INCIDENT CLASSIFICATION GUIDELINES
Policy 50.10

1.0 INTRODUCTION

The purpose of these guidelines are to describe the requirements for Incident classification. For more detailed classification of OSH Injury or Illness refer to 50.07 Injury and Illness Classification Guidelines and for LIFE incidents refer to 50.08 LIFE Incident Classification Guidelines. The document also seeks to provide examples to assist with this process.

Tronox sites have a range of different statutory reporting guidelines with respect to work related incidents depending on their location. As a result Tronox also requires a set of its own "Corporate Incident Classification Guidelines" to ensure consistency with respect to corporate measurement and reporting. Specific guidelines are required to **effectively measure performance and drive appropriate safety, health and environmental behaviours in a consistent way across the entire business**.

The general underlying principle of these guidelines is 'duty of care'. Every person in a Tronox workplace should be protected by the same standards but also has a personal obligation to live up to those standards. Whenever doubts remain in the application of the guidelines in a specific case, Tronox will put in all reasonable efforts to clarify the facts and act in line with the intent of the guidelines – with respect for the individual(s) involved. These guidelines have been developed based on relevant legislation and external standards as well as benchmarking against the practices of other world class industrial corporations.

2.0 GENERAL GUIDANCE

The following information should be available when classifying incidents:

- Details of the event(s);
- Details of any injury/illness or potential injury/illness
- Details of any damage or realistic potential damage;
- Details of any hazardous materials release(s) or potential release(s)
- Details of any material loss(es) or the potential loss(es), and
- Details of any environmental harm or the potential to cause environmental harm
- Details of any authority/community/media actions as a consequence of the event(s)

The General Manager / Site Manager of the operation or function, in conjunction with the senior site Safety, Health and Environment (SHE) Manager, are accountable for the classification of incidents. In case of doubt advice should be sought from other sites and Business Unit SHE professionals. In the extreme case that doubts will remain after consultation, the senior safety leader for the division will make the final call, with support as necessary from the senior safety leadership team. For the purpose of Tronox Corporate reporting requirements, where conflict exists between these guidelines and other regulatory or internal requirements the Tronox requirements shall take precedence.

A realistic potential outcome of an incident should be categorized as if it was an actual outcome of the incident, however are reported to a maximum of Level B (see Tronox 50.09 Safety Health and Environmental Reporting Guidelines). Level A is reserved for actual events of that Level.
In addition to this, an incident can trigger multiple incident classification categories. For example, a release could be a Process Safety incident Level C and an Environmental incident Level B at the same time. LIFE incidents are a separate category and are covered in 50.08 LIFE Incident Classification Guidelines.

This document does not relieve a business unit and/or division from complying with any specific regulatory reporting requirements. Confidentiality requirements must also be adhered to.

For reporting requirements, categories, timelines and processes refer to Tronox 50.09 Safety Health and Environmental Reporting Guidelines

3.0 INCIDENT DEFINITIONS & CLASSIFICATIONS (excluding Injury or Illness. Refer to 50.07)

Terminology	Definition
Centre for Chemical Process Safety (CCPS)	The Centre for Chemical Process Safety (CCPS) of the American Institute of Chemical Engineers (AIChE)
Competent Authority (CA)	Environment Agency or Regulator, Safety Agency or Regulator, Dangerous Goods Agency or Regulator, Major Hazardous Facilities Agency or Regulator.
Economic Event (reliability)	An unscheduled shutdown, interruption or equipment failure which adversely affects a site's operations to the extent that production targets are missed.
Environmentally Hazardous Materials (EHM)	Materials and Chemicals identified as an environmental hazard or pollutant by one or more of the following methods: A GHS H400 series code on the SDS, listed as a UN3077 or UN3082 environmentally hazardous substance for transportation, regulated by a government agency as an environmental pollutant (including all chemicals that must be reported to a regulatory agency if released to the environment). The threshold quantities for many commonly used EHMs are listed in the CCPS hazardous materials Appendix 1.
Environmental Incident (EI)	An event that causes harm to the environment as a result of excessive noise, odor, a dust release, or loss of primary containment, (vessel, pipe, tank, container etc.), of an EHM to soil, water or air. In addition, escape into secondary containment may also be considered an environmental release, as described in Appendix 2.
Globally Harmonized System of Classification and Labelling of Chemicals (GHS)	The GHS is a system for standardizing and harmonizing the classification and labelling of chemicals.
Process Safety Management (PSM)	Disciplined framework for managing the integrity of operating systems and processes handling hazardous substances by applying good design principles, engineering, and operating practices. Deals with the prevention and control of incidents that have the potential to release hazardous materials or energy.
Process Safety Incident (PSI)	Unintentional releases of chemicals, energy, or other potentially dangerous materials (including steam, hot condensate, nitrogen, compressed CO2 or compressed air) during the course of chemical processes that can have a serious effect to the plant, environment and/or people. *Reported by Major Hazard Facilities only.*

