**DRAFT RCA PROCEDURE**

1. **PURPOSE**

The purpose of this procedure is to provide the requirements for the conduct of Root Cause Analysis. This includes but is not limited to, any corrective actions taken and the tracking mechanisms used (to determine the effects of those actions), during the implementation of approved recommendations assigned to all identified root cause(s) on a consistent basis, for all failures or events related to the Environment, Health, Safety, Security, Reliability and Quality issues.

**2.0**  **SCOPE**

This procedure applies directly, but is not limited to, all chartered Root Cause Analyses related to Environment, Health, Safety, Security, Reliability and Quality issues occurring inside the Complex.

**NOTE:** *All Departments shall follow this procedure for any event investigation, analysis, corrective action and the sharing of any key learning derived from Root Cause Analyses efforts. The adopted RCA software shall be utilized for the purpose of documentation of all the steps performed during the Root Cause Analysis investigation.*

**3.0** **REFERENCES**

The following references are applicable to this procedure:

**3.1** Root Cause Analysis Reporting, Investigation & Analysis Guideline

**3.2** Asset Reliability Management

**3.3** Incident Reporting, Classification, Investigation and Analysis

Procedure

**3.5** Plant Status Communication

**4.0 DEFINITIONS**

* **Charter:** Scope of the Environmental, Health, Safety, Security, and/or Reliability and/or Quality event investigation as issued by the appointing Sponsor of the Investigating Team for the purpose of addressing the expectations of the analysis.
* **Data Gathering:** The process of collecting the required failure data necessary to analyze the chartered event.
* **Department Assignee:** Any employee, nominated by the recommendation owner who ensures the recommendation is adequately implemented.
* **EHSS Event:** An uncontrolled, and/or unplanned, and/or undesired event and/or exposure that has the potential for, or does result in, an undesirable consequence to personal (injuries and/or illness) and/or the Environment, Health, Safety and Security of the complex and/or the neighboring community.
* **EHSS:** Environment, Health, Safety and Security
* **Event Classification:** Any failure event that meets any of the criteria established for EHSS incidents or for reliability events.
* **Executive Management:** General Manager to President Levels in the organization.
* **Failure:** Referring to any undesirable EHSS, Reliability or Quality event.
* **Facilitator:** Also termed “Principal Analyst” - A trained and certified RCA pool member who is well qualified in the company adoptedmethodology and software. This individual is assigned as the Principal Analyst of the analysis team as deemed necessary by the Sponsor for the purpose of facilitating and ensuring the quality of the Root Cause Analysis investigation.
* **Human Root:** The point of inappropriate human intervention that led to the failure.
* **Hypothesis:** A possibility (cause in the “cause and effect” relationship) related to the effects that have not yet been verified as true or not true.
* **Incident Owner:** The Department Manager of the area where the incident under investigation took place.
* **Issuer:** The Company employee who initiated the investigation of the incident.

**NOTE:** *For EHSS incidents the issuer is the EHSS Manager/Engineer. For Reliability incidents the issuer is the Production Engineer/Specialist. For bad actors the issuer is the Reliability Engineer.*

* **Key Learning:** Benefits extracted from the investigation process that should be shared with other sections, departments, or affiliates.
* **Latent Root:** Management or System Organizational roots that account for the intent of the inappropriate decision or actions taken by individuals or organizations identified by the human root cause.
* **Logic Tree/Causal Factor Tree:** Diagram that depicts the process of identifying the root causes of the event uncovered in the cause-and-effect relationship that led to failure.
* **Management:** Manger to President levels in the organization.
* **Physical Root:** The physical component or condition that if eliminated will prevent the failure event.
* **Principal Analyst:** The assigned team member that leads the investigation by facilitating the analysis and is responsible for the final results of the analysis; also known as the Facilitator.
* **Problem Statement:** Description of what, when and where the event happened, as well as the significance of the impact(s) experienced.
* **Quality Event:** Any deviation product/service specifications that might lead to off-spec product or customer lack of satisfaction.
* **RCA:**Root Cause Analysis
* **RCA Manager:** Appointed personnel who oversee the implementation of the adopted RCA methodology.
* **Recommendation:**Corrective actions that if implemented, will eliminate the event or their consequences will be significantly mitigated.
* **Recommendation Owner:** Manager of the concerned department where recommendation(s) have been assigned.
* **Reliability Event:** An uncontrolled and/or unplanned and/or undesired event that has the potential for, or result in, undesirable consequences that led to production loss, a plant shutdown or asset failure.
* **Root Cause:** That factor that started the chain of events that if removed, controlled or changed, will prevent recurrence of the same or similar event.
* **Shall:** The term “shall” as used in this document is intended to describe mandatory requirements.
* **Should:** The term “should” is intended to designate optional practices which do not consider mandatory, but does recommend to be consciously evaluated for any deviation from the recommended practices.
* **Sponsor:** Management member who has the specific responsibility for RCA’s which include chartering the investigation team to ensure expectations are met.

