

QSE Procedure	INCIDENT REPORTING AND INVESTIGATION			Number: SMA-P-0016	
Quality and Safety	Approved by: QSE Manager	Initial Issue: 09-30-10	Page: 1 of 22	Revision: 10 Eff Date: 11/27/23	

PURPOSE

The purpose of this procedure is to provide guidance for timely notification, classification, and investigation of work-related incidents for the Base Operations and Support Services (BOSS) contract. Investigations use a graded approach by which the level of analysis, documentation, and actions necessary to take are appropriate to the relative importance to safety, operational requirements, and security.

SCOPE AND APPLICABILITY

This procedure is applicable to all BOSS personnel performing activities at Kennedy Space Center (KSC), Cape Canaveral Space Force Station (CCSFS), or an offsite location where the initiation of an event or near miss report might be advisable. All outside BOSS contractors performing construction and/or service work must comply with applicable sections of procedure SHP-F-1926A, Contractor Detailed Safety Requirements.

This procedure complies with the reporting requirements as set forth by:

- KNPR 8715.3 (NASA KSC: KSC Safety Practices Procedural Requirements)
- NPR 8621.1 (NASA HQ: NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating and Recordkeeping)
- KNPR 8500.1 (NASA KSC: KSC Environmental Requirements)
- KSC-PLN-2807 (KSC Mishap Preparedness and Contingency Plan)
- SMA-SHP (Safety & Health Plan)
- QMS-QP (Quality Plan)
- ENG-P-0027 (Technical Anomaly Event Disposition Process)

PROCESS

1. HANDLE THE EMERGENCY

- 1.1. When an incident occurs, seeking help, rescue and preventing further damage are the most important priorities. Seek help/rescue for employees injured or exposed to physical or chemical hazards. Take necessary steps to protect yourself and fellow employees.
- 1.2. The injured/ill employee, co-worker or witness must ensure that the affected employee receives immediate medical attention by calling the KSC emergency phone numbers below and/or notifying their respective supervision. Rendering first aid is a voluntary action that is made at the discretion of the responding employee.

1.3.

EMERGENCY SERVICES
Dial 911, if calling from a land line
Dial (321) 867-7911, if using a cell phone at KSC
Dial (321) 853-7911, if using a cell phone at CCAFS

- 1.4. The injured/ill employee should seek assistance from responders to transport them to a medical facility. If possible, for non-life-threatening injuries, the responding employee should consider taking the injured/ill employee to the KSC Occupational Health Facility (OHF) or the nearest medical facility if the injured employee agrees. Supervisors are expected to transport, escort, or at least meet, the injured employees where care is being provided.
- 1.5. If in doubt to the seriousness of the event or near miss, ask for help and notify emergency services if warranted.

2. WHAT TO REPORT AS AN EVENT OR NEAR MISS

- 2.1. BOSS encourages a “reporting culture” also known as “Just Culture” and expects employees to notify and report events, technical anomalies, and near misses as soon as possible after they have occurred or have been discovered. Employees, who witness, observe, or discover an event or near miss must assess the seriousness and its potential to cause greater harm.

- 2.2. Types of Events/Near Misses to report include:

- Occupational Injuries and Illnesses requiring first aid, medical treatment, restricted duty, or time away from work
- Recurring employee medical conditions that are potentially work related, such as back pain or cumulative trauma disorders (e.g., carpal tunnel syndrome). Personal illnesses are not reported.
- Government Vehicle Damage
- Government Property Damage resulting from any BOSS or subcontractor action/activity.
- Contractor Vehicle Damage
- Fires, Flashes or Explosions that are unintentional and/or uncontrolled
- Chemical Spill or Release of any amount
- Environmental Impact to a natural or cultural resource
- High Visibility or Significant Issue which may involve Public Affairs or a significant NASA concern. (i.e., Mishap A or B classification, Appendix E)

NOTE: Chemical spills/releases have a more detailed subset of requirements (Appendix C, Chemical Spill Guidance).

- 2.3. Types of Technical Anomalies to be reported include but not limited to:

- Non-Routine technical anomalies requiring engineering support.
- Recurring technical problems requiring engineering support

- High Visibility technical problems
- Management Directed

NOTE: Routine or emergency trouble calls that are documented and resolved by the shop are not reported through ENMA.

- 2.4. When reporting, be as detailed as possible while maintaining objectivity to the facts. During the initial notification process, refrain from speculation and provide a clear, yet concise, observation. If possible, instead of using the names of people, use the titles or functions of those involved.
- 2.5. Employees and supervisors are responsible for ensuring timely and proper notifications occur following an event or near miss as soon as possible.
- 2.6. Employees are responsible for the initial notifications to the supervisor and/or Spaceport Integration Center (SIC), followed by utilizing the Event/Near Miss Application (ENMA) accessible from the BOSS Home Page.
- 2.7. The Spaceport Integration Center/JSDY/JSTC is responsible for making the secondary notification to the appropriate personnel based on the Appendix A: Event and Near Miss Reporting Matrix.
- 2.8. Additional organizational procedures may require activating call trees or submitting reports to the customer, corporate office, or regulatory agency following the initial or secondary notifications. Refer to the following as required.
 - SHP-P-0601 (Vehicle Safety)
 - MSO-P-0010 (JSDY Test Conductor Operations)
- 2.9. Upon knowledge of a highly visible, significant, or serious incident, the QSE Department Manager or designee must ensure the notification occurs between QSE and internal or external agencies that require such notifications.
- 2.10. The employee, supervisor, manager, or responsible system engineer must ensure an event/near miss report is completed and submit as soon as possible. The Duty Office may be asked to submit the event if it is after-hours. A NASA Type A and B mishap event notifications must be reported **within one hour of occurrence**. A NASA Type C and D mishap and Near Miss (close call) notifications must be reported **no later than four hours** after it occurred or when it was first observed. Under no circumstances will submission of the notification be postponed.
- 2.11. The supervisor of the area where the incident took place should be heavily involved in assisting the Investigating Authority's (IA) investigation. Since supervisors are responsible for worker training and activities on-the-job, they know the work assignments and have issued the work instructions. The supervisor will be responsible for ensuring that corrective / preventative actions

identified by the investigation are taken and that those actions are effective in reducing or eliminating the possibility of recurrence.

