evaluation to assure that workers can operate equipment safely.
- **Measurement Criteria:** Verify that training and facilitation techniques are appropriate for the audience.
- **Measurement Criteria:** Assure that quality and effectiveness of training are documented appropriately.

Performance Element: **Suggest processes and procedures to support safety and effectiveness in the work environment.**
- **Measurement Criteria:** Consult health and safety representatives for suggestions.
- **Measurement Criteria:** Solicit operator feedback to evaluate training and create a safer, more effective work environment.
- **Measurement Criteria:** Make sure suggestions for training improvement are documented and sent to the appropriate parties.
- **Measurement Criteria:** Make suggestions that address safety, quality and productivity issues.

Performance Element: **Examine all parameters of the workplace to fulfill safety and**
Pathway Topic: Equipment Safety

health requirements for maintenance, installation, and repair.

**Measurement Criteria:** Make regular safety communications to all employees.

**Measurement Criteria:** Review job safety analyses regularly according to company policy.

**Measurement Criteria:** Explain the ramifications of failure to accurately follow hazardous materials procedures and policies such as Material Safety Data Sheet and “right to know”.

**Measurement Criteria:** Confirm that environmental testing of workplace is performed on a regular basis as required by company policy or regulation.

**Measurement Criteria:** Confirm that equipment is audited to ensure there are no by-passes of safety guards.

**Measurement Criteria:** Verify that regulatory and company safety procedures are followed including lock-out & tag-out, confined space, and ergonomics.

**Measurement Criteria:** Evaluate good housekeeping procedures.

**Measurement Criteria:** Verify that safety and personal protective equipment is available, performs correctly, and has current certification.

**Performance Element:** Monitor equipment and operator performance to assure workplace safety and compliance with both company and national regulations.

**Measurement Criteria:** Verify that monitoring is being performed regularly.

**Measurement Criteria:** Report out-of-compliance or unsafe conditions immediately.

**Measurement Criteria:** Take corrective action when out-of-compliance or unsafe conditions exist.

**Measurement Criteria:** Check equipment to ensure it is operating according to specifications and that tools are checked for compliance with specifications.

**Measurement Criteria:** Forward accident and injury data to appropriate personnel for inclusion in OSHA recordables.

**Measurement Criteria:** Gather information on equipment use from operators to reveal existing or potential problems.

**Measurement Criteria:** Adjust equipment and processes as required.

**Measurement Criteria:** Accurately document all monitored data.

Pathway Topic: Equipment Problems

**Pathway KS Statement:** Identify, diagnose, and/or repair equipment problems.

**Performance Element:** Gather equipment information and history to identify and/or diagnose problems.

**Measurement Criteria:** Consult operator and operator logs to determine the nature of the problem.

**Measurement Criteria:** Check reports on equipment, repair and diagnostics for previous problems.

**Measurement Criteria:** Check equipment to identify problems.

**Measurement Criteria:** Gather the most appropriate information need to rapidly diagnose the problem.
Pathway Topic: Equipment Problems

Measurement Criteria: Consult appropriate and accurate sources of information including prints, OEM manuals, process diagrams, and engineering department calibrations.

Performance Element: Follow procedures to isolate system and component failure.

Measurement Criteria: Draw on available information, past experience, operator feedback, and knowledge of equipment to identify possible causes of failure.

Measurement Criteria: Use visual inspection, observation of equipment during operations, and disassembly of equipment to systematically gather information about the nature and possible causes of failure.

Measurement Criteria: Perform and repeat diagnostic tests as necessary to determine the nature of the problem.

Measurement Criteria: Make diagnosis in a timely and effective manner.

Measurement Criteria: Use manufacturer’s performance specifications when evaluating equipment performance.

Measurement Criteria: Initiate procedure for isolating problems correctly and complete follow through properly.


Measurement Criteria: Use appropriate root cause identification process to determine contributing factors.

Measurement Criteria: Perform the correct tests and inspections on failed component(s).

Measurement Criteria: Analyzed data gathered through diagnostic procedures to develop a hypothesis regarding possible root causes.

Measurement Criteria: Repeat analysis until problem is solved.

Performance Element: Develop corrective action plan to fix the problem.

Measurement Criteria: Correctly specify all future repairs and modifications required to address underlying causes.

Measurement Criteria: Use the action plan to address the need for timely repair.

Measurement Criteria: Include proper repair procedures, proper tools and parts, and estimated time required for repair in the plan.

Measurement Criteria: Inform and involve the right people needed for the repair.

Measurement Criteria: Make sure that plan reflects production needs.

Measurement Criteria: Make sure that plan accounts for variables in schedule, staffing, and availability of parts.

Performance Element: Execute corrective action plan.

Measurement Criteria: Use applicable safety procedures.

Measurement Criteria: Wear proper personal protective equipment.

Measurement Criteria: Follow existing repair procedures in accordance with OEM manuals or company procedures.

Measurement Criteria: Use correct disassembly, repair/replacement, and reassembly procedures.

Measurement Criteria: Safety check equipment and perform a test run prior to return to production.
Pathway Topic: Equipment Problems

**Measurement Criteria:** Make sure that post-repair tests confirm that equipment performs to requirements.

**Measurement Criteria:** Complete repairs within specified time frames.

**Measurement Criteria:** Devote appropriate staffing and parts to effectively execute the plan.

Performance Element: Document diagnosis, case history plan, and repair outcome.

**Measurement Criteria:** Perform documentation and verification according to company and department policies and procedures.

**Measurement Criteria:** Input documents and appropriate files into database before filing them or distributing to correct parties.

**Measurement Criteria:** Conduct post repair review to determine if customer is satisfied.

**Measurement Criteria:** Adjust preventive maintenance schedule properly to reflect repairs made.

**Measurement Criteria:** Notify equipment manufacturer of any reliability and maintainability issues.

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Pathway Topic: Equipment

**Pathway KS Statement:** Support the installation, customization, or upgrading of equipment.

Performance Element: Coordination preparation for the installation, customization, or upgrading of equipment.

**Measurement Criteria:** Provide appropriate input on equipment, environmental impact, and material needs.

**Measurement Criteria:** Include the time, equipment, and personnel required to do the job in the plan.

**Measurement Criteria:** Determine proper customization, upgrade needs, and capacity limits.

**Measurement Criteria:** Obtain all appropriate approvals.

**Measurement Criteria:** Make sure that plan provides for the availability and use of proper materials and relevant vendor information.

**Measurement Criteria:** Make sure that plan anticipates the need for future modifications and likelihood of mechanical or operator errors.

**Measurement Criteria:** Make sure that plan addresses issues related to ergonomics, safety requirements, and environmental impact.

Performance Element: Obtain information from vendors to ensure proper installation, customization, or upgrade.

**Measurement Criteria:** Determine availability of in-house personnel and outside contractors.

**Measurement Criteria:** Contact appropriate vendor personnel to determine facility, parts, equipment, and materials needs prior to installation.

**Measurement Criteria:** Verify materials and parts against vendor specifications prior to initiating installation, customization, or upgrading equipment.

**Measurement Criteria:** Obtain needed information from vendors including safety and quality considerations.
Pathway Topic: Equipment

**Measurement Criteria:** Make accurate blueprints, specifications, and documentation are available.

**Measurement Criteria:** Review maintenance manuals, check them for completeness, and modify them as necessary.

**Performance Element:** Participate in the installation, customization, or upgrading of equipment.

**Measurement Criteria:** Follow all safety procedures.

**Measurement Criteria:** Organize tools, equipment, and personnel efficiently to do the job.

**Measurement Criteria:** Follow blueprint and plan of action to customize or upgrade equipment.

**Measurement Criteria:** Perform follow-up to ensure completeness of installation.

**Measurement Criteria:** Remove appropriate lock-out/tag-out devices are removed.

**Measurement Criteria:** Complete equipment installation, customization, or upgrade to specification and schedule.

**Performance Element:** Prepare team.

**Measurement Criteria:** Schedule the proper workers to ensure effectiveness, efficiency, and safety.

**Measurement Criteria:** Ensure that personnel are trained on the proper procedures and equipment maintenance.

**Measurement Criteria:** Involve vendors appropriately.

**Performance Element:** Move or remove equipment.

**Measurement Criteria:** Schedule the proper workers to ensure effectiveness, efficiency, and safety.

**Measurement Criteria:** Ensure that personnel are trained on the proper procedures and equipment maintenance.

**Measurement Criteria:** Involve vendors appropriately.

**Measurement Criteria:** Move or remove equipment completely, safely, and according to company and vendor procedures.

**Measurement Criteria:** Verify that equipment works properly following its move.

**Performance Element:** Test the equipment to ensure proper function after installation, customization or upgrading.

**Measurement Criteria:** Select proper testing procedures and methods.

**Measurement Criteria:** Administer test procedures and methods properly.

**Measurement Criteria:** Perform test safely.

**Measurement Criteria:** Interpret test results correctly.

**Measurement Criteria:** Notify all appropriate parties that equipment is functioning properly.

**Measurement Criteria:** Make sure that equipment tests indicate that equipment performs to specification and meets safety standards.