**NOTE:** *Referred to as the Appointing Authority*

* **Team Leader:** Assigned team leader is trained and certified person designated to lead the analysis team through the adopted investigation process as per the requirements of this Procedure; also known Principal Analyst or Facilitator.
* **Team Member:** Assigned individuals who participate in the investigation activities through the adopted process as per this RCA Procedure.
* **Timeline:** Chronological representation of the events relating to the failure designed to help the analysis team detail the failure event.
* **Unplanned Shutdown:** Plant shutdown without previous planning or anticipation that led to undesirable consequences.
* **Work Plan:** A timeline of the milestones and tasks that the investigation team needs to execute in order to complete the RCA.

**5.0 EXPECTED RESULTS**

RCA investigations are expected to achieve the following results:

**5.1** Repetitive failures that are eliminated or mitigated to an acceptable limit.

**5.2** Planned production rates are maintained.

**5.3** Failures are investigated to Latent Root Cause(s) and eliminated or mitigated.

**5.4** Minimization of asset, EHSS, Reliability and Quality failures.

**5.5** Recommendations are implemented in a timely manner and their results tracked.

to monitor their progress and improvements.

**5.6** Investigation skills and knowledge are enhanced and improved.

**6.0 REQUIREMENTS**

**6.1** The RCA Manager shall identify and update a list of personnel responsible for the implementation of this procedure using the adopted methodology.

**6.2** The unit assigned Reliability Engineer shall maintain records for all unplanned shutdowns for each plant with all required necessary details in order to establish a baseline for conducting RCA’s as per the Classification Matrix.

**6.3** Any event reported into the system for RCA investigation shall be triggered from any one of the following sources:

* Plant Shutdown or Slowdown, Quality Issue or Bad Actor.
* A report that requires a RCA study (for EHSS related incidents) and approved by the Appointing Authority.

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**6.4** For EHSS events shall take precedence over this procedure in the case of any conflicts.

**6.5** Adopted RCA software and methodology shall be utilized throughout the RCA process from initiation until implementation of the recommendation(s).

**6.6** The event shall be initiated in the adopted RCA Methodology within two (2) working days following event occurrence.

**6.7** The RCA Team shall be chartered within two (2) working days following the RCA initiation.

**6.8** The investigation shall be started within two (2) working of the appointing date.

**6.9** The RCA final report shall be issued within thirty (30) working days from the RCA charter date or as agreed with the Sponsor in cases where the RCA requires more than thirty (30) days.

**6.10** A dedicated RCA room shall be provided for conducting the RCA analysis and any required training.

**6.11** The severity of the Reliability/Quality events shall be classified by considering the impacts of the consequences of the event using the Reliability/Quality severity classifications.

**6.12** EHSS related events should be classified as required and should be investigated as per the initial classification given.

**NOTE:** *The classification may be revised during/after the investigation.*

**6.13** In the case where more than one criterion applies, the highest classification shall be considered, e.g. if the event resulted in a “Class B” production loss event, then both shall be stated in the RCA Problem Statement and the event shall be classified as a “B Class Event.”

**7.0 METHOD**

As described in Appendix 3 of this document.

**7.1 RCA Initiation**

**7.1.1** The incident owner (or his authorized delegate) shall identify the required RCA’s to be conducted and request the issuer to initiate an investigation using the adopted RCA methodology.