- 2.12. Technical anomalies will be investigated by appropriate Engineering, QSE, and/or line organizations in accordance with procedure ENG-P-0027 (Technical Anomaly Event Disposition Process) and when applicable this procedure.
- 2.13. If the technical anomaly investigation reveals that the event qualifies as an incident, then an incident investigation conducted by QSE is warranted (e.g., property damage caused by BOSS actions, personnel injury, significant safety, and health concern, etc.)
- 2.14. QSE will be responsible for dispositioning near misses to determine whether further investigation or corrective actions are required. QSE ensures that they are reported to NASA and PSP upper management and tracked to closure as required.

3. SUBMIT THE EVENT/NEAR MISS REPORT

- 3.1. Access the on-line BOSS Event / Near Miss Application (ENMA) on the BOSS web page at <https://boss.ksc.nasa.gov/SitePages/Home.aspx>. See Appendix B, Event and Near Miss Application (ENMA) Instructions, for more detail.
- 3.2. Based on the facts of the occurrence, determine the type of Event or Near Miss and the appropriate Action Level. For an Event or Near Miss with multiple consequences, select the type of report with the greatest Action Level.
- 3.3. Select the appropriate Event or Near Miss Report link to the right of the corresponding Action Level. If in doubt which report to submit, the submitter should consult with his or her supervisor or QSE to obtain clarification.
- 3.4. Complete all the fields on the form and click the "Submit" button. The application will not allow the report to be submitted until all required fields indicated with an asterisk (*) are completed.

NOTE: For Primary, Secondary and Tertiary Event Type select from the drop down only. Do not type in field.

- 3.4.1. The report must not contain Controlled Unclassified Information (CUI) or Personally Identifiable Information (PII). When reporting an event or near miss, do not include information that can be used to uniquely identify an employee (e.g., name, social security number, employee ID, UUPIC, user ID, etc.) involved in an event or near miss
- 3.4.2. An Event or Near Miss submittal confirmation email will be sent to the submitter to indicate that the report was submitted successfully in the system. Employees submitting Event and Near Miss Report have the option to remain anonymous.

4. INVESTIGATIONS

- 4.1. Investigating a case of misconduct should be non-biased and based on objective evidence. The initial root cause investigation can be completed, using a five why process, fish bone diagram, fault/event tree, incident bow tie etc. A proper investigation should answer the following:
- What happened?
 - What should have happened?
 - What does the procedure require, if applicable?
 - Why did the incident happen (Root Cause)?
 - What were the contributing factors?
- 4.2. Careful consideration should be made to find gaps in processes and systems, rather than pointing blame to the employee. To do this, a just culture algorithm is recommended after identifying the root cause of the misconduct.

5. JUST CULTURE

5.1. What is Just Culture

- Just Culture is a learning culture that is constantly improving and oriented toward maximizing quality and safety in the organization. The Framework of Just Culture ensured balanced accountability for both individuals and the organizations responsible for designing and improving systems in the workplace. Just Culture encourages reporting and learning to prevent misconduct that can lead to accidents. Some of the main elements of Just Culture are:
 - **Encouragement** for staff to report and discuss near misses and other errors.
 - There should be **no fear** of retribution for reporting.
 - A focus on **behavioral choices** and the reasons behind them, not the error that took place.
 - The remedy for errors is to **fix the systems**, not to punish individual workers.
 - Allows employees to **deviate** from processes if appropriate.
 - Looks at the **root causes** of errors in systems and by individuals.
 - Encouragement for all involved to **take responsibility** for behavioral choices.

5.2. What is the Just Culture Algorithm?

- The Just Culture Algorithm is a tool that helps businesses develop an environment where management and staff share responsibility for quality and safety. Managers can use the algorithm to work through the causes of an incident and work out which systems need updating to prevent the same happening again.

- It helps create a constructive solution to the event, rather than being reactionary. In the blame culture, the answer to an event might simply be to penalize an individual or individuals deemed to be “at fault”. However, that does not solve the root cause of the event. This is where the algorithm comes into play in a workplace with a Just Culture.

The algorithm helps answer a series of questions:

- What type of error occurred (human error, process error, or both)?
- What gaps are there in the system?
- What type of employee behavior occurred?
- What leadership actions to take?
- What Leadership Strategies to use for post incident investigation?

It does this through using a decision tree (Appendix F), looking for the institutional causes for the three behaviors and one system error that contribute to events:

- Sabotage: The person intended on causing harm or property loss by willfully disobeying established procedures or policies.
- Reckless Behavior: There was no intention to deviate from Policy or Procedure and no intention to cause harm or property loss. However, the procedures were clear and workable, and knowingly violated.
- Risky Behavior: There was no intention to deviate from Policy or Procedure and no intention to cause harm or property loss. The procedures were not knowingly violated, and employee has been trained. Additionally, other would not have made the same mistake.
- No Blame Errors: The decision tree determines there is a process or system error in the policy, procedures, training, or leadership; or repeated incidents have occurred with similar root causes.

Once a decision has been made, the tree can be used to establish corrective actions.

6. LESSONS LEARNED

- 6.1. An objective of the investigation is to become an interdependent organization learning from incidents or near misses and developing a stronger system to prevent recurrence. The lessons learned shares the incident summary, what went wrong, what went right, and the lessons learned from the incident.
- 6.2. All incidents and near misses may be evaluated for any lessons learned to be shared with the BOSS and NASA community. QSE may issue Lesson Learned reports for incidents involving injury (especially incidents that resulted in an OSHA recordable injury or illness), significant property damage (greater than \$20,000) and vehicle incidents.
- 6.3. Management/Supervisor of the area where the incident took place will support IA in developing lessons learned.