Realistic (Worst Credible) Potential Outcome	Worse credible outcome that realistically could have occurred had circumstances varied slightly. Examples: 1. A dust release of material to atmosphere occurs and due to environmental conditions remains within the site boundary and dissipates. Had there been wind, the release would easily have travelled across the site boundary into neighbouring land and likely generated a community complaint. The realistic potential outcome of this incident is a Level C Environmental Incident. 2. A substantial object falls from a significant height and lands on a walkway and while there was no one in the area at the time the walkway is frequented by personnel. The realistic potential outcome is for a LIFE Incident and should be reported as if it has the potential to be a LIFE Incident to a maximum Level B incident. 3. A railcar thought to be containing sodium silicate is delivered to site but before unloading commences it is discovered to contain the wrong and incompatible product. Had the product been unloaded into the site storage tank a serious event could have occurred and an explosion a likely outcome. This would likely be reported in line with Level B Process Safety incident subject to the value of the damaged caused by any explosion.
Security Incident (SI)	An event of unauthorized access, sabotage, espionage or malicious manipulation, damage to reputation of industrial machines, plants, personnel or information systems.
Transportation Incident (TI)	An event that involves a relevant vehicle, vessel, plane or carriage of a relevant service under the prevailing influence of Tronox, that has or could have reasonably caused harm to a person, or the environment, or substantial damage to property through impact, fire, or explosion.
Transportation Emergency Response Plan (TERP)	A TERP identifies the response mechanisms to a variety of potential crises arising from the transport of dangerous goods. It outlines the necessary resources, personnel, and logistics which allow for a prompt, coordinated and rational approach to a transport incident. The Plan must meet all the regulatory requirements within the operating jurisdiction(s).

4.0 OCCUPATIIONAL SAFETY & HEALTH INJURY OR ILLNESS

At least one of the stated criteria should be met in order to classify the incident according to the indicated incident level. For detailed information on classifications of Injury or Illness refer to 50.07 Injury and Illness Classification Guidelines. For additional information on LIFE classification refer to 50.08 LIFE Incident Classification Guidelines

LEVEL A • Fatality / life-altering condition
LEVEL B • Disabling incidents (that are not included in Level A)
LEVEL C • Recordable Injuries i.e. defined Medical Treatment Cases
LEVEL D • Non-recordable Injuries i.e. defined First Aid Cases

5.0 PROCESS SAFETY

Process Safety Incidents Levels (reported by applicable facilities only)

At least one of the stated criteria should be met in order to classify the incident according to the indicated incident level.

LEVEL A • Explosion, or property/equipment damage caused by human error or equipment failure (greater than $1m USD)
LEVEL B • Release of energy, or a release or potential release of a material listed within the PSTQI (see Appendix 1), of which the release amount is greater than 100% of the CCPS reportable quantity • Explosion, or property/equipment damage caused by human error or equipment failure ($250k to $1m USD)

LEVEL C
• Release of energy, or a release or potential release of a material listed within the PSTQI (see Appendix 1), of which the release amount is greater than 10% of the CCPS reportable quantity
• Explosion, or property/equipment damage caused by human error or equipment failure ($25k to $250k USD)
• Exceedance of a specified Design Limit involving any materials listed within the PSTQI (see Appendix 1). The following scenarios will be classified as a Level C incident (minimum), regardless of the substance:
  ○ A release of energy from a Pressure Relief Device (PRD)
  ○ A PRD is unable to relieve as designed

LEVEL D • Release of energy, or a release or potential release of a material listed within the PSTQI (see Appendix 1), of which the release amount is less than 10% of the CCPS reportable quantity. • A minor deviation from the requirements of the elements of Process Safety Management

6.0 ENVIRONMENTAL

Environmental Incident Levels

LEVEL A

Release inside or outside of company property boundaries where any one of the following criteria is met:

- Environmental remediation, and penalty costs of more than $1m USD
- Community evacuation
- Regional or National media coverage
- State or governmental investigation or oversight is required with potential for criminal penalties and or operating site shutdown