**7.1.2** The issuer shall initiate the RCA in the RCA software management tool and maintain the analysis by ensuring completion of all the required fields in the software.

**7.1.3** The incident owner (or his authorized delegate) shall approve the RCA in the software system and ensure the completion of all mandatory fields.

**7.1.4** The incident owner (or his authorized delegate) shall notify the RCA Manager about the incident under investigation.

**7.1.5** The selection of the Sponsor shall be in accordance with the appropriate selection criteria for EHSS, Reliability and Quality incidents.

**7.1.6** The selection of the PA and all analysis team members shall be in accordance with the requirements of this procedure.

**NOTE:** *The guidelines given in this procedure denote the minimum requirements for the assignment of Team Leader/PA and are based on the judgment* *of the Sponsor who has the final approval for the designation of the PA based on individuals’ qualifications.*

**7.2 Forming the RCA Team**

**7.2.1** The team size shall be at the discretion of the Sponsor.

**NOTE:** *The Sponsor should recognize the specific skills that may be required (e.g. Operations, Safety/Environment, Control Systems, Engineering Support, Maintenance, etc.) and assign team members accordingly. The normal size of the team is between three to seven (3-7) people formed from the different disciplines.*

**7.2.2** The PA shall be selected by the Sponsor in consultation from the RCA Manager.

**NOTE:** *The PA is responsible to give a quick RCA methodology awareness session to all the team members in the first kick-off meeting.*

**WARNING: *Additional Safety Training may be required for the data collection phase of the investigation.***

**7.2.3** The team members should be selected by the Sponsor in consultation with the PA, RCA Manager and their respective Department Managers.

**NOTE:** *The team may be comprised of appropriate members from all company affiliates or subsidiaries and shall be separated from the Repair and Recovery Team.*

**7.2.4** The investigation team shall be formed based on the initial assessment of the classification and nature of the event and can continue unchanged if, during the course of the investigation it is established that the initial classification was not correct.

**NOTE:** *The members of the investigation team shall be expected to continue the investigation without interruptions from other activities, e.g., vacation, training classes, other work priorities, etc. and provide full commitment to the investigation meeting requirements.*

**7.3 Conducting the RCA**

**7.3.1 Problem Identification**

**7.3.1.1** The investigation Sponsor should provide the investigation team with a clear charter in the first kick-off meeting.

**7.3.1.2** After formation of the RCA team, the team shall identify the exact problem to be analyzed and shall identify what, where, and when the failure happened, as well as the consequences and impact of the failure.

**7.3.1.3** After understanding and identifying the failure, the RCA team shall develop a RCA work plan and communicate it to the Sponsor.

**7.3.1.4** The investigation team must utilize the adopted RCA methodology to undertake the investigation.

**7.3.2 Data Gathering and Preservation**

**WARNING: *Additional Safety Training may be required for the data collection phase of the investigation.***

**7.3.2.1** Devise a data collection strategy and be ready to capture the event as soon as practical after the event occurs.

NOTE: *The formed RCA team shall start preliminary data gathering immediately after the event including interviewing concerned people, collecting/taking photographs, site visits, etc.*

**7.3.2.2** The PA shall ensure that all related basic data, evidence and witness statements have been collected and preserved by completing the appropriate fields in the adopted RCA software.

**NOTE:** *All fields should be completed by entering what to get, where to get it from and what to do with the data after it is gathered*. *For example, “obtain the Maintenance Histories (what) from the Maintenance Department (where) and bring to the team for correlation with other failure data (what to do with the data).*

**7.3.2.3** The RCA team shall describe the equipment and process, and shall know how it is operated, maintained, inspected as well as all other related aspects.

**7.3.2.4** The RCA team shall gather all related reports such as operational data, inspection reports, process control data, engineering records, etc.

**7.3.2.5** The RCA PA shall assign the data gathering activities to the team members and assign an expected collection date.

**7.3.2.6** The RCA team shall review events and inspection reports of previous similar events.

**7.3.2.7** The RCA team shall review plant change(s) that may have contributed to the event under investigation.

**7.3.2.8** Interviews should be conducted with all the potential witnesses and affected personnel as soon as possible using earlier witness statements as the basis for the interviews.