- 6.4. ENG-P-0027 provides the process for identifying and communicating lessons learned from technical anomalies.

7. TREND ANALYSIS

- 7.1. QSE may review and analyze incident trends and develop safety metrics or lessons learned reports for BOSS organizations (i.e., OSHA recordable incident rates, lost time incident rates, vehicle damage cost, etc.).
- 7.2. The Event Near Miss Application has search and report features to query past incidents/near misses. QSE can also provide historical data.
- 7.3. Incident metrics considered as part of the deliverables to the customer monthly (e.g., Safety Statistics Record) must be tracked and reported by QSE.
- 7.4. QSE may provide the incident metrics on the Monthly Safety Meeting presentations for supervisors and managers to share with their employees.

8. RECORDKEEPING

- 8.1. Event and Near Miss Application
- Event and near miss submittals are processed and stored in the web-based Event Near Miss Application.
- 8.2. Maximo Computerized Maintenance Management System (CMMS)
- For Events classified as Technical Anomalies and investigated by Engineering, the root cause, corrective actions, and preventative actions are documented in Maximo per ENG-P-0027.
- 8.3. NASA Incident Reporting and Investigation System
- In accordance with NPR 8621.1B, all incidents meeting the requirement of NASA mishaps and close calls must be recorded in NMIS within 24 hours of the incident or QSE's awareness of the incident.
 - The Investigating Authority must continually update NMIS as new investigation information becomes available. At a minimum, they must update each NMIS case with current information at least every 30 days until the investigation is complete.
 - When requesting NASA Safety to close a NMIS Case, the Investigating Authority must compile an electronic package in NMIS. The electronic package typically contains endorsed Incident Investigation Report, photos, witness statements, cost data, corrective action verification records, pertinent case correspondences, objective evidence of corrective actions, etc.
- 8.4. GSA Forms
- GSA Form SF-91 (Motor Vehicle Accident Report) and SF-94 (Statement of Witness): Per TRA-P-0008 (GSA Fleet Management) requirement, the operator involved in a GSA vehicle damage incident or his/her supervisor

must complete a standard form SF-91 and SF-94, if applicable and submit it to GSA Vehicle Management. The supervisor must also forward a copy of the SF-91, SF-94, and any Security investigation information to QSE.

8.5. Handling of Privacy Act Records and Personally Identifiable Information

- Handling of sensitive information obtained from investigation that contains PII and Privacy Act records must be done in accordance with and Privacy Act of 1974, NPR 1382.1 (NASA Privacy Procedural Requirements), NPR 1600.1A (NASA Security Program Procedural Requirements), QAL-P-0043 (Export Control Program Plan), and applicable statutory requirements.

9. TRAINING

- 9.1. Employees reporting or submitting event reports must review the requirements of this procedure.
- 9.2. Investigating Authority (IA) must comply with (Environmental, Health & Safety Training Requirements) prior to conducting investigations.

RECORDS

The following records are retained by the organizations listed below:

Record	Responsible Organization
ENMA	QSE
Lesson Learned	QSE and Engineering
MAXIMO Work Order	Work Control and Engineering
KSC Form 21-555 (PIR - Pollution Incident Report)	QSE
SMA-F-0016D (Incident Investigation Report Template)	QSE
SMA-F-0016E (Incident Corrective Action Plan (ICAP))	QSE
SMA-F-0016M (Event/Near Miss Statement Form)	QSE
SMA-F-0016L (Safety Lessons Learned Template)	QSE

ROLES AND RESPONSIBILITIES**Employees**

- Comply with the policies and requirements directed by this procedure.
- Notify proper personnel/authorities as soon as possible following a qualifying Event or Near Miss.
- Complete Event/Near Miss Statement Form (SMA-F-0016M) and submit to the IA investigating the incident.
- Follow all instructions given by management / supervision and the Occupational Health Team.

Spaceport Integration Center/JSDY/JSTC Personnel:

- Receive initial notification of events from the reporting employees.
- Perform secondary notification as required by this procedure and the Event and Near Miss Reporting Matrix in Appendix A.

Supervisor/Manager

- Ensure employees comply with the policies and requirements directed by this procedure.
- Ensure the Initial Incident Report is completed in the Event and Near Miss Reporting application.
- Review circumstances with IA (i.e., who, what, when, where, and how) and applicable employee(s) to determine apparent cause(s) and to support recommended corrective / preventive actions.
- Support IA in developing lessons learned.

Investigating Authority (IA)

- Investigate cases to determine the causes and corrective actions of the incidents as directed by this procedure.
- Possess training that meets training requirements.
- Gather facts & evidence related to the incident.
- Draw findings and conclusions based on facts. Provide technical support and guidance for the responsible organizations related to establishing and implementing a corrective plan.

- Follow up on corrective action plans from the responsible organization to ensure that they are completed.
- Serve as the member of IIT if assigned.
- Prepare incident investigation reports for review and closure.

QSE

- Appoints Investigating Authority.
- Serve as a central processing depot for all incident investigation.
- Notify the various organizations of all incidents reported through the event notification process.
- Investigate work-related incidents as required.
- Prepare, provide, and present incident investigation reports as directed.
- Safe the scenes by controlling the various hazards.
- Determine the responsibility and level of investigation.
- Ensure that investigators are trained in accordance with BOSS requirements.
- Ensure the Program Manager and all required external organizations have been notified of all serious incidents.
- Manage NMIS updates throughout the investigation process until case closure.