LEVEL B

Permit & Regulatory Violations that meet Level C criteria and include any of the following:

- Environmental remediation and penalty costs range from $250K to $1m USD
- Repeat or ongoing non-compliance
- Competent Authority (CA) take enforcement action >$250k <$1m USD
- CA prohibit operation causing>$250k USD of production loss
- Off-site complaint –amenity breach (odour, dust, noise, smoke) impact >1 week or >10 individuals
- Release of EHM to the environment:
  - GHS codes for toxic and very toxic (see Appendix 2) and release greater than 2000L, or
  - Quantities of an EHM greater than 100% of the recognized regulatory limit.
- Release outside of company property where any one of the following criteria is met:
  - Public emergency response resources are required
  - Community notification, or local or regional media coverage

Incident should include one of:

- Persistent environmental harm (>1 week)
- CA require corrective action >$250k to $1m USD

LEVEL C

Permit and Regulatory Violations, including but not limited to:

- Environmental remediation and penalty costs range from $25k to $250k USD
- Permit exceedance that must be notified to the CA
- Regulatory non-compliances that must be notified to CA
- Warning letter from CA on non-compliances
- Releases from non-permitted or unauthorized sources that must be notified to CA
- Off Site complaint - amenity breach (odor, dust, noise, smoke) impact <1 week and <10 individuals
- Any visible emission from non-permitted source that enters a different unit or work-area (area logically defined by process equipment, steelwork, or a building)
- Release of EHM to:
  - Containment:
    - GHS very toxic material (see Appendix 2)
    - Quantities of an EHM above the recognized regulatory limit.
  - Environment:
    - GHS toxic and very toxic material (see Appendix 2) and release less than 2000 litres, or
    - Quantities of an EHM greater than 10% of the recognized regulatory limit

Incident should include one of:

- No persistent environmental harm (<1 week)
- CA requires written report only or minor corrective actions <$250k USD

LEVEL D

Permit and Regulatory Approach to limits, including but not limited to:

- No or minor environmental remediation and penalty costs (<$25k USD)
- Approach to Permit Limit
- Internal triggers breached
- Malfunctions and by-passes to pollution abatement equipment
- Operating significantly beyond normal parameters
- Off-site complaint – amenity breach (odor, dust, noise, smoke) impact <1 day and <10 individuals
- Containment (bund) compromised by material reducing 110% capacity
- Release of EHM to containment:
    - GHS environmentally harmful or toxic material
    - Other EHM
- Release of EHM to environment:
    - GHS harmful material , or
    - Quantities of an EHM less than 10% of the recognized regulatory limit

7.0 ECONOMIC

Economic Event (reliability) Levels

LEVEL A An unsuspected malfunction or process issue/equipment failure as defined in the following scenarios: • Unscheduled outage greater than 72 hours downtime • Process equipment damage estimated repair/replace cost of >$1m USD • Any unexpected event which will potentially impact monthly production (>10%) target including equipment downtime or equipment failures which result in production restriction
LEVEL B An unsuspected malfunction or process issue/equipment failure as defined in the following scenarios: • Unscheduled outage greater than 36 hours downtime • Process equipment damage estimated repair/replace cost >$250k and <$1m USD • Any unexpected event which will potentially impact monthly production (>5% and <10%) target including equipment downtime or equipment failures which result in production restriction
LEVEL C Any event (other than SHE) which affects a site's operation and results in unscheduled outage between 24 and 36 hours of unplanned downtime
LEVEL D Any event (other than SHE) which affects a site's operation and results in unscheduled outage between 12 and 24 hours of unplanned downtime

8.0 TRANSPORTATION

Transportation Incident Levels (transportation of Tronox products)

LEVEL A Extreme danger to life, property or the environment, including but not limited to: • A material that could cause harm is not contained at the immediate incident scene • Evacuation of public or significant off-site impact • Anticipated customer supply interruption • Transportation authority inspections resulting in criminal action and serious impacts to the fleet such as customer supply interruption • The sum of clean-up, repair, and penalties of >$1m USD
LEVEL B Moderate danger to life, property and the environment, including but not limited to: • Transportation incident off-site with spillage* • The material is contained at the incident scene • Potential customer supply interruption • Community/Public Emergency Response personnel at the scene • The sum of clean-up, repair, and penalties between $250k and $1m USD
LEVEL C Minimal danger to life, property and the environment: • Transportation incident off-site with no spillage, or on-site with spillage • Precautionary notification of first responders at the scene of a transportation incident • The sum of clean-up, repair, and penalties between $25k and $250k USD *Note:* Spillage will become an environmental incident in the following scenarios: 1) On-site or off-site where Tronox has a prevailing influence 2) When there is no prevailing influence, however there is another trigger that puts at risk community or company reputation or is part of the Chain of Responsibility
LEVEL D Evaluation and classification stage of a potential incident: • Transportation incident within site boundaries with no spillage • Notification of TERP incident at a terminal where there is no spillage and no response is required