**NOTE:** *The formal interview will seek further information and clarification of the event and witness statements should be obtained from individuals separately in order to minimize intermingling of the information. Interviews should be relaxed, respectful, objective and adaptable so as not to intimidate the interviewee.*

**7.3.2.9** A written of each interview shall be prepared by the interviewers and recorded at attached in the adopted RCAsoftware.

**NOTE:** *From the gathered data, the RCA team will be able to deduce the sequence of events that occurred prior to the failure and shall document the timeline in a chronological representation of events relating to the failure. The timeline should also note the source(s) of the timeline data.*

**7.3.3 Analyzing the Data**

**7.3.3.1** The RCA team shall use the adopted RCA software and methodology to develop the logic tree and analyze the failure data.

**NOTE:** *The RCA team may refer to the provided RCA training documentation as necessary for clarification during the investigation.*

**7.3.3.2** Event Title: Assign an appropriate title to the event which could be the failure name or the reason that the analysis was chartered.

**7.3.3.3** Failure Mode(s): Identify the failure mode(s) which are the actual facts that the caused the failure event previously (proactive known failure modes of chronic failures) or facts directly found, seen or observed prior or leading up to the failure event (reactive or trigger based sporadic failures).

**7.3.3.4** Hypothesis: Each failure mode shall be drilled down (How Can) techniques to further levels being as broad and all inclusive as possible at all levels.

**NOTE:** *In most cases well developed and complete logic trees contain 10 – 14 levels of deductive logic.*

**7.3.3.5** The PA shall assign verification tasks to the team members and record the findings in the adopted RCAsoftware.

**7.3.3.6** Root cause(s) shall stop at the level of the logic tree where there is not added value to the investigation.

**NOTE:** *In the* adopted RCA methodology t*here are three (3) levels of root cause, i.e. physical, human and latent. The logic tree should be taken to the latent root cause(s) level in order to obtain the greatest amount of payback from the analysis.*

**7.3.4 RCA Recommendations**

**7.3.4.1** All recommendations should be SMART, i.e. Specific, Measurable, Achievable, Relevant and Time bound and clearly specify what needs to be done in order to eliminate, or significantly mitigate the identified root cause.

**NOTE:** *Avoid generic words like evaluate, improve, enhance, etc.*

**7.3.4.2** The RCA investigation team shall limit the recommendation(s) to those directly related to identified root cause(s) and be focused on corrections to systems (existing or new) or work processes and not punishing people for “honest” mistakes.

**7.3.4.3** Recommendation(s) shall be assigned an owner who will be responsible for tracking the implementation of the recommendation(s) with target dates agreed on with/by the PA and Sponsor.

**NOTE:** *As a guideline, recommendation(s) shall be implemented within two (2) months after receiving approval from the appropriate authorities.*

**7.3.4.4** The RCA PA shall circulate the recommendation(s) using the form attached in 13.5 of this procedure, to each recommendation owner and get their approval signature on the recommendation(s) including established realistic target dates.

**NOTE:** *Approved recommendation(s) must be documented in the adopted RCA* software.

**7.3.4.5** The recommendation owner shall assign a person from their department within five (5) working days responsible for coordinating and arranging the implementation of the RCA approved recommendation.

**NOTE:** *In this procedure this person is referred to as the Department Assignee.*

**7.4 Reporting and Sharing Key Learning**

**7.4.1** The RCA team shall report and present their findings to the Sponsor, Incident Owner, and all concerned Managers (including recommendation owners) after completion of the investigation.

**NOTE:** *Executive Management shall attend all “Class A Incident” report out Presentations.*

**7.4.2** The class “B” RCA list shall be presented to the appropriate management personnel on a monthly basis.

**NOTE:**  *Management will decide which class “B” RCAs require formal presentation.*

**7.4.3** The investigation team shall extract key learning/lessons learned from the event and important findings shall be reviewed with the RCA Manager and Sponsor.

**NOTE:** *The appropriate documentation shall be completed for any key learning for further processing,*

**7.4.4** The RCA PA shall present a brief version of the RCA Final Report presentation and identify the key learning to Management for all class A and B incidents.