**Measurement Criteria:** Document test results.

Pathway Topic: Preventive Maintenance

**Pathway KS Statement:** Follow a preventative maintenance schedule to maintain equipment, tools and workstations.
Pathway Topic: Preventive Maintenance

Performance Element: Contact proper people and assure supplies are available to perform preventive maintenance and routine repair.

Measurement Criteria: Verify that preventive maintenance is performed to schedule and documented completely in a timely manner.

Measurement Criteria: Use the right procedures and forms to communicate repair needs to the correct parties.

Measurement Criteria: Follow-up to verify that necessary repair work was completed.

Measurement Criteria: Have necessary supplies available to perform preventive maintenance.

Measurement Criteria: Predict the results of failing to effectively communicate the all elements of the preventive maintenance schedule.

Measurement Criteria: Follow all safety regulations when doing repairs.

Performance Element: Monitor equipment indicators to ensure it is operating correctly.

Measurement Criteria: Compare equipment performance to optimal equipment operations on a regular schedule.

Measurement Criteria: Investigate and correct abnormal equipment conditions in a timely manner.

Measurement Criteria: Monitored equipment to ensure that the corrective action solved the problem.

Measurement Criteria: Keep equipment repair history complete, up-to-date, and accurate.

Performance Element: Provide documented training to assure maintenance activities meet company regulations.

Measurement Criteria: Conduct training in an effective and appropriate manner.

Measurement Criteria: Document and make available preventive maintenance training materials.

Measurement Criteria: Keep training records updated and readily available.

Measurement Criteria: Examine the relevancy of training for use of equipment, tools, materials, and processes at the workstation.

Measurement Criteria: Provide cross-training when appropriate.

Measurement Criteria: Verify that training and training documentation meet all company and regulatory requirements.

Performance Element: Perform daily housekeeping to maintain production schedules and provide a safe working environment.

Measurement Criteria: Store tools and materials safely in proper locations.

Measurement Criteria: Identify and report unsafe conditions promptly.

Measurement Criteria: Keep workstations clean and clear of safety hazards.

Measurement Criteria: Verify that scheduled housekeeping inspections are passed.

Measurement Criteria: Organize workstations to maximize efficiency.

Measurement Criteria: Verify that safety equipment is present and in proper working order.

Pathway Topic: Production Process

Pathway KS Statement: Coordinate predictive and preventive maintenance to
Manufacturing

Pathway Topic:  Production Process

*ensure that production process runs smoothly.*

Performance Element:  Develop the maintenance schedule.

**Measurement Criteria:** Schedule routine jobs that need to be completed in a timely way.

**Measurement Criteria:** Make sure that schedule is sufficiently flexible to include plans for fall-back if tasks take longer and to add fill-in work if tasks are shorter than expected.

**Measurement Criteria:** Use company procedures for production needs, output, and critical equipment to schedule priorities.

**Measurement Criteria:** Verify that preventive maintenance requirements for all equipment are included in the schedule.

**Measurement Criteria:** Distribute scheduled task lists appropriately.

**Measurement Criteria:** Make sure that the schedule provides adequate time for preventive maintenance.

**Measurement Criteria:** Make parts required for maintenance available when needed.

Performance Element:  Identify special maintenance and repair needs.

**Measurement Criteria:** Ask operators appropriate questions to determine needs.

**Measurement Criteria:** Review tool and equipment histories to find evidence of intermittent or chronic problems.

**Measurement Criteria:** Refer to job safety analysis sheets as appropriate.

**Measurement Criteria:** Observe operators to verify that they are setting up and operating according to the job safety analysis.

**Measurement Criteria:** Review repair histories to see if correct repairs were done in the past.

**Measurement Criteria:** Review repair histories to determine current repair needs.

**Measurement Criteria:** Identify worn or malfunctioning equipment accurately and in a timely way to prevent breakdowns.

Performance Element:  Check on availability of workers and other resources.

**Measurement Criteria:** Locate special tools and parts.

**Measurement Criteria:** Access existing preventive maintenance protocols from the preventive maintenance sheets.

**Measurement Criteria:** Make decisions on staffing requirements based on the tasks that need to be performed.

**Measurement Criteria:** Make sure that retooled parts meet specifications.

**Measurement Criteria:** Make sure that follow-up occurs to ensure that adequate supplies are maintained.

Performance Element:  Perform predictive and preventive maintenance.

**Measurement Criteria:** Follow procedures when handling and disposing hazardous materials.

**Measurement Criteria:** Follow safety procedures and wear/use proper personal protective equipment.

**Measurement Criteria:** Follow preventive maintenance sheets completely.

**Measurement Criteria:** Perform maintenance with proper workers to ensure that the job is performed safely and efficiently.
Pathway Topic: Production Process

Measurement Criteria: Gather required parts, tools, and equipment prior to starting the maintenance.

Measurement Criteria: Use required parts, tools, and equipment to perform work safely and efficiently.

Measurement Criteria: Use company or department procedure to document and verify maintenance job.

Measurement Criteria: Use policy and procedures to maintain documentation.

Measurement Criteria: Turn documentation to the correct parties for processing.

Measurement Criteria: Perform maintenance on time.

Measurement Criteria: Perform housekeeping when job is finished.

Measurement Criteria: Use repair histories to revise preventive maintenance plan.

Performance Element: Check that equipment is working prior to releasing the equipment to the operator.

Measurement Criteria: Complete safety checklist thoroughly.


Measurement Criteria: Test-run equipment to ensure that it is operating properly and safely.

Measurement Criteria: Take corrective measures if equipment is not operational.

Measurement Criteria: Communicate readiness of equipment to come back onto production to correct parties before departing the site.

Measurement Criteria: Use the preventive maintenance sheet to inspect and verify the appropriate items.
PATHWAY: Quality Assurance

Pathway Topic: Communications

Pathway KS Statement: Communicate with co-workers and/or external customers to ensure production meets business requirements.

Performance Element: Use speaking and presentation skills to effectively communicate safety, training, and job-specific needs.

Measurement Criteria: Ensure that safety issues are understood and safety practices are being used.

Measurement Criteria: Explain the significance of on-the-job issues and concerns being discussed and quickly resolved.

Measurement Criteria: Identify current and future training issues in a timely way.

Measurement Criteria: Verify that communication shows knowledge of both customer and business needs.

Measurement Criteria: Be clear and relevant with communications related to safety, training, and job-specific needs.

Measurement Criteria: Communicate in a timely and accurate manner to the correct parties.

Measurement Criteria: Evaluate, track, and report back safety, training, and job-specific issues to original communicator.

Measurement Criteria: Track and document communications related to safety, training, and job-specific needs.

Performance Element: Be timely and accurate in communicating material specifications and delivery schedules.

Measurement Criteria: Make sure that communication reflects knowledge of material specifications.

Measurement Criteria: Communicate delivery schedules clearly.

Measurement Criteria: Make sure that communication shows knowledge of both customer and business needs.

Measurement Criteria: Make sure that communication is clear and relevant to material and delivery issues.

Measurement Criteria: Communicate in a timely and accurate manner to the correct parties.

Measurement Criteria: Evaluate, track, and report back material and delivery issues to original communicator.

Measurement Criteria: Track and document material specifications and delivery schedules.

Performance Element: Communicate production requirements and product specifications.

Measurement Criteria: Make sure that communication reflects knowledge of production requirements, levels, and product specifications.

Measurement Criteria: Initiate communication to meet production requirements, product specifications, or other customer or business needs cross-functionally as required.

Measurement Criteria: Notify all parties of production issues and problems in a timely way.

Measurement Criteria: Make sure that communication shows knowledge of both...
Pathway Topic: Communications

Make sure that communication to production and products is clear and relevant.

Measurement Criteria: Evaluate, track, and report production and product issues back to original communicator.

Measurement Criteria: Track and document communications related to production requirements and product specifications as appropriate.

Pathway Topic: Monitoring

Pathway KS Statement: Monitor production operations for product and process quality.

Performance Element: Track materials for quality throughout production process.

Measurement Criteria: Prepare detailed quality instructions for each operation.

Measurement Criteria: Record accurate information about material quality at each operation.

Measurement Criteria: Communicate quality information to all appropriate parties.

Measurement Criteria: Maintain accurate records of material movement necessary to ensure quality and traceability.

Performance Element: Check product sample for quality at each state of production.

Measurement Criteria: Monitor sample results to ensure they comply with specifications.

Measurement Criteria: Report samples that do not conform to specification promptly.

Measurement Criteria: Keep records of quality results as required by procedures or work instructions.