REFERENCE DOCUMENTS

The following documents are referenced in this procedure:

Document Number	Title
ENG-P-0027	Technical Anomaly Event Disposition Process
KNPR 8500.1	KSC Environmental Requirements
KNPR 8715.3	KSC Safety Practices Procedural Requirements
<u>KSC-PLN-2807</u>	KSC Mishap Preparedness and Contingency Plan
NPR 1600.1A	NASA Security Program Procedural Requirements
NPR 1382.1	NASA Privacy Procedural Requirements
NPR 8621.1	Procedural Requirements for Mishap and Close Call Reporting, Investigating and Recordkeeping
QMS-QP	Quality Plan
QAL-P-0043	Review and marking of Technical Data
SMA-F-0016D	Incident Investigation Report Template
SMA-F-0016E	Incident Corrective Action Plan (ICAP)
SMA-F-0016F	Incident Investigation Tool Kit & Supplies Checklist
SMA-F-0016G	BOSS Supervisor Injury Management Guide
SMA-F-0016L	Lesson Learned
SMA-F-0016M	BOSS Event/Near Miss Statement Form
SMA-SHP	Safety & Health Plan
SF-91	Motor Vehicle Accident Report
SF-94	Statement of Witness
SHP-P-0601	Vehicle Safety
SHP-P-1926A/B	Contractor Safety
SMA-P-0015	Risk Management Plan

Document Number	Title
TRA-P-0008	GSA Fleet Management

ADDITIONAL RESOURCES

The following documents are not referenced in this procedure, but are an added resource:

Document Number	Title
IT-P-3002	Notification and Reporting of Information Technology Security Incidents

ACRONYMS

CCAFS	Cape Canaveral Air Force Station
CMMS	Computerized Maintenance Management System
CUI	Controlled Unclassified Information
ENMA	Event /Near Miss Application
FSEU	Facilities, Systems, Equipment and Utilities
HQ	Headquarters
IA	Investigating Authority
KSC	Kennedy Space Center
NASA	National Aeronautics and Space Administration
NMIS	NASA Mishap Information System
OHF	Occupational Health facility
OSHA	Occupational Safety and Health Administration
PII	Personally Identifiable Information
PSCC	KSC Protective Services Control Center
TAL	Technical Anomaly Level
UUPIC	Universal Uniform Personal Identification Code
USSF	United States Space Force
WON	Work Order Number

DEFINITIONS

Close Call:

- **MINOR INJURY:** Any occurrence or condition of employee concern in which there is no injury or only minor injury requiring First Aid, which possesses the potential to cause a mishap, or an occurrence or condition with no injury but possesses the potential to cause a mishap.
- **PROPERTY DAMAGE:** Any occurrence resulting in total direct cost of mission failure and damage is less than \$20,000, or occurrence or condition of employee concern in which there is no property damage but possesses the potential to cause a mishap or negative mission impact.

Condition: Existing hazards or an observation of an unsafe/unhealthy act that have yet to cause an incident (e.g., power outage, wet roads, poor visibility, elevator stuck, buckled sidewalk, etc.)

Contributing Cause: An event or condition that may have contributed to an occurrence or created the direct cause but if eliminated or modified, would not by itself have prevented an occurrence. It would only have prevented the direct cause if eliminated or modified.

Corrective Action: The action taken to keep the incident cause from reoccurring. All corrective actions must be implemented by the assigned person by the date assigned.

Damage: Either material or mission objective loss that is calculable as a Direct Cost.

Direct Cause: The event that occurred, including any conditions that existed immediately before the undesired outcome, directly resulted in its occurrence and if eliminated or modified, would have prevented the occurrence. Also, known as proximate cause.

Direct Cost of Mishaps or Close Calls: For mishap classification, the sum of the costs (the greater value of actual or fair market value) of damaged property and/or destroyed property, or mission failure, actual cost of repair or replacement, labor (actual value of replacement or repair hours for internal and external or contracted labor), cost of the lost commodity (e.g., cost of the fluid lost from a ruptured pressure vessel), as well as resultant costs such as environmental decontamination, property cleanup, and restoration, or the estimate of these costs.

Spaceport Integration Center (SIC) (formerly known as the Duty Office): This office serves as a central portal for employees to call in to report events, emergency maintenance requests, routine/non-routine facility trouble calls, and other situations that require contacting other responding parties.

Event: A reportable occurrence in the work environment that resulted in either an incident or technical anomaly per criteria set forth in this procedure

Evidence: Everything used to support or refute a hypothesis or finding. For a safety investigation, the types of evidence are physical (e.g., hardware), demonstrable (24 hours in one day), witness interview, and documentary (witness statement, logbooks, and electronic data).

Finding: A piece of information obtained from an investigation that contributed or caused incident or a conclusion reached after an examination or investigation.

Flash: The process of electronically notifying the various organization of an occurrence of an incident or near miss through the distribution of the event notification report.

High Visibility: (Event or Near Miss): Incident regardless of the amount of personnel injury or property damage that management judges to pose an adverse public media interest concerning NASA, BOSS, or a BOSS project. Any incident that could or does result in an actual investigation by state, federal, provincial, or local regulatory or law enforcement agency.

Investigating Authority (IA): The IA is defined as the individual Investigator, Interim Response Team (IRT), or Incident Investigation Team (IIT) appointed to investigate for BOSS. This includes the IIT chairperson, voting members, and ex officio member(s), but does not include the advisors and consultants.

Incident: An umbrella term for a work-related event, near miss or mishap that caused or could have caused a serious injury, illness, or property damage.

Mishap: An unplanned event that results in an injury/illness or property damage that met the various NASA threshold and classifications of mishap. An undesired and unexpected event that results in injury requiring more than first aid, occupational illness to personnel, and/or damage to property of at least \$20,000. Mishaps also include injuries or occupational illnesses resulting from repetitive stresses or exposures over a prolonged period. Mishaps resulting in damage to aircraft, space hardware, or ground support equipment that meet these criteria are included, as are test failures in which the damage was unexpected or unplanned. (See Appendix E)

Near Miss:

- An unplanned work-related event that involved either no harm or harm not requiring first aid treatment. If first aid is administered the unplanned event is reported as an incident. An example of a near-miss includes: a worker steps off an uneven edge, stumbles and falls to the floor, and is uninjured.
- An unplanned work-related event that has a potential to cause property damage, or environmental impact, but did not.

Observation: A factor, event or circumstance identified during an investigation that did not contribute to the incident but should be corrected or that is positive and should be noted.

Occupational Illness: Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illness or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

Occupational Injury: Any injury, which results from a work-related incident or from an exposure, involving a single incident in the work environment.