**7.4.5** The RCA team shall prepare a RCA report out presentation that may contain, but not be limited to the following (refer to document 13.1):

* Charter Note
* Executive Summary of the findings
* RCA Team member list
* Problem Statement that describes what, when, where and the impacts (injury, production loss, environmental impacts, etc.)
* Event Description including the Business Impact
* Process Description (include necessary Drawings or Sketches)
* Action(s) Taken
* Data Gathered
* Time Line (Sequence of Events)
* Root Cause Analysis Technique (Logic Tree/Causal Factor Tree including Verifications)
* Root Cause(s) Identified
* Observations (Issues observed to be inappropriate that are not directly related to the event investigated)
* Recommendations for Event Resolution
* Key Learning Derived for the Investigation
* Appendices (List of Gathered Data)

**7.5 Recommendation Implementation and Tracking**

**7.5.1** The number of overdue recommendations shall be zero (0) and all recommendations must be executed properly and in a timely manner as per approved target dates.

**7.5.2** The recommendation owner is responsible to request the budget necessary for implementing the recommendation if needed,

**NOTE:**  *If needed, it is the recommendation owner’s responsibility to request the budget necessary for implementing the recommendation.*

**7.5.3** On completion of the recommendation, the department assignee shall notify the recommendation owner, Sponsor and RCA Manager and provide the necessary evidence of completion along with the actual cost for the implementation.

**7.5.4** The recommendation owner and Sponsor shall provide approval that the task has been completed by the department assignee before he can close the recommendation status.

**7.5.5** The department assignee shall fill out the deferral for (refer to document 13.3 in this procedure) if the need arises, in order to extend the recommendation target date and get the necessary approvals from the RCA Sponsor and forward to the RCA Manager.

**7.5.6** The status of outstanding recommendations shall be provided to all concerned departments.

**NOTE:** *It is the responsibility of the RCA Manager to track the status of recommendation implementation and report the status against the goals.*

**7.5.7** The recommendation owner shall ensure the recommendation implementation was made with complete details and documented evidence.

**7.5.8** The RCA Manager shall maintain a record of the cost (approximate) of implementing the recommendations.

**8.0 ROLES AND RESPONSIBILITIES**

**8.1 Issuer**

The issuer shall:

**8.1.1** Initiate the investigation in the adopted RCA methodology (documented in the software) within two (2) working days following the event occurrence.

**8.1.2** Enter all the following information regarding the event in the adopted RCA software to include but not be limited to:

**8.1.2.1** Issuer data including:

* Event Name
* Event Start Date
* Expected Analysis End Date
* Event Type
* Event Category
* Mangers Name of the Incident Unit

**8.1.2.2** Incident failure data including:

* Total Shut Down Hours
* Total Production Loss
* Items Effected

**8.1.2.3** Plant equipment data including:

* Equipment Tag Number
* Location in the Plant

**8.1.3** Submit the Event Report to the Incident Owner for further evaluation.

**8.1.4** Ensure that the Incident Owner is aware of the event to be investigated,

**8.2 Incident Owner**

The Incident Owner shall:

**8.2.1** Ensure that all failures (class A and B) are identified and submitted for RCA investigation,

**8.2.2** Initiate a RCA for class C and D failures based on the potential business impact and probability of re-occurrence.

**NOTE:** *If it is decided not to investigate the incident with a RCA, the matter will be handled by the Bad Actor Program.*

**8.2.3** Take the appropriate steps to preserve the evidence and require data for turn over to the RCA PA.

**8.2.4** Classify failures as required and select the Sponsor as per the classification and Sponsor selection guidelines specified for EHSS and Reliability incidents,

**8.2.5** Add the following manager information regarding the event in the adopted RCA software:

* Frequency (Number of times the incident occurred in the past 10 years)
* Estimated Cost of the Event
* Event Classification
* Name of the Sponsor for the Investigation

**8.2.6** Ensure that the Sponsor is aware of the event report and follow up with the Sponsor to charter the team within two (2) working days after RCA initiation.

**8.2.7** Provide all the necessary access and data that can help the RCA team in their investigation and enhance the process of conducting the RCA.