Measurement Criteria: Label and document samples that do not conform to standards.

Measurement Criteria: Indicate the samples that have been checked at each state.

Performance Element: Check that final product meets quality specifications.

Measurement Criteria: Make accurate records of inspections and tests readily available.

Measurement Criteria: Communicate approval and rejection results on a timely basis to appropriate parties.

Measurement Criteria: Make sure that all product specifications have been followed.

Measurement Criteria: Perform product audits according to defined plan.

Measurement Criteria: Review follow-up data to ensure customer satisfaction with finished product.

Measurement Criteria: Obtain final documentation from all departments to effectively check product against specifications.

Performance Element: Document quality results at each state of production process.

Measurement Criteria: Fill out proper records correctly for each state of production.

Measurement Criteria: Verify that approval and rejections are in place as required on appropriate documentation.

Measurement Criteria: Verify that quality data meets specifications.

Measurement Criteria: Communicate final quality results to appropriate parties.

Measurement Criteria: Make sure that documentation is clear and complete.
Manufacturing

Pathway Topic: Correcting

Pathway KS Statement: Correct the product and process to meet quality standards.

Performance Element: Communicate quality problems.

Measurement Criteria: Review quality problems with production operators.
Measurement Criteria: Communicate quality problems promptly to appropriate parties.
Measurement Criteria: Use established processes to document quality problems.
Measurement Criteria: Summarize and report defect trends to appropriate parties.

Performance Element: Suggest or perform corrective actions to correct quality problems.

Measurement Criteria: Make minor quality issues or adjustments immediately.
Measurement Criteria: Document quality issues or adjustment properly.
Measurement Criteria: Write recommendations for action that are clear, concise, and supported by data.
Measurement Criteria: Submit recommendations to the appropriate parties in a timely way.
Measurement Criteria: Use follow-up activities indicated to verify that corrective action was taken.
Measurement Criteria: Document product quality following corrective action.

Performance Element: Determine appropriate action for sub-standard product.

Measurement Criteria: Execute quality procedures regarding sub-standard products within the defined quality systems promptly.
Measurement Criteria: Distribute documentation required for customers to appropriate parties.

Performance Element: Record process outcomes and trends.

Measurement Criteria: Maintain records on quality process to appropriate standards.
Measurement Criteria: Use appropriate methods and standards to chart outcomes of quality processes.
Measurement Criteria: Verify accuracy of data on quality process performance.
Measurement Criteria: Analyze quality process performance data to identify trends.
Measurement Criteria: Report quality process performance data to appropriate parties in a timely manner.

Performance Element: Identify and report performance and training issues affecting quality.

Measurement Criteria: Identify performance and training issues related to quality in a timely manner.
Measurement Criteria: Take corrective action for quality issues impacting the health or safety of workers.

Performance Element: Implement closed-loop corrective action.

Measurement Criteria: Document evidence of corrected action in a timely manner.
Pathway Topic: Correcting

Measurement Criteria: Use the correct format to communicate change resulting from the corrective action to appropriate parties.

Measurement Criteria: Use spot checks to verify the implementation of the corrective action.

Measurement Criteria: Store reports properly for the specified timeframes.

Measurement Criteria: Perform ongoing audits to optimize the outcomes of the corrective steps.

Measurement Criteria: Examine previous documentation on similar process issues to identify possible solutions.

Pathway Topic: Suggestions

Pathway KS Statement: Suggest and/or implement continuous improvement actions.

Performance Element: Analyze data to identify potential.

Measurement Criteria: Apply quality tools properly to determine the source of potential quality problems.

Measurement Criteria: Reassess process capability continuously.

Measurement Criteria: Validate process and product measurement systems.

Measurement Criteria: Adjust process and product measurement systems as required.

Measurement Criteria: Report quality data to appropriate parties in a timely manner.

Performance Element: Monitor process capability.

Measurement Criteria: Verify that processes meet manufacturer and other quality specifications.

Measurement Criteria: Verify that process meet company or customer capability requirements.

Measurement Criteria: Verify that process meets on-time delivery needs of the customer.

Measurement Criteria: Use approved procedures to report analyzed process capability data.

Measurement Criteria: Use results of capability studies to adjust product or process.

Measurement Criteria: Report results of capability studies to appropriate parties.

Performance Element: Monitor customer satisfaction.

Measurement Criteria: Use appropriate data to measure customer satisfaction.

Measurement Criteria: Implement surveys and other customer data techniques in a timely manner.

Measurement Criteria: Report returned goods to appropriate parties for review.

Measurement Criteria: Include appropriate vendor certifications with customer documentation.


Measurement Criteria: Review field failures and product life data in a timely manner.

Performance Element: Measure and record product and process outcomes.

Measurement Criteria: Use the proper format to record product and process outcomes within the approved timeframe.

Measurement Criteria: Use appropriate quality analysis and statistical technique to
Pathway Topic: Suggestions

*Measure the performance.*

**Measurement Criteria:** Report outcomes to all appropriate parties.

**Performance Element:** Participate in making new work procedures.

**Measurement Criteria:** Translate recommendations for continuous improvement into new work instructions.

**Measurement Criteria:** Use the appropriate format to publish work instructions.

**Measurement Criteria:** Use the standard procedures to distribute work instructions.

**Measurement Criteria:** Discuss new work procedures or instructions with all stakeholders to ensure support for improvements.

**Performance Element:** Implement approved recommendations.

**Measurement Criteria:** Make sure that recommendations for continuous improvement are clear, concise, and based on data trends and patterns.

**Measurement Criteria:** Make recommendations in a way that draws support for process improvement.

**Measurement Criteria:** Provide information to ensure that all stakeholders understand their role in process improvement changes.

**Measurement Criteria:** Use documented accepted process improvements to translate into revised work processes and procedures.

**Performance Element:** Check that final product meets customer and business needs.

**Measurement Criteria:** Verify that final test results meet customer requirements.

**Measurement Criteria:** Determine if product was produced within company time and cost parameters.

**Measurement Criteria:** Take action to minimize negative customer feedback on quality issues.

Pathway Topic: Work Teams

**Pathway KS Statement:** Coordinate work teams to produce product.

**Performance Element:** Provide training to other employees.

**Measurement Criteria:** Provide cross training as appropriate.

**Measurement Criteria:** Assess training needs on a regular basis.

**Measurement Criteria:** Identify new requirements and training issues.

**Measurement Criteria:** Use varied approaches to achieve training goals.

**Measurement Criteria:** Document training outcomes.

**Performance Element:** Set team goals to enhance performance.

**Measurement Criteria:** Make goals specific, measurable, and achievable.

**Measurement Criteria:** Align team goals to customer and business needs.

**Measurement Criteria:** Focus team goals to meet team objectives.

**Measurement Criteria:** Document team goals and share information with all parties.

**Performance Element:** Make job assignments to avail the use of the best personnel in key assignments.

**Measurement Criteria:** Make job assignments to match the skills needed for the work to be done and to maximize the use of available skills.

**Measurement Criteria:** Make job assignments to ensure that business and customer needs are met.
Pathway Topic: Work Teams

**Measurement Criteria:** Confirm that workers are notified of assignments effectively.

**Performance Element:** Coordinate workflow with team members and other workgroups.

**Measurement Criteria:** Make sure that production schedules are met effectively.
**Measurement Criteria:** Notify team members of schedule requirements in a timely way.
**Measurement Criteria:** Make sure that production workflow runs efficiently.
**Measurement Criteria:** Take necessary action to minimize downtime.
**Measurement Criteria:** Explain the significance of relationships with others in facilitating workflow.
**Measurement Criteria:** Verify that workers actively participate in meetings and problem-solving groups.

Pathway Topic: Quality Assurance

**Pathway KS Statement:** Produce a product to satisfy customer desires.

**Performance Element:** Conduct in-depth investigation to identify customer needs.

**Measurement Criteria:** Meet those needs that differ between internal and external customers as well as those that both share.
**Measurement Criteria:** Maintain contact with customer about the product aspects and its specifications to ensure thorough understanding of needs.
**Measurement Criteria:** Review, maintain, and communicate customer needs and specifications.
**Measurement Criteria:** Address issues preventing customer needs from being met proactively.

**Performance Element:** Verify that needed resources are available for the production process.

**Measurement Criteria:** Use work orders when handling raw materials, while setting up of tools and equipment, and when scheduling workers to maximize productivity.
**Measurement Criteria:** Report any discrepancies related to raw materials, tools/equipment, and workers abilities/availability properly.
**Measurement Criteria:** Identify consequences of not reporting discrepancies in production.

**Performance Element:** Set up equipment for the production process.

**Measurement Criteria:** Make proper repairs and adjustments to equipment prior to putting into service.
**Measurement Criteria:** Verify that set-up meets process specifications of both internal and external customers.
**Measurement Criteria:** Verify that the first piece or production meets both product specifications and production capacities.
**Measurement Criteria:** Document set-up procedures to ensure repeatability.
**Measurement Criteria:** Identify possible consequences resulting from failure to meet ergonomic and other relevant health, safety, and environmental standards.