9.0 SECURITY

Security Incident Levels

LEVEL A Extreme danger or threat to life, property, and infrastructure including any of the following: • An employee kidnapping within the course and scope of employment • Intentional damage to a facility resulting in a chemical release, injuries or a plant shutdown • Adverse media coverage
LEVEL B Moderate danger or threat to life, property, and infrastructure including any of the following: • An unauthorized entry to company property with the perceived intent to cause physical damage to process equipment or other key assets, or with the perceived intent to cause harm to people on or off-site • Theft of an on-site hazardous chemical in quantities sufficient to pose a risk to the public • Bomb threats • Potential adverse media coverage • Acts of violence • Labor or civil disorder
LEVEL C Minimal danger or threat to life, property, and infrastructure including any of the following: • Any unauthorized access to a facility • Any security threat or actual security incident resulting in a deviation from planned operations or transportation activities
LEVEL D • Any unauthorized access to a non-operation facility (does not include R&D or Laboratories)

10.0 CONTRACTORS, VISITORS AND OTHER CLARIFICATIONS

For the purpose of these guidelines, contractors are companies or individuals engaged under contract to carry out specific tasks or provide specified services.

Typical examples of contractors are:

- companies and their employees performing maintenance or construction work on site
- service providers (e.g. security, janitor, specialized professionals for process and equipment measurements, environmental surveyors)
- transportation companies and their employees under the prevailing influence of Tronox (related to delivery or collection of contracted goods)

Key performance metrics will be calculated and reported for employees and contractors on a combined basis. However, employee and contractor hours, injuries and illnesses and other incidents will be recorded and tracked separately within each site's reporting system so that performance data can be delineated into separate categories for analytical purposes.

11.0 CONTROLLED SITES / FACILITIES

Controlled sites / facilities are defined as locations that Tronox directly manages / controls the activities conducted within the site. These include operational sites as well as leased office facilities.

Warehousing facilities will also be regarded as controlled where Tronox maintains a permanent presence either in the form of an employee or contractor appointed specifically to supervise warehouse activities.

12.0 APPENDIX 1 – Process Safety Threshold Quantity Index

PROCESS SAFETY THRESHOLD QUANTITY INDEX

Chemical	UN Code	UN Dangerous Goods Hazard Class or Grouping	CCPS Internal Incident Class. (as pure substance) kg/lb.	Tronox PS Incident Class. (10% of CCPS) or Local Reg. req't (as pure substance) kg/lb.	Level 0 Near Miss
Aluminum Chloride, Anhydrous	UN1726	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	Less Than
Aluminum Chloride, Solution	UN2581	Packing Group III (Hazard Class 8: Corrosive)	2000/4400	200/440	
Aluminum Powder	UN1396	Packing Group III (Hazard Class 4: Flammable Solid	1000/2200	100/220	
Ammonia Solution > 50% conc.	UN3318	Toxic Inhalation Hazard Zone D	200/440	20/44	
Ammonia Solution 10-35% conc.	UN2672	Packing Group III (Hazard Class 8: Corrosive)	2000/4400	200/440	
Ammonia, Anhydrous	UN1005	Toxic Inhalation Hazard Zone D	200/440	20/44	
Calcium Carbide	UN1402	Packing Group 2	1000/2200	100/220	
Carbon Monoxide	UN1016	TIH Zone D	200/440	20/4,4	Less than
Caustic Soda (NaOH)		Strong Base	2000/4400	200/440	
Chlorine ^	UN1017	Toxic Inhalation Hazard Zone D	25/55	0.5/1	
Diethylamine	UN1154	Packing Group II (Hazard Class 3: Flammable Liq.	1000/2200	100/220	
Hexyltrichlorosilane (HTCS)	UN1784	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Hydrochloric Acid	UN1789	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Hydrofluoric Acid	UN1790