**8.2.8** Be accountable for recommendation(s) implementation.

**8.3 Sponsor**

The Sponsor shall:

**8.3.1** Select the RCA Team leader (PA) and members.

**NOTE:** *The Sponsor should seed support from the RCA Manager to ensure that the selected RCA team PA and members are skilled and trained.*

**8.3.2** Submit the RCA charter within two (2) working days following the RCA initiation including the target completion and communicate the charter (by e-mail) to Executive Management, the Incident Owner, the RCA Manager, the RCA Team and RCA Team line management.

**8.3.3** Review and approve the investigation work plan and problem statement.

**8.3.4** Provide continuous support during the RCA investigation and ensure that there are no difficulties or obstacles facing the team members and that the team is progressing in accordance with the work plan.

**8.3.5** Review and approve the final RCA results and findings with the RCA team before presenting it to management.

**8.3.6** Approve the RCA recommendation(s) and implementation schedule and ensure that all recommendations are assigned to a respective Recommendation Owner.

**8.3.7** When necessary for external use, seek legal counsel to review the RCA report to ensure the confidentiality and non-disclosure agreements are properly put in place.

**8.4 Team Leader/Principal Analyst (PA)**

The RCA Team Leader shall:

**8.4.1** Initiate the RCA activities within two (2) working days from the appointed date.

**8.4.2** Develop the RCA work plan and problem statement along with the team and obtain Sponsor approval.

**8.4.3** Direct and manage the entire RCA process.

**8.4.4** Ensure that the team members are following the RCA procedure and using the adopted RCA methodology and software during the investigation workflow.

**8.4.5** Ensure that all the RCA activities are completed as per the agreed workflow plan target date.

**8.4.6** Coordinate with the RCA Manager to ensure the fulfillment of the requirements necessary to facilitate the RCA.

**8.4.7** Asses the need for outside resources e.g., Company Technical Center (CTC), consultants, vendors, original equipment manufacturer, etc. and communicate to the Sponsor, Incident Owner and internal departments to solicit support and to gather data.

**8.4.8** Serve as the team spokesman during presentations or communication briefings.

**8.4.9** Report the RCA progress and team members’ performance to the Sponsor.

**8.4.10** Obtain approval from the Sponsor prior to issuing the RCA report.

**8.4.11** Perform the final presentation to the Sponsor and all concerned managers including recommendation owners after completion of the investigation.

**8.4.12** Ensure that all reports, evidence, and data gathered are stored in a shared folder and linked to the adopted RCA software management tool.

**8.4.13** Issue all required reports and key learning.

**8.4.14** Add the following information regarding the event in the adopted RCA software management tool:

**8.4.14.1** Team Lead Data to include:

* Problem Statement
* Problem Description
* Root Cause Summary
* Observations
* Key Learning
* Executive Summary

**8.4.14.2** Other Data Tabs on the left side column of the RCA page

* Link Asset to Analysis
* Logic Tree
* Preserve Records
* Communicate Records

**NOTE:** *Make sure to notify the department owner of all recommendations that have been made.*

**8.5 Team Members**

Team members shall:

**8.5.1** Attend all RCA meetings including the final RCA presentation to management and participate in all RCA activities/tasks.

**8.5.2** Provide complete support and help in the RCA process including data gathering, site visits, inspection, developing reports and presentations, external meetings or visits, etc.

**8.6 Recommendation Owner**

The Recommendation Owner shall:

**8.6.1** Attend the final RCA presentation and comment, review and agree on the recommendations given by the investigation team.

**NOTE:** *Recommendations cannot be challenged after the final report approval.*

**8.6.2** Provide target dates and assignees for the recommendation(s) implementation.

**8.6.3** Obtain the financial budget to complete the recommendation(s).

**8.6.4** Follow up on the status of recommendation(s) till completion.

**8.6.5** Be responsible for the implementation of all approved recommendations.

**8.6.6** Verify that recommendation(s) implementation and close out in the adopted RCA software tool.

**NOTE:** *This is done when the department assignee has notified the Recommendation Owner that the recommendation has been implemented and completed.*

**8.7 Department Assignee**

The Department Assignee shall:

**8.7.1** Ensure the **c**ompletion of the recommendation has been done by the agreed time.

**8.7.2** Follow Management of Change (MOC) procedures for any recommendation(s) requiring changes.

**8.7.3** Change the implementation status to completed in adopted RCA software tool and that the appropriate evidence has been attached.