**Performance Element:** Use process control data to monitor fabrication of the product.

**Measurement Criteria:** Use process control data to indicate that the manufacturing
Pathway Topic: Quality Assurance

- Process complies with standards.

**Measurement Criteria:** Make the manufacturing process cycle time meet customer and business needs.

**Measurement Criteria:** Identify possible consequences resulting from failure to perform operations safely.

**Measurement Criteria:** Verify that the product meets customer specifications.

**Measurement Criteria:** Complete, maintain, and forward product and process documentation to proper parties.

**Measurement Criteria:** Verify that production operations comply with all health, safety, and environmental policies and procedures.

**Performance Element:** Inspect the product to verify that it meets specifications.

**Measurement Criteria:** Verify the calibration of the testing equipment.

**Measurement Criteria:** Follow the established sampling plan and inspection policies/procedures.

**Measurement Criteria:** Identify product and production process that do not meet specifications promptly.

**Measurement Criteria:** Complete inspection documents accurately and forward them to proper parties.

**Measurement Criteria:** Follow appropriate testing/production tools and procedures.

**Measurement Criteria:** Identify and communicate adjustments needed to bring the production process back into specification.

**Measurement Criteria:** Make necessary adjustment in the manufacturing process in a timely manner.

**Performance Element:** Document product and process to assure formal compliance with customer requirements.

**Measurement Criteria:** Write compliance documents legibly in the appropriate format and store them in a safe, secure place.

**Measurement Criteria:** Complete compliance documentation, obtain “sign off,” and forward to the proper parties.

**Measurement Criteria:** Label products for compliance and non-compliance appropriately.

**Performance Element:** Check for specified quantities and proper documentation to prepare a final product for shipping or distribution.

**Measurement Criteria:** Package materials to meet packaging and shipping specifications (including proper labeling).

**Measurement Criteria:** Complete package documentation and customer shipping instructions to accompany the product to the next destination.

**Measurement Criteria:** Communicate product availability to the proper parties in a timely manner.

**Measurement Criteria:** Check relevant information such as quantity, destination and packaging instructions against the work order.

**Measurement Criteria:** Verify that product is correctly stored or staged for shipping.

**Measurement Criteria:** Explain the significance of following all laws and regulations related to labeling, packaging, and transport.

**Measurement Criteria:** Verify that material handling procedures are followed to...
Pathway Topic: Quality Assurance
prevent product damage.

Pathway Topic: Safety

Pathway KS Statement: Maintain a safe and productive workplace.

Performance Element: Follow local, federal and company regulations to perform environmental and safety inspections.

Measurement Criteria: Identify, report and monitor potential hazards in the workplace.

Measurement Criteria: Take corrective action to correct potential hazards.

Measurement Criteria: Review health, safety, and environmental documentation and policies thoroughly and regularly.

Measurement Criteria: Ensure that inspections meet all relevant, health, safety, and environmental laws and regulations.

Measurement Criteria: Completed inspections according to company schedule and procedures.

Measurement Criteria: Document inspection records and store them correctly.

Performance Element: Participate in emergency response teams to perform emergency drills.

Measurement Criteria: Confirm that first aid training and certification on emergency and first aid procedures are complete and up-to-date.

Measurement Criteria: Comply with company and regulatory policies and procedures to respond to emergencies.

Measurement Criteria: Document emergency drills and incidents according to company and regulatory procedures promptly.

Performance Element: Identify unsafe conditions and take corrective action.

Measurement Criteria: Identify, report, and document conditions presenting a threat to health, safety, and the environment.

Measurement Criteria: Identify corrective actions.

Measurement Criteria: Consult appropriate parties about corrective actions and take corrective actions following company procedures promptly.

Measurement Criteria: Track and report ongoing safety concerns until corrective action is taken.

Performance Element: Provide safety orientation to train other employees in safe practices and emergency procedures.

Measurement Criteria: Verify that all topics and procedures are covered in orientation to facilitate employee safety.

Measurement Criteria: Observe orientation to ensure that it makes clear the need and processes for employees to raise safety concerns, ask questions, and receive additional training.

Measurement Criteria: Use company requirements to document orientation.

Measurement Criteria: Verify that orientation meets all relevant laws, policies, and regulations.

Measurement Criteria: Deliver safety instruction and updates on a regular schedule.

Pathway Topic: Quality Improvement

Pathway KS Statement: Maintain quality and implement continuous improvement processes.
Pathway Topic:  Quality Improvement

Performance Element:  Perform periodic internal quality audit activities.

Measurement Criteria:  Complete all audit forms correctly in a timely manner.
Measurement Criteria:  Forward forms to the correct parties.
Measurement Criteria:  Verify that audit data is relevant and correct.
Measurement Criteria:  Make sure that conformance to quality standards are properly assessed and documented.
Measurement Criteria:  Include observation of operation in audit when appropriate to ensure performance meets specifications.
Measurement Criteria:  Follow company and other required schedules and procedures to perform audit.

Performance Element:  Check calibration of gauges and other data collection equipment.

Measurement Criteria:  Follow specifications to implement calibration schedule.
Measurement Criteria:  Review documents and use thorough careful observation to check instrument certification during use.
Measurement Criteria:  Recalibrate instruments that are out of calibration or refer them to the appropriate parties for recalibration or repairs immediately.

Performance Element:  Suggest continuous improvements.

Measurement Criteria:  Use observations and data analysis to generate potential improvements.
Measurement Criteria:  Verify that suggestions communicate measurable and data-driven benefits to the company, its customers, and employees.
Measurement Criteria:  Use proper procedures and documentation to make suggestions.
Measurement Criteria:  Make sure that all suggestions show that all data was reviewed prior to making recommendation.

Performance Element:  Inspect materials at all stages of process to determine quality or condition.

Measurement Criteria:  Follow schedule and procedures to complete sampling and inspection.
Measurement Criteria:  Select and use inspection tools and procedures correctly.
Measurement Criteria:  Inspect materials against correct specifications.
Measurement Criteria:  Identify materials that do not meet specification correctly.
Measurement Criteria:  Take corrective action on out-of specification material.
Measurement Criteria:  Document inspection results properly.
Measurement Criteria:  Report inspection results to correct parties.

Performance Element:  Document the results of quality tests.

Measurement Criteria:  Check data forms to ensure that they are complete and accurate.
Measurement Criteria:  Make sure that information is evaluated and interpreted correctly.
Measurement Criteria:  Forward data to correct parties.
Measurement Criteria:  Select and use correct analytical tools properly.
Pathway Topic: Quality Improvement

Performance Element: Make adjustments to restore or maintain quality.

 Measurement Criteria: Make sure that appropriate corrective actions are identified and approvals received when needed.

 Measurement Criteria: Make adjustments to eliminate deviations and bring the process back into control.

 Measurement Criteria: Make adjustments in a timely manner.

 Measurement Criteria: Document adjustments properly.

Pathway Topic: Specifications


Performance Element: Inspect materials against quality specifications.

 Measurement Criteria: Identify materials required for productions correctly.

 Measurement Criteria: Reject non-conforming material.

 Measurement Criteria: Document inspection results.

 Measurement Criteria: Make sure that documentation records clearly indicate inspection and verification results.

Performance Element: Report material quality deviations to production.

 Measurement Criteria: Report quality deviations to the correct parties in a timely fashion.

 Measurement Criteria: Describe quality deviations accurately.

 Measurement Criteria: Use the prescribed format to report quality deviations.

Performance Element: Release materials that meet specifications to production.

 Measurement Criteria: Use production plan implement release procedure.

 Measurement Criteria: Identify and label materials properly.

 Measurement Criteria: Verify that all approvals are obtained before releasing materials.


 Measurement Criteria: Store materials not ready for release properly or redirect them for other use.

Performance Element: Maintain supplier relationships to ensure quality of materials.

 Measurement Criteria: Maintain positive business relationships with suppliers.

 Measurement Criteria: Maintain proper level of security and confidentiality in relationships with suppliers.

 Measurement Criteria: Make delivery of materials just in time to meet production needs.

 Measurement Criteria: Report information regarding cost and price to relevant parties.

 Measurement Criteria: Provide suppliers with detailed material specifications, procedures, and processes to correct deviations.
PATHWAY: Logistics & Inventory Control

Pathway Topic: Communicating Business Requirements

Pathway KS Statement: Communicate with co-workers and/or external customers to ensure production meets business requirements.

Performance Element: Use speaking and presentation skills to effectively communicate safety, training, and job-specific needs.

Measurement Criteria: Use communication sufficient to ensure that safety issues are understood and safety practices being used.

Measurement Criteria: Discuss and resolve on-the-job issues and concerns quickly.