Organizational Factor: Any operational or management structural entity that exerts control over the system at any stage in its life cycle including, but not limited to, the system's concept development, design, fabrication, test, maintenance, operation, and disposal—for example, resource management (budget, staff, training); policy (content, implementation, verification); and management decisions.

Personally Identifiable Information (PII): Any information about an individual that can be used to uniquely identify, contact, or locate a single person or can be used with other sources to uniquely identify a single individual. Commonly referred to as Personally Identifiable Information (PII) or Privacy Information, Privacy Act Information or Privacy Sensitive Information, this information warrants varying degrees and types of protection and depending on how the information is collected, used, retrieved, etc., will have varying mechanisms and controls associated.

Root Cause: An event or condition, primarily associated with organizational factors, which existed before the intermediate cause and directly resulted in its occurrence (indirectly caused or contributed to the proximate cause and subsequent undesired outcome) and, if eliminated or modified, would have prevented the intermediate cause from occurring and the undesired outcome. Typically, multiple causes contribute to an

undesired outcome. In the absence of a prevalent organizational factor, the root cause may be identified as undetermined.

Root Cause Analysis: A structured evaluation method used to identify the root causes of an undesired outcome and the actions adequate to prevent occurrence. Root cause analysis should continue until organizational factors have been identified or until data are exhausted.

Technical Anomaly: An unexpected event, hardware or software damage, a departure from established procedures or performance, or a deviation of system, subsystem, and/or hardware or software performance outside certified design/performance specification limits. ENG-P-0027 (Technical Anomaly Event Disposition Process) provides further technical anomaly definition for the category of systems.

Witness: A witness is any person who has information, evidence, or proof about a mishap and provides their knowledge of the facts to the investigating authority.

REVISION RECORD

The following revisions have been applied to this document:

Revision Number	Change Description	Date
0-5	Prior contract	NA
6	Full Update to BOSS	06-12-20
8	Reviewed and updated. Removed SMART Database info. Included Just Culture Algorithm and Decision Tree. Created Instructions for Investigations.	10-4-2021
9	Change SBU terminology to CUI. Added definitions to be more in line with NPR 8621.1. Changed Duty Office to Spaceport Integration Center. Removed SMA-F-0016C references due to redundancy with ENMA reporting.	8-1-23
10	Added responsible System Engineers to reporting events (sec. 2.10.).	11-27-23

DOCUMENT APPROVALS

David Boykin
QSE Director



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APPENDIX A: EVENT AND NEAR MISS REPORTING MATRIX

Action Level	Description	Occurrence During Normal Business Hours		Occurrence After Hours, Weekends, Holidays or SUPV not on site		Report Required	Highlights Report
		Initial Notification	Spaceport Integration Center to Notify Immediately	Initial Notification	Spaceport Integration Center to Notify Immediately		
Occupational Injury or Illness							
Level 0	Potential to cause injury/illness	SUPV	Not Required	SUPV	Not Required	Near Miss	No
Level 1	Preventive evaluation only	SUPV	Not Required	911, SIC	SUPV	Near Miss	No
Level 2	Medical services required, no emergency	SUPV, SIC	QSE	911, SIC	SUPV, QSE	Event	No
Level 3	Emergency medical services required	911, SIC	QSE, SUPV, DM, SA, PM	911, SIC	SUPV, QSE, DM, SA, PM	Event	No
Government Vehicle Damage							
Level 0	Potential to cause damage	SUPV	Not Required	SUPV	Not Required	Near Miss	Yes
Level 1	<\$50 damage	SUPV	Not Required	SUPV	Not Required	Event	Yes
Level 2	\$50 – 19,999 damage	911, SIC	SUPV, QSE, VM	911, SIC	SUPV, ESH	Event	Yes
Level 3	≥\$20,000 damage	911, SIC	SUPV, QSE, VM, DM, SA, PM	911, SIC	SUPV, QSE, DM, SA, PM	Event	Yes
Government Property Damage							
Level 0	Potential to cause damage	SUPV	Not Required	SUPV	Not Required	Near Miss	Yes
Level 1	<\$50 damage	SUPV	Not Required	SUPV	Not Required	Event	Yes
Level 2	\$50 - \$19,999 damage	SUPV, SIC	QSE	SIC	SUPV, QSE	Event	Yes
Level 3	≥\$20,000 damage	SUPV, SIC	QSE, DM, FM, SA, PM	SIC	SUPV, QSE, DM, FM, SA, PM	Event	Yes
Contractor Property/Vehicle Damage							
Level 0	Potential to cause damage	SUPV	Not Required	SUPV	Not Required	Near Miss	No
Level 1	<\$50 damage	SUPV	Not Required	SUPV	Not Required	Event	No
Level 2	\$50 - \$19,999 damage	SUPV, SIC	QSE	SIC	SUPV, QSE	Event	No
Level 3	≥\$20,000 damage	SUPV, SIC	QSE, DM, PM	SIC	SUPV, QSE, DM, PM	Event	No
Fires, Flashes or Explosions							
Level 2	Incipient fire	911, SIC	SUPV, QSE, FM	911, SIC	SUPV	Event	Yes
Level 3	Fire, flash or explosion requiring Emergency Services	911, SIC	SUPV, QSE, FM, DM, PM, SI, SA	911, SIC	SUPV, BM, DM, PM, ESH, FM, SI, SA	Event	Yes
Chemical Spill or Release							
Level 1	Non-Emergency spill, <4 oz.	911, SIC	QSE	911, SIC	ENV	Near Miss	Yes
Level 2	Non-Emergency spill, >4 oz.	911, SIC	QSE, SUPV	911, SIC	QSE, SUPV	Event	Yes
Level 3	Emergency Spill, Emergency Services required	911, SIC	QSE, SUPV, DM, FM, SI, SA, PM	911, SIC	QSE, SUPV, DM, FM, SI, SA, PM	Event	Yes
Environmental Impact							
Level 2	Disturbance of a natural or cultural resource	SUPV, SIC	QSE	SUPV, SIC	QSE	Event	Yes
Level 3	Destruction of a natural or cultural resource	SUPV, SIC	QSE, DM, PM, SI, SA	SUPV, SIC	QSE, DM, PM, SI, SA	Event	Yes
Technical Anomaly							
Level 1	Routine	SUPV	Not Required	SUPV	Not Required	NA	Yes
Level 2	Non-Routine, no mission impact	SUPV, SIC	SE	SUPV, SIC	SE	Event	Yes
Level 3	Non-Routine, mission impact	SUPV, SIC	SE, DM, PM, CE, SI	SUPV, SIC	SE, DM, PM, CE, SI	Event	Yes
High Visibility or Significant Concern							
Level 2	Needing determination by SUPV	SUPV	As required	SUPV	As required	Event	Yes
Level 3	Potential public affairs involvement or significant NASA concern	SUPV, SIC	QSE, DM, PM, FM, SI, SA	SUPV, SIC	QSE, DM, PM, FM, SI, SA	Event	Yes