**8.7.4** Notify the Sponsor, Recommendation Owner, Incident Owner and RCA Manager regarding implementation close out along with the evidence of recommendations completions with associated cost to implement.

**8.8 RCA Manager**

The RCA Manager shall:

**8.8.1** Provide complete guidance, training (both methodology and software) and support to the Incident Owner, RCA PA and team members and Sponsor for any event investigated.

**8.8.2** Perform a quality assurance role throughout the RCA process.

**8.8.3** Work closely with the Sponsor and make the necessary communication(s) between parties to ensure they are all on the same level of understanding and performance.

**NOTE:** *The RCA Manager may attend shutdowns/major failure meetings to ensure the event(s) detail(s) are captured accurately. In addition, the RCA Manager may provide support and present previous cases which have had similar RCAs performed for the purpose of learning and knowledge sharing.*

**8.8.4** Meet monthly with management and present RCA’s progress, recommendation(s) implementation status and KPIs.

**8.8.5** Provide management periodic statistical analysis reports highlighting the focus areas/plants and corrective action plans for the concerned area management.

**8.8.6** Fulfill all investigation requirements and provide information/data/reports on time.

**8.8.7** Evaluate the RCA team’s progress and provide support as necessary on the methodology and software and recommend actions for improvement in the quality of the investigation.

**8.8.8** Attend RCA affiliate network meetings and act as the focal person for any communication(s) between departments and facilities with respect to RCA.

**8.8.9** Create and manage RCA PA’s and team members.

**8.8.10** Create and maintain a database of all candidates for the conduct of RCA’s to help Sponsors in choosing the right team for the event to be investigated.

**NOTE:** *The list of qualified RCA PA’s/leaders shall be approved by all General Managers and kept updated routinely.*

**8.8.11** Keep a record for the cost (estimate) of implementing all approved recommendations for all RCAs after completion of the study.

**8.8.12** Share KPIs to management on a monthly basis.

**9.0 PERFORMANCE IN APPLICATION OF RCA GUIDELINES**

Performance shall be measured through application of RCA guidelines which should contain, but not be limited to, the following items:

* All chartered RCAs shall be investigated as per the adopted RCA methodology.
* Sharing of RCA’s results internally with concerned departments.
* Sharing class A and B RCA key learning with other facilities.
* Utilization of the RCA in the adopted RCA software tool.
* Compliance to recommendation(s) implementation with evidence and zero (0) overdue.

**10.0 KEY PERFORMANCE INDICATORS (KPIs)**

RCA effectiveness shall be assessed monthly through the following KPIs at the unit level by the Reliability Engineers and site wide RCA Manager.

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**11.0 VERIFICATION PROCESS**

**11.1** The RCA Manager shall lead a team to audit compliance with this procedure including verification of RCA recommendation(s) implementation.

**11.2** The auditing schedule shall be carried out annually.

**11.3** The auditing team shall present to the appropriate management the auditing result(s) and corrective actions that have been, or needs to be, taken.

**11.4** The RCA Manager shall perform quality assurance by utilizing the RCA quality assessment checklist and report to the RCA Leader and Sponsor to improve the RCA quality.

**12.0 FEEDBACK PROCESS**

**12.1** The RCA Manager shall seek feedback from concerned employees involved in this procedure about:

* The procedures and their effectiveness.
* Observation of any deficiencies in the procedures on an annual basis.

**12.2** The RCA Manager shall give feedback to Executive Management about the findings from the assessments and self-audits; the recommendations and the status of implementation of the corrective actions taken, or to be taken.

**13.0 DOCUMENTATION**

**13.1 RCA Presentation Template**

INSERT HERE

**13.2 Final Investigation Report Template**

INSERT HERE

**13.3 Deferral Form**

INSERT HERE

**13.4 RCA Quality Assessment Checklist**

INSERT HERE

**13.5 Recommendations Form**

INSERT HERE

**13.6 Position/Role and Training Requirements Guidelines**

INSERT HERE

**14.0 FLOW CHART**

INSERT HERE