Measurement Criteria: Identify current and future training issues in a timely way.

Measurement Criteria: Verify that communication shows knowledge of both customer and business needs.

Measurement Criteria: Be clear and relevant with communications related to safety, training, and job-specific needs.

Measurement Criteria: Communicate in a timely and accurate manner to the correct parties.

Measurement Criteria: Evaluate, track, and report back safety, training, and job-specific issues to original communicator.

Measurement Criteria: Track and document communications related to safety, training, and job-specific needs.

Performance Element: Be timely and accurate in communicating material specifications and delivery schedules.

Measurement Criteria: Make sure that communication reflects knowledge of material specifications.

Measurement Criteria: Communicate delivery schedules clearly.

Measurement Criteria: Make sure that communication shows knowledge of both customer and business needs.

Measurement Criteria: Make sure that communication is clear and relevant to material and delivery issues.

Measurement Criteria: Communicate in a timely and accurate manner to the correct parties.

Measurement Criteria: Evaluate, track, and report back material and delivery issues to original communicator.

Measurement Criteria: Track and document material specifications and delivery schedules.

Performance Element: Communicate production requirements and product specifications.

Measurement Criteria: Make sure that communication reflects knowledge of production requirements, levels, and product specifications.

Measurement Criteria: Initiate communication cross-functionally as required to meet production requirements, product specifications, or other customer or business needs.

Measurement Criteria: Notify all parties of production issues and problems in a timely way.

Measurement Criteria: Make sure that communication shows knowledge of both customer and business needs.
Pathway Topic: Communicating Business Requirements

**Measurement Criteria:** Make sure that communication to production and products is clear and relevant.

**Measurement Criteria:** Evaluate, track, and report production and product issues back to original communicator.

**Measurement Criteria:** Track and document communications related to production requirements and product specifications as appropriate.

Pathway Topic: Shipping and Receiving

**Pathway KS Statement:** Ship and receive products and materials.

**Performance Element:** Check accuracy of order.

**Measurement Criteria:** Document product count accurately.

**Measurement Criteria:** Verify that product matches the purchase order and description.

**Measurement Criteria:** Verify that documentation is accurate as to count and product.

**Measurement Criteria:** Review order to ensure that contract terms and conditions are met.

**Measurement Criteria:** Use company procedures to report information to correct parties.

**Measurement Criteria:** Verify that health, safety, environmental, and government regulations are met.

**Performance Element:** Package and unpackage materials and products.

**Measurement Criteria:** Check container to verify that packing meets regulatory requirements.

**Measurement Criteria:** Check container to verify that packing has proper labeling and meets shipping and safety regulations.

**Measurement Criteria:** Store or dispose of packaging materials properly.

**Measurement Criteria:** Verify that contents of packages match receiving tickets.

**Measurement Criteria:** Verify that bill of lading matches items shipped.

**Measurement Criteria:** Use packaging and unpackaging methods that keep returns and claims for damaged and improperly packaged goods to a minimum.

**Measurement Criteria:** Verify that outgoing labels have all relevant information.

**Measurement Criteria:** Check incoming labels to ensure that they meet all requirements.

**Performance Element:** Load and unload materials and products.

**Measurement Criteria:** Use proper equipment and techniques safely.

**Measurement Criteria:** Store materials correctly in a proper location.

**Measurement Criteria:** Verify that correct carrier and method is used for shipment.

**Measurement Criteria:** Verify that product arrives at appropriate destination.

**Measurement Criteria:** Load or unload product safely and according to government regulations.

**Measurement Criteria:** Check containers to ensure that damage to or contamination of materials is minimal.

**Performance Element:** Schedule transportation of products and materials to meet customer needs.
Pathway Topic: Shipping and Receiving

**Measurement Criteria:** Verify that appropriate carrier or method is used to ship product.

**Measurement Criteria:** Make sure that product is shipped on time.

**Measurement Criteria:** Verify that health, safety, environmental, and government regulations are met.

**Measurement Criteria:** Verify that no customer complaints are received about late partial shipments or damaged goods.

**Measurement Criteria:** Select the most cost-effective method to ship products.

Pathway Topic: Safety

**Pathway KS Statement:** Maintain a safe and productive workplace.

**Performance Element:** Follow local, federal and company regulations to perform environmental and safety inspections.

**Measurement Criteria:** Identify, report and monitor potential hazards in the workplace.

**Measurement Criteria:** Take corrective action to correct potential hazards.

**Measurement Criteria:** Review health, safety, and environmental documentation and policies thoroughly and regularly.

**Measurement Criteria:** Ensure that inspections meet all relevant, health, safety, and environmental laws and regulations.

**Measurement Criteria:** Completed inspections according to company schedule and procedures.

**Measurement Criteria:** Document inspection records and store them correctly.

**Performance Element:** Participate in emergency response teams to perform emergency drills.

**Measurement Criteria:** Confirm that first aid training and certification on emergency and first aid procedures are complete and up-to-date.

**Measurement Criteria:** Comply with company and regulatory policies and procedures to respond to emergencies.

**Measurement Criteria:** Document emergency drills and incidents according to company and regulatory procedures promptly.

**Performance Element:** Identify unsafe conditions and take corrective action.

**Measurement Criteria:** Identify, report, and document conditions presenting a threat to health, safety, and the environment.

**Measurement Criteria:** Identify corrective actions.

**Measurement Criteria:** Consult appropriate parties about corrective actions and take corrective actions following company procedures promptly.

**Measurement Criteria:** Track and report ongoing safety concerns until corrective action is taken.

**Performance Element:** Provide safety orientation to train other employees in safe practices and emergency procedures.

**Measurement Criteria:** Verify that all topics and procedures are covered in orientation to facilitate employee safety.

**Measurement Criteria:** Observe orientation to ensure that it makes clear the need and processes for employees to raise safety concerns, ask questions, and receive additional training.
Pathway Topic: Safety

Measurement Criteria: Use company requirements to document orientation.
Measurement Criteria: Verify that orientation meets all relevant laws, policies, and regulations.
Measurement Criteria: Deliver safety instruction and updates on a regular schedule.

Pathway Topic: Inventory

Pathway KS Statement: Manage inventory to meet production requirements.
Performance Element: Use a plan to monitor location of materials during production process.

Measurement Criteria: Verify that materials are accessible to workstations.
Measurement Criteria: Check that cycle counts for raw and finished goods meet established standards.
Measurement Criteria: Rotate raw materials and stock to minimize old and outdated inventory.
Measurement Criteria: Verify that materials move across the floor in an efficient and cost-effective way.
Measurement Criteria: Implement monitoring activities to prevent disruption of production flow.
Measurement Criteria: Distribute plan to correct parties in a timely way.
Performance Element: Monitor placement of station materials to ensure production flow.

Measurement Criteria: Check that materials and quantities needed for production are correctly placed.
Measurement Criteria: Verify that orders from production are being filled in a timely way.
Measurement Criteria: Make raw materials accessible to workstations.
Measurement Criteria: Rotate raw material stock to minimize old and outdated inventory.
Measurement Criteria: Prevent materials damage to a minimum by avoiding improper stationing or transport.
Measurement Criteria: Identify defective materials.
Measurement Criteria: Take appropriate action when defective materials are identified.
Performance Element: Prepare documents that detail materials movement and inventory count.

Measurement Criteria: Verify that production orders are accurate.
Measurement Criteria: Use the correct format to generate accurate reports for material movement and inventory count.
Measurement Criteria: Produce reports in a timely fashion and distribute them properly.
Measurement Criteria: Take accurate inventory.
Performance Element: Establish lot sizes and reorder points to meet production requirements.

Measurement Criteria: Check that production efficiencies are maintained.
Measurement Criteria: Keep obsolete finished products to minimum.
Pathway Topic: Inventory

**Measurement Criteria:** Use re-order points to minimize back-orders.
**Measurement Criteria:** Check that proper storage levels are maintained.
**Measurement Criteria:** Keep order lead-time requirements reasonable.
**Measurement Criteria:** Maintain inventory levels to minimize inventory value.
**Measurement Criteria:** Maintain inventory of raw material and finished goods to meet customer demands.

Performance Element: Conduct the on-site inventory to ensure productivity, safety, accuracy, and teamwork.

**Measurement Criteria:** Take inventory to ensure minimum interference to production within required timeframe.
**Measurement Criteria:** Make sure that inventory corrections are accurate and kept to a minimal.
**Measurement Criteria:** Carry out inventory activities safely.
**Measurement Criteria:** Keep inventory movement to a minimum during inventory count.
**Measurement Criteria:** Maintain the proper level of cooperation while conducting inventory.
**Measurement Criteria:** Use correct unit of measure to record inventory results.
**Measurement Criteria:** Follow asset protection and business control procedures.

Performance Element: Report discrepancies in inventory audit.