QSE (Quality, Safety & Environmental)
 SIC (Spaceport Integration Center)
 SUPV (Supervisor)
 SE (System Engineer)

PM (Program Manager)
 FM (Facility Manager)
 VM (Vehicle Manager)
 DM (Department Manager)

CE (Chief Engineer)
 SA (NASA Safety)
 SI (NASA Spaceport Services)

APPENDIX B: EVENT NEAR MISS APPLICATION (ENMA) INSTRUCTIONS

BOSS EVENT / NEAR MISS APPLICATION

Home About Search Event Search Near Miss Reports Update Event Update Near Miss

EVENT AND NEAR MISS REPORTING PAGE

- If emergency services are required, call 911 (Cell: (321) 867-7911) and the Duty Office at (321) 861-5050.
- Determine the Action Level and make immediate initial notifications first.
- Click the blue Report Type link below to complete and submit an Event Report or a Near Miss Report.
- For event with multiple event types or consequences, choose the report that is based on the highest action level/consequences (i.e. Event Report would be selected for a vehicle damage event with estimated repair cost of \$500 involving employee only receiving evaluation at the OHF.)
- Refer [SMA-P-0016](#) (Event and Near Miss Reporting) for additional details on reporting.

OCCUPATIONAL INJURIES AND ILLNESSES:	REPORT TYPE:
Level 0 Potential to cause an occupational injury/illness	Near Miss
Level 1 Occupational injury/illness resulting in evaluation only	Near Miss
Level 2 Occupational injury/illness requiring medical services, but no emergency	Event
Level 3 Occupational injury/illness requiring emergency medical services	Event
GOVERNMENT VEHICLE DAMAGE:	REPORT TYPE:
Level 0 Potential to cause damage to a government vehicle	Near Miss
Level 1 Government vehicle damage with estimated repair costs <\$50	Near Miss
Level 2 Government vehicle damage with estimated repair costs of \$50 – \$19,999	Event
Level 3 Government vehicle damage with estimated repair/replacement costs ≥\$20,000	Event
GOVERNMENT PROPERTY DAMAGE:	REPORT TYPE:
Level 0 Potential to cause damage to government property	Near Miss
Level 1 Government property damage with estimated repair costs <\$50	Near Miss
Level 2 Government property damage with estimated repair costs of \$50 – \$19,999	Event
Level 3 Government property damage with estimated repair/replacement costs ≥\$20,000	Event
CONTRACTOR VEHICLE DAMAGE:	REPORT TYPE:

HOME SCREEN OF THE ENMA

- Follow instructions on top of screen
- Determine the Action Level
- Click the Blue Link to Submit a Near Miss or Event Report
- ENMA will take submitter to the required form to complete (see below)

EVENT REPORT FORM

The asterisk (*) behind the field title represents required field. The submitter will not be able to submit report if the required fields are blank. Use "NA" if information is not applicable.

What Happened?*

What Did You Do?*

Event Date:* [Date Picker] Time:* [Time Picker]

Primary Event Type:* --Select-- Secondary: --Select-- Tertiary: --Select--

Action Level (AL):* --Select-- AL: --Select-- AL: --Select--

Location:* --Select-- Facility:* [Text] Room:* [Text]

Area:* [Text]

DO Notified? ☐ Date: [Date Picker] Time: [Time Picker]

Detected During (WON): [Text]

Employee ID:* [Text] Name:* Tonhauser, Ernest G. Phone:* 321-867-3436

Department:* KSC-BOSS-1210 Company:* PAE - SGT Partners LLC Email: ernest.g.tonhauser@nasa.gov

Supervisor:* [Text] Phone:* [Text]

Confidentiality Requested: ☐

EVENT REPORT FORM

- Complete all fields. Make sure all required fields in asterisk (*) are completed
- Some fields require clicking on side icons or drop-downs to activate (date, facility). **NOTE: For Primary, Secondary and Tertiary Event Type select from the drop down only. Do not type in field.**
- Submitter information is auto-captured using your log-on info.
- Click the "Submit" button when done
- Confirmation email will be sent to submitter

NEAR MISS REPORT FORM

The asterisk (*) behind the field title represents required field. The submitter will not be able to submit report if the required fields are blank. Use "NA" if information is not applicable.

What Happened?*

Potential Consequence:* --Select-- Date:* [Date Picker] Time:* [Time Picker]

Facility:* [Text] Area:* [Text] Location:* --Select--

Suggested Corrective Action:* [Text]

Employee ID: [Text] Name: Tonhauser, Ernest G.

Phone: 321.867.3436 Email: ernest.g.tonhauser@nasa.gov

Department: KSC-BOSS-1210 Company: PAE - SGT Partners LLC

Confidentiality Requested: ☐ Follow-up Requested: ☐

NEAR MISS REPORT FORM

- Complete all fields. Make sure all required fields in asterisk (*) are completed
- Some fields require clicking on side icons or drop downs to activate (date, facility)
- Submitter information is auto-captured using your log-on info.
- Click the "Submit" button when done
- Confirmation email will be sent to submitter

APPENDIX C: CHEMICAL SPILL GUIDANCE

IMPORTANT: Seek safety for yourself, and help others, if possible, without endangering your health and safety.