**Measurement Criteria:** Use a proper formant to present inventory audit.
**Measurement Criteria:** Distribute audit reports in a timely way to the proper parties.
**Measurement Criteria:** Communicate all inaccuracies to proper parties.

Performance Element: Find causes of discrepancies in inventory audit.

**Measurement Criteria:** Make sure that investigations into inventory inaccuracies are complete, timely, and include indication of root cause.
**Measurement Criteria:** Maintain collaborative and supportive interactions between material handlers and inventory control.
**Measurement Criteria:** Follow company policy in the event of inventory shortage.
**Measurement Criteria:** Report inaccuracies to the proper parties.

Performance Element: Change logistics processes and update inventory to respond to engineering changes.

**Measurement Criteria:** Follow company procedures when making change notices.
**Measurement Criteria:** Provide documentation of change notices and their implementation.
**Measurement Criteria:** Communicate change notices clearly to proper parties.
**Measurement Criteria:** Complete follow-up on paperwork properly.
**Measurement Criteria:** Make sure that documentation approving the logistics change is in hand prior to implementation.
**Measurement Criteria:** Review storage and retrieval systems to determine if upgrades and replacement are warranted.
PATHWAY: Health, Safety and Environmental Assurance
Pathway Topic: Equipment Safety

Pathway KS Statement: Ensure that equipment is being used safely in the workplace.

Performance Element: Train others to use equipment safely.

Measurement Criteria: Give new operators a complete orientation of equipment.
Measurement Criteria: Make sure that all important information regarding equipment safety is communicated clearly and effectively.
Measurement Criteria: Make sure that maintenance workers obtain certification to train others in technical skills and knowledge where applicable.
Measurement Criteria: Make suggestions regarding training materials and content to appropriate parties.
Measurement Criteria: Use evaluations and feedback to improve training materials and methods.
Measurement Criteria: Make sure trainees have the correct tools to do the job during training.
Measurement Criteria: Conduct post-training evaluation to assure that workers can operate equipment safely.
Measurement Criteria: Use training and facilitation techniques appropriate for the audience.
Measurement Criteria: Document the quality and effectiveness of training appropriately.

Performance Element: Suggest processes and procedures to support safety and effectiveness in the work environment.

Measurement Criteria: Consult health and safety representatives to develop suggestions.
Measurement Criteria: Solicit operator feedback for use in creating a safer, more effective work environment.
Measurement Criteria: Make sure suggestions for training improvement are documented and sent to the appropriate parties.
Measurement Criteria: Make sure that content of suggestions addresses safety, quality, and productivity issues.

Performance Element: Fulfill safety and health requirements for maintenance, installation, and repair.

Measurement Criteria: Make regular safety communications to all employees.
Measurement Criteria: Review job safety analyses regularly according to company policy.
Measurement Criteria: Follow hazardous materials procedures and policies such as Material Safety Data Sheet and “right to know” accurately.
Measurement Criteria: Perform environmental testing of workplace on a regular basis as required by company policy or regulation.
Measurement Criteria: Audit equipment to ensure there are no by-passes of safety guards.
Measurement Criteria: Verify that regulatory and company safety procedures are followed including lock-out & tag-out, confined space,
Pathway Topic: Equipment Safety

Measurement Criteria: Follow good housekeeping procedures.
Measurement Criteria: Verify that safety and personal protective equipment is available, performs correctly, and has current certification.

Performance Element: Monitor equipment and operator performance to assure workplace safety and compliance with both company and national regulations.
Measurement Criteria: Perform monitoring responsibilities regularly.
Measurement Criteria: Report out-of-compliance or unsafe conditions immediately.
Measurement Criteria: Take corrective action on out-of-compliance or unsafe conditions.
Measurement Criteria: Check equipment to ensure it is operating according to specifications.
Measurement Criteria: Check tools for compliance with specifications.
Measurement Criteria: Forward accident and injury data to appropriate personnel for inclusion in OSHA recordables.
Measurement Criteria: Gather information on equipment use from operators to reveal existing or potential problems.
Measurement Criteria: Adjust equipment and processes as required.
Measurement Criteria: Document all monitoring data accurately.

Pathway Topic: Planning


Performance Element: Report hazards and problems.
Measurement Criteria: Identify hazards and problems correctly.
Measurement Criteria: Document hazards and problems properly.
Measurement Criteria: Follow policy and procedure to report hazards and problems.
Measurement Criteria: Communicate problems, hazards, and alerts promptly to appropriate parties.
Measurement Criteria: Make sure that incident and accident reports are complete, accurate, and available to relevant parties.

Performance Element: Ensure adherence to policies and procedures.
Measurement Criteria: Train employees properly in all safety procedures.
Measurement Criteria: Enforce company policies and procedures consistently according to the company policies and procedures.
Measurement Criteria: Make sure that safety policies are clear.
Measurement Criteria: Post safety policies properly.
Measurement Criteria: File safety violation reports and forms in a timely way.
Measurement Criteria: Conduct follow-up on safety violation reports and forms.
Measurement Criteria: Make sure that documentation of enforcement action is complete, clear, and conforming to regulatory requirements.

Performance Element: Take corrective action regarding safety policies and procedures.
Measurement Criteria: Make sure that corrective actions regarding safety are correct and complete.
Pathway Topic: Planning

**Measurement Criteria:** Make sure that when correction actions are necessary that they are communicated clearly and appropriately to others.

**Measurement Criteria:** Take corrective actions immediate after discovery of safety hazard or problem.

**Measurement Criteria:** Make sure that follow-up occurs after corrective action takes place to ensure safe behavior is being exhibited.

**Performance Element:** Document hazards and problems.

**Measurement Criteria:** Make sure that documentation meets all regulations.

**Measurement Criteria:** Make sure that documentation is clear, accurate, and legible.

**Measurement Criteria:** Make sure that documentation is filed and accessible by relevant parties.

**Measurement Criteria:** Make sure that documentation is completed and updated in a timely way.

**Performance Element:** Implement safety programs.

**Measurement Criteria:** Make sure that new equipment conforms to safe manufacturing practices.

**Measurement Criteria:** Use Lock out/Tag out procedures properly.

**Measurement Criteria:** Evaluate product handling for physical safety concerns.

**Measurement Criteria:** Include safety features in product design.

Pathway Topic: Investigations

**Pathway KS Statement:** Conduct health, safety, and/or environmental incident and hazard investigations.

**Performance Element:** Investigate health safety, and/or environmental incidents.

**Measurement Criteria:** Follow the procedures established for investigations.

**Measurement Criteria:** Use root cause analysis to identify factors contributing to the incident.

**Measurement Criteria:** Use a standard procedure to interview all relevant parties in an impartial and tactful manner.

**Measurement Criteria:** Report investigation findings in a timely manner.

**Measurement Criteria:** Include relevant experts as needed in the incident investigation.

**Performance Element:** Investigate health, safety, and/or environmental hazards.

**Measurement Criteria:** Identify potential safety hazards promptly.

**Measurement Criteria:** Use established procedures to correct the hazard and report to correct parties for immediate attention.

**Measurement Criteria:** Complete documentation where appropriate and forward to correct parties.

**Performance Element:** Document findings of health, safety, and/or environmental investigations.

**Measurement Criteria:** Complete documentation accurately and submit to correct parties in a timely manner.

**Measurement Criteria:** Use appropriate procedures to include conclusions and recommended corrective action.

**Measurement Criteria:** Verify that documentation meets all applicable laws and
Pathway Topic: Investigations

Measurement Criteria: Verify that documentation includes all necessary signatures.
Performance Element: Suggest corrective actions.
Measurement Criteria: Make recommendations based on solid data and root cause analysis.
Measurement Criteria: Document suggested actions appropriately and communicate them to the appropriate parties in a timely manner.
Measurement Criteria: Use the findings of the investigation to prepare suggested actions.
Performance Element: Check that appropriate action has been taken to correct health safety, and/or environmental problems.
Measurement Criteria: Update safe operating procedures in a timely manner.
Measurement Criteria: Complete safety work orders in a timely manner.
Measurement Criteria: Develop and deliver worker training if required.
Measurement Criteria: Analyze incident rates to determine if corrective action was effective.
Measurement Criteria: Complete follow-up investigation to ensure that corrective action is taken and root cause is addressed.