1. Contain the spill in accordance with your individual level of training including utilizing appropriate personal protective equipment (PPE) available to you at the time.
2. Obtain information such as the exact location of the spill, facility number, facility name, room number (if applicable), type of material released, and estimated quantity released. Determine if the spill is an emergency or non-emergency, as defined below, and then make the appropriate 911 call.

Emergency Spill: A spill or release in concentrations or quantities sufficient to pose a substantial, actual or potential hazard to human health, mission impact, property, or the environment and cleanup of the spill is beyond the capability of the reporting organization/person. If cleanup/recovery is beyond the capability of the reporting agency, a 911 emergency spill call is required.

Non-Emergency Spill: A spill that does not pose a risk to human health or safety nor pose an environmental emergency and can be contained and cleaned up by the reporting organization or person in accordance with their training. A non-emergency 911 call is required to the KSC Protective Services Control Center (PSCC).

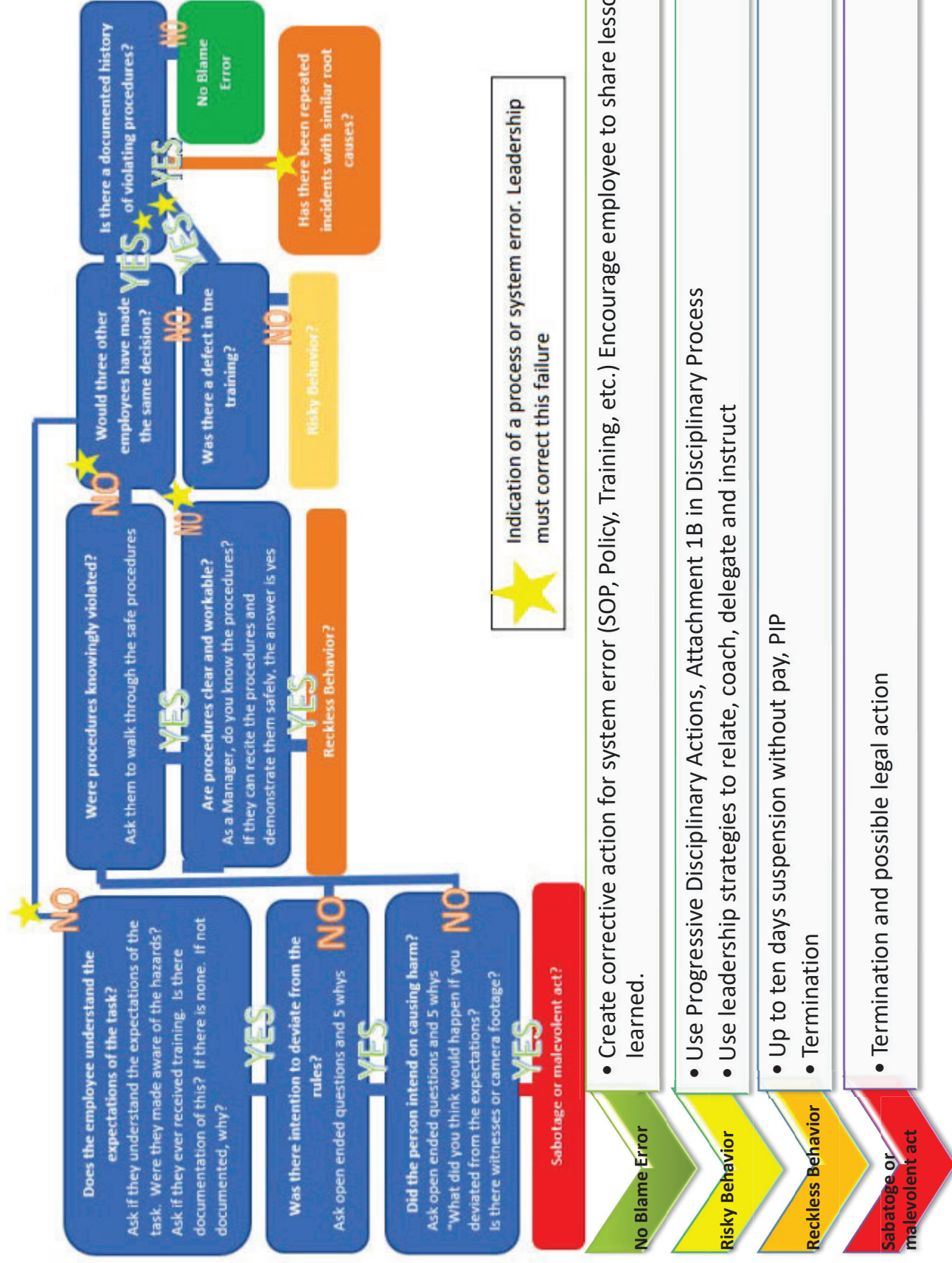
APPENDIX D: EMPLOYEE INJURY MANAGEMENT GUIDELINES**Employee Actions to take in the Event of Injury**

- Call 911 if it is an emergency.
- Report the injury your supervisor as soon as possible or have someone else call for you,
- Go to the OHF immediately for medical care during normal work hours.
- The OHF will provide written medical orders to you at the conclusion of your visit. Please ensure that the orders are legible and that you understand them.
- Provide a copy of the medical orders to your Supervision.
- You are responsible to follow the medical orders. If there are follow up clinic visits, you must go to them. If there is a referral to an offsite clinic for tests or treatment you must follow the medical orders.

APPENDIX E: NASA INCIDENT CLASSIFICATION

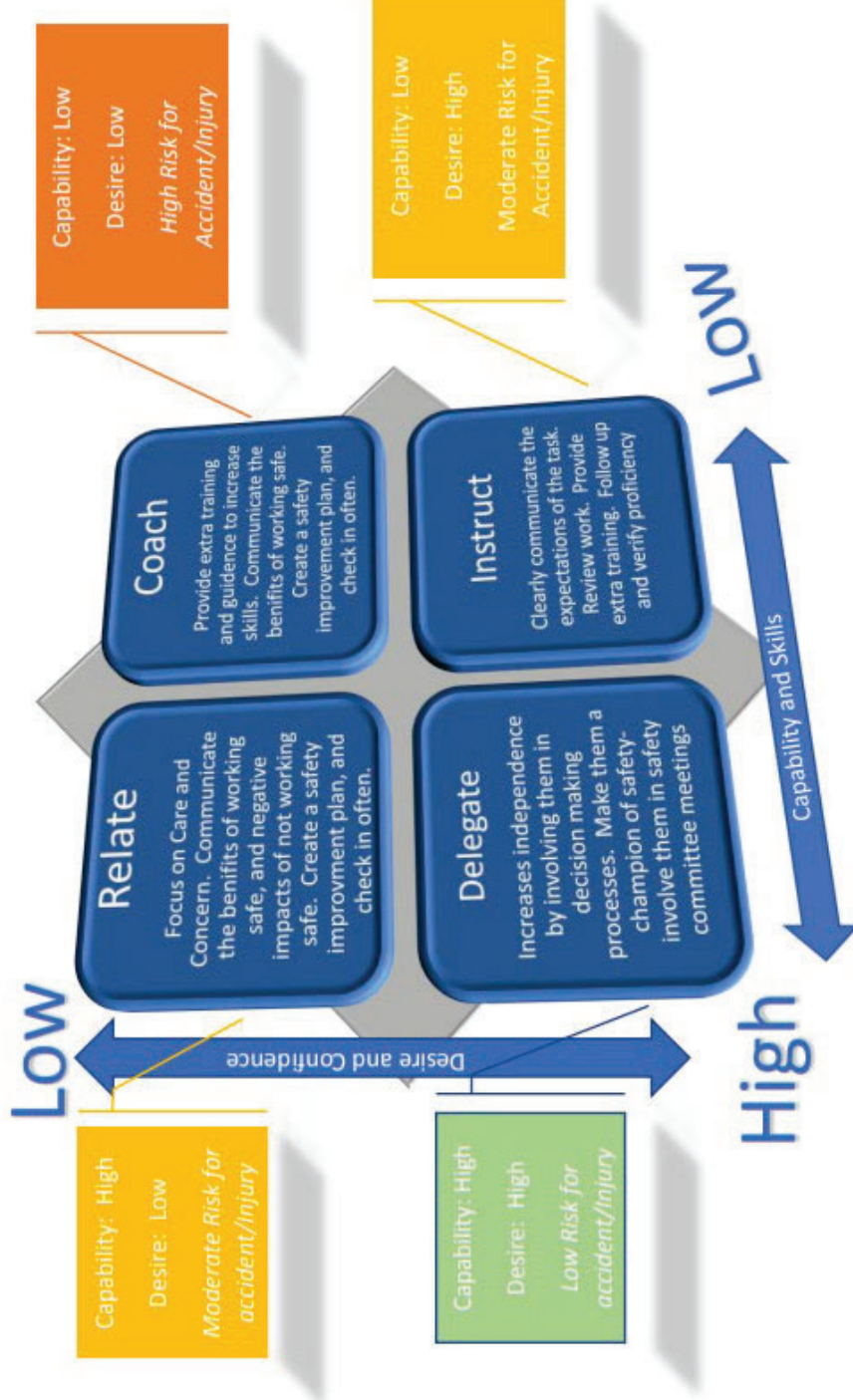
Report	Classification Level and Type	Property Damage	Injury
Within one hour of occurrence	Mishap A	Total direct cost of mission failure and property damage equal to or greater than \$2,000,000 or more; or Crewed aircraft hull loss has occurred; or Unexpected crewed aircraft departure from controlled flight (except high performance jet/test aircraft such as F-15, F-16, F/A-18, T-38, and T-34, when engaged in flight test activities).	An occupational injury or illness resulting in a fatality or A permanent total disability.
	Mishap B	Total direct cost of mission failure and property damage equal or greater than \$500,000 but less than \$2,000,000.	A occupational injury or illness that resulted in a permanent partial disability or Hospitalization for inpatient care of three or more people within 30 workdays of the incident
No later than four (4) hours after it occurred or when it was first observed	Mishap C	Total direct cost of mission failure and property damage equal to or greater than \$50,000 but less than \$500,000.	Nonfatal occupational injury or illness that resulted in: Days away from work, not including that day or shift on which it occurred or Restricted work, or transfer to another job not including the day or shift on which it occurred or Hospitalization for inpatient care of one or two people within 30 workdays of the mishap.
	Mishap D	Total direct cost of mission failure and property damage equal to or greater than \$20,000 but less than \$50,000.	Any nonfatal OSHA recordable occupational injury or illness that does not meet the definition of a Type C mishap. (An incident consisting of personal injury requiring medical treatment greater than first aid but without any lost time/restricted duty.)
	Close Call	An event in which there is no equipment or property damage, or minor equipment property damage of less than \$20,000, but which possesses a potential to cause a mishap.	No injury or only minor injury requiring first aid, but which possesses a potential to cause a mishap.

Appendix F: Just Culture Algorithm Decision Tree and Simple Actions Management can Take after an Incident



Simple Guide for Actions Management Can Take After an Accident

- Step 1: Remember to complete the accident investigation and ask the “5 Whys” to find root cause. (remember, a behavior is not a root cause-there is a reason they behaved that way)
- Step 2: Follow the algorithm to identify leadership actions to take.
- Step 3: Based on their desire and capability to work safely, use a leadership strategy (Relate/Coach/Delegate/Instruct) to improve their safety commitment.



- Follow up questions:
- What would motivate you to promote safety to others? Why do you think this is important?
 - What is one thing you would do to promote safety to others?
 - What is one thing you would have done differently to avoid your last accident?