Pathway Topic: Inspections

Pathway KS Statement: Conduct preventive health, safety, and/or environmental incident and hazard inspections.
Performance Element: Check health safety, and/or environmental inspections.
Measurement Criteria: Make sure that audit records and documentation are complete and available.
Measurement Criteria: Use procedures established to conduct audits.
Measurement Criteria: Complete documentation related to audit accurately.
Measurement Criteria: Use appropriate forums and format to report audit documentation.
Measurement Criteria: Arrange for relevant experts in situations needing additional credibility on an as needed basis.
Measurement Criteria: Verify that audit was effective at identifying compliance and non-compliance issues.
Performance Element: Document inspection findings.
Measurement Criteria: Complete inspection reports accurately.
Measurement Criteria: Verify that corrective action reports or logs exist.
Measurement Criteria: Submit documentation to correct parties according to schedule.
Measurement Criteria: Verify that documentation includes all relevant information.
Performance Element: Conduct area health safety, and/or environmental inspections.
Measurement Criteria: Make sure that area inspection documentation is complete and available.
Measurement Criteria: Use procedures established to conduct area inspections.
Manufacturing

Pathway Topic: Inspections

**Measurement Criteria:** Use an appropriate forum and format to report area inspection documentation.

**Measurement Criteria:** Verify that inspections are thorough, timely and cover all relevant aspects of health safety, and/or environmental concerns.

**Measurement Criteria:** Verify that inspection includes visual inspections as well as information gathered directly from workers.

**Measurement Criteria:** Arrange for relevant experts in situations needing additional credibility on an as needed basis.

Performance Element: Submit inspection and audit findings to correct parties.

**Measurement Criteria:** Verify that record of transmittal of inspection and audit findings is complete, accurate, and includes all necessary signatures.

**Measurement Criteria:** Verify that inspection and audit findings are on file.

**Measurement Criteria:** Post inspection and audit findings appropriately to ensure their accessibility to all relevant parties.

Performance Element: Regularly check job safety analysis against actual experience.

**Measurement Criteria:** Conduct verification according to approved schedule.

**Measurement Criteria:** Do the verification on the basis of the existing data.

**Measurement Criteria:** Verify that compliance rate reports are on file.

Pathway Topic: Compliance

**Pathway KS Statement:** Implement health, safety, and/or environmental programs, projects, policies, or procedures.

Performance Element: Document regulatory compliance.

**Measurement Criteria:** Use approved schedules and specifications to complete regulatory compliance activities.

**Measurement Criteria:** Verify that compliance documentation meets all regulatory, legal, and company standards.

**Measurement Criteria:** Verify that the current list of applicable regulations is accessible to all parties as required.

**Measurement Criteria:** Verify that compliance documentation is on file and accessible to all relevant parties.

**Measurement Criteria:** Maintain a system for filing the sign-off sheets for compliance.

Performance Element: Communicate company health, safety, and environmental policies and procedures.

**Measurement Criteria:** Make health, safety, and environmental policies appropriately visible in the workplace.

**Measurement Criteria:** Use multiple methods to communicate policies and procedures.

**Measurement Criteria:** Maintain records of worker notification of policies and procedures on file.

**Measurement Criteria:** Deliver communication to correct parties in a timely manner.

**Measurement Criteria:** Obtain feedback from workers to determine effectiveness of communications.

**Measurement Criteria:** Use worker feedback to modify communication methods.
Pathway Topic: Compliance

Performance Element: Stop unsafe work practices.

Measurement Criteria: Modify manufacturing process to attain adequate levels of safety.

Measurement Criteria: Correct unsafe behavior immediately and communicate to correct parties.

Measurement Criteria: Use appropriate forum and format to document notice of unsafe practices.

Measurement Criteria: Use preventive maintenance or departmental safety audits to record corrective action for unsafe work practices.

Measurement Criteria: Update safety policies on a regular basis.

Measurement Criteria: Determine if observations and review of safety records show reduction in targeted injuries or unsafe behaviors.

Measurement Criteria: Give priority to avoiding unsafe practices when planning new manufacturing processes.

Performance Element: Suggest solutions that will eliminate unsafe practices.

Measurement Criteria: Make sure all relevant parties are included in the development of safety solutions.

Measurement Criteria: Schedule follow-up meetings that include all appropriate parties to discuss solutions.

Measurement Criteria: Test and revise proposed solution(s) as necessary.

Measurement Criteria: Document suggestions and forward to correct parties.

Performance Element: Report violations to appropriate authorities.

Measurement Criteria: Keep violation reports, including disciplinary action where appropriate, on file.

Measurement Criteria: Distribute violation reports to the responsible party.

Measurement Criteria: Follow the legal, regulatory and company policy to communicate violations to the proper authorities.

Measurement Criteria: Use the chain of command to ensure that corrective action is taken.

Measurement Criteria: Use the appropriate channels to report health, safety, and environmental concerns.

Performance Element: Prepare for health, safety, and environmental emergencies.

Measurement Criteria: Develop employee and fire emergency plans before emergencies occur.

Measurement Criteria: Implement employee and fire emergency plans during an emergency.

Measurement Criteria: Verify that emergency equipment is available and in working order.

Measurement Criteria: Take necessary action to ensure that employees are properly trained in emergency procedures.

Measurement Criteria: Use company policies and procedures to complete emergency drills.

Pathway Topic: Continuous Improvement

Pathway KS Statement: Implement continuous improvement in health, safety,
Pathway Topic: Continuous Improvement and/or environmental practices.

Performance Element: Analyze root causes or problems and prioritize problems that need to be addressed first.

**Measurement Criteria:**
- Identify, document, and communicate priorities clearly.
- Use appropriate data to prioritize goals and problems.
- Use specific situations to base selection of appropriate data analysis methods.
- Complete data analysis documentation accurately.
- Use input from workers and management to determine priorities.

Performance Element: Analyze health, safety, and/or environmental data.

**Measurement Criteria:**
- Verify that analysis contains sufficient detail to meet applicable standards.
- Complete documentation of analysis accurately.
- Make raw data available for inspection.
- Compare company’s health, safety, and/or environmental assurance trends against industry health, safety, and/or environmental trends.
- Forward analysis to correct parties.
- Select appropriate analysis methods and use them properly.
- Use appropriate and accurate metrics and/or develop them for use in the analysis.
- Use charts, graphs, or tables to communicate data in written conclusions and plans.

Performance Element: Determine projects to address priorities.

**Measurement Criteria:**
- Design projects to support and reinforce established company goals.
- Take necessary action to involve all relevant parties in the development of the project.
- Use scheduling methods to ensure timely development.
- Verify that project plans are complete, detailed and include the resource requirements.

Performance Element: Benchmark health, safety, and/or environmental practices.

**Measurement Criteria:**
- Gather appropriate information from recognized industry leaders.
- Arrange for independent evaluations of worksite health, safety, and/or environmental assurance practices.
- Use benchmarking information as a basis for making recommendations.
- Conduct and document analysis comparing current practice against benchmark data.
- Use a variety of means to gather information regarding excellent health, safety, and/or environmental assurance practices.
Pathway Topic: Continuous Improvement

Performance Element: Maintain knowledge of policies and procedures for health, safety, and/or environmental issues.

Measurement Criteria: Attend workshops, conferences, and other career development sessions.

Measurement Criteria: Take action to ensure that involvement in a professional society relevant to job activities is ongoing.

Measurement Criteria: Take action to ensure that up-to-date resources on health, safety, and/or environmental assurance are accessible to all relevant parties.

Pathway Topic: Promotion

Pathway KS Statement: Promote health, safety, and/or environmental assurance programs.

Performance Element: Be an advocate for workplace safety.

Measurement Criteria: 1. Make workplace safety posters and other relevant information visible.

Measurement Criteria: 2. Identify, model, recognize, and publicize manufacturing practices for health, safety, and/or environmental assurance.

Measurement Criteria: 3. Make sure that workers responsible for health, safety, and/or environmental assurance are regularly present in manufacturing workplace to encourage good health, safety, and/or environmental assurance practices.

Performance Element: Suggest health, safety, and/or environmental assurance programs to management and other workers.

Measurement Criteria: Keep materials supporting health, safety, and/or environmental assurance programs on file.

Measurement Criteria: Document suggestions supporting health, safety, and/or environmental assurance.

Measurement Criteria: Forward suggestions supporting health, safety, and/or environmental assurance to all relevant parties.

Measurement Criteria: Make suggestions based on an accurate assessment of employee needs and interests, requirements in the workplace, and business objectives.

Measurement Criteria: Discuss data and statistical analysis with decision-makers.

Measurement Criteria: Hold meetings to advocate for health, safety, and/or environmental assurance programs with all relevant parties.

Measurement Criteria: Use various methods to market benefits of high quality suggestions supporting health, safety, and/or environmental assurance programs.

Performance Element: Evaluate health, safety, and/or environmental assurance programs.

Measurement Criteria: Continuously maintain, evaluate, and report recordable incidents of injury and other incidences of health, safety, and/or environmental assurance.

Measurement Criteria: Maintain a log of health, safety, and/or environmental assurance.
Pathway Topic: Promotion

Measurement Criteria: Communicate evaluations to correct parties in a timely manner.

Measurement Criteria: Use evaluations to improve the outcomes of health, safety, and/or environmental assurance programs.

Measurement Criteria: Keep self-assessment studies on health, safety, and/or environmental assurance programs on file.

Measurement Criteria: Compare health, safety, and/or environmental assurance statistics with industry benchmarks or standards.

Performance Element: Educate others about the benefits of health, safety, and/or environmental assurance programs.

Measurement Criteria: Design or purchase materials supporting health, safety, and/or environmental assurance programs that are clear and appropriate for the intended audience.

Measurement Criteria: Keep health, safety, and/or environmental assurance materials on file and accessible.

Measurement Criteria: Hold meetings to educate individuals about health, safety, and/or environmental assurance programs with all relevant groups.

Measurement Criteria: Use various methods to advertise benefits for and elements of high quality health, safety, and/or environmental assurance programs.

Measurement Criteria: Use various methods to educate new hires about the company’s commitment to safety.

Measurement Criteria: Provide continuing education to employees.

Measurement Criteria: Make sure that education activities include cost-benefit analysis of workers’ compensation programs.

Performance Element: Conduct activities that educate others about the benefits of workplace health, safety, and/or environmental assurance programs.

Measurement Criteria: Design or purchase materials supporting health, safety, and/or environmental assurance programs that are clear and appropriate for the intended audience.

Measurement Criteria: Verify that health, safety, and/or environmental assurance materials are on file and accessible.

Measurement Criteria: Hold meetings with all relevant groups to educate individuals about health, safety, and/or environmental assurance programs.

Measurement Criteria: Use various methods to advertise benefits for and elements of high quality suggestions supporting health, safety, and/or environmental assurance programs.

Measurement Criteria: Use appropriate methods to educate new hires about the company’s commitment to safety.

Measurement Criteria: Provide continuing education to employees.

Measurement Criteria: Include cost-benefit analysis of workers’ compensation programs in education activities.
Manufacturing

Pathway Topic: Analysis

Pathway KS Statement: Conduct job safety and health analysis for jobs, equipment, and processes.

Performance Element: Consult with outside sources about health, safety, and/or environmental assurance aspects of jobs.

Measurement Criteria: Maintain an accurate list of relevant outside sources.
Measurement Criteria: Make postings of current emergency contact information accessible to all relevant parties.
Measurement Criteria: Maintain a contact log.

Performance Element: Participate in the development of job safety analysis.

Measurement Criteria: Hold meetings to conduct job safety analysis with all relevant parties.
Measurement Criteria: Generate suggestions for job safety improvements.
Measurement Criteria: Document and analyze relevant data.
Measurement Criteria: Hold one-on-one and small group meetings with workers to identify job safety issues.
Measurement Criteria: Make observations at worksites on a regular basis to gather information for job safety analysis.

Performance Element: Gather information from employees about occupational hazards.

Measurement Criteria: Observe employees on a regular basis for safe work behaviors and practices.
Measurement Criteria: Maintain records of employee interviews regarding occupational hazards.
Measurement Criteria: Publish and distribute safety reports and statistics to relevant parties.
Measurement Criteria: Provide a method for employees to report safety concerns to relevant parties.

Performance Element: Suggest ways to eliminate hazards.

Measurement Criteria: Keep suggestions for eliminating the hazard on file.
Measurement Criteria: Complete safety-related work orders in a timely manner.
Measurement Criteria: Communicate suggestions to correct parties.
Measurement Criteria: Make suggestions that are relevant and appropriate.

Performance Element: Regularly verify job safety analysis against experience.

Measurement Criteria: Evaluate job safety analysis with relevant injury and worksite data.
Measurement Criteria: Interview employees to gain their input.

Performance Element: Conduct activities that educate others about the benefits of workplace health, safety, and/or environmental assurance programs.

Measurement Criteria: Design or purchase materials supporting health, safety, and/or environmental assurance programs that are clear and appropriate for the intended audience.
Measurement Criteria: Verify that health, safety, and/or environmental assurance materials are on file and accessible.
Measurement Criteria: Hold meetings with all relevant groups to educate individuals.
Manufacturing

Pathway Topic: Analysis
about health, safety, and/or environmental assurance programs.

**Measurement Criteria:** Use various methods to advertise benefits for and elements of high quality suggestions supporting health, safety, and/or environmental assurance programs.

**Measurement Criteria:** Use appropriate methods to educate new hires about the company's commitment to safety.

**Measurement Criteria:** Provide continuing education to employees.

**Measurement Criteria:** Include cost-benefit analysis of workers’ compensation programs in education activities.

Pathway Topic: Safety

Pathway KS Statement: Maintain a safe and productive workplace.

Performance Element: Follow local, federal and company regulations to perform environmental and safety inspections.

**Measurement Criteria:** Identify, report and monitor potential hazards in the workplace.

**Measurement Criteria:** Take corrective action to correct potential hazards.

**Measurement Criteria:** Review health, safety, and environmental documentation and policies thoroughly and regularly.

**Measurement Criteria:** Ensure that inspections meet all relevant, health, safety, and environmental laws and regulations.

**Measurement Criteria:** Completed inspections according to company schedule and procedures.

**Measurement Criteria:** Document inspection records and store them correctly.

Performance Element: Participate in emergency response teams to perform emergency drills.

**Measurement Criteria:** Confirm that first aid training and certification on emergency and first aid procedures are complete and up-to-date.

**Measurement Criteria:** Comply with company and regulatory policies and procedures to respond to emergencies.

**Measurement Criteria:** Document emergency drills and incidents according to company and regulatory procedures promptly.

Performance Element: Identify unsafe conditions and take corrective action.

**Measurement Criteria:** Identify, report, and document conditions presenting a threat to health, safety, and the environment.

**Measurement Criteria:** Identify corrective actions.

**Measurement Criteria:** Consult appropriate parties about corrective actions and take corrective actions following company procedures promptly.

**Measurement Criteria:** Track and report ongoing safety concerns until corrective action is taken.

Performance Element: Provide safety orientation to train other employees in safe practices and emergency procedures.

**Measurement Criteria:** Verify that all topics and procedures are covered in orientation to facilitate employee safety.

**Measurement Criteria:** Observe orientation to ensure that it makes clear the need and
Pathway Topic: Safety

processes for employees to raise safety concerns, ask questions, and receive additional training.

**Measurement Criteria:** Use company requirements to document orientation.

**Measurement Criteria:** Verify that orientation meets all relevant laws, policies, and regulations.

**Measurement Criteria:** Deliver safety instruction and updates on a regular schedule.

Pathway Topic: Training

**Pathway KS Statement:** Train workers in health, safety, and/or environmental issues.

**Performance Element:** Determine priorities for health, safety, and/or environmental training needs.

**Measurement Criteria:** Conduct analysis of health, safety, and/or environmental tasks at the job level.

**Measurement Criteria:** Analyze health, safety, and/or environmental records to identify training needs.

**Measurement Criteria:** Document results of training assessments.

**Measurement Criteria:** Use the analysis to develop training plans with clear objectives.

**Measurement Criteria:** Solicit worker input regarding training needs.

**Performance Element:** Prepare health, safety, and/or environmental training materials.

**Measurement Criteria:** Use appropriate resources to ensure that content included in training materials meets industry, government, and company standards.

**Measurement Criteria:** Work with appropriate personnel to ensure that the training materials includes the correct content to meet the training needs.

**Measurement Criteria:** Develop and implement a system to ensure that training materials are updated continuously.

**Measurement Criteria:** Work with appropriate personnel and outside sources as needed to make sure that training materials are clear, worker-friendly, and appropriate for the audience.

**Performance Element:** Conduct health, safety, and/or environmental training for employees.

**Measurement Criteria:** Document employee records to show that training has been delivered.

**Measurement Criteria:** Develop a training schedule that facilitates participation of employees.

**Measurement Criteria:** Develop evaluations that indicate workers’ understanding of the training materials.

**Measurement Criteria:** Develop a system for verifying that appropriate workers receive training.

**Measurement Criteria:** Show how test results and certifications achieved indicate effective training.
Pathway Topic: Training

Performance Element: Document required health, safety, and/or environmental training.

**Measurement Criteria:** Maintain training attendance records on file.

**Measurement Criteria:** Develop and maintain a training profile for each job.

**Measurement Criteria:** Maintain accurate records of test results and certifications achieved.

**Measurement Criteria:** Make documentation available on an as needed basis to appropriate parties.

**Measurement Criteria:** Request feedback from trainees and document feedback that is received.

**Measurement Criteria:** Maintain confidentiality of the outcomes of the health, safety, and/or environmental assurance training.

Performance Element: Plan future health, safety, and/or environmental training.

**Measurement Criteria:** Make sure that appropriate content is included in training plans.

**Measurement Criteria:** Design training for the specific needs of individuals.

**Measurement Criteria:** Ask appropriate workers for input related to the content of the training.

**Measurement Criteria:** Design training plan to include effective evaluation and follow-up process.

**Measurement Criteria:** Include worker feedback when developing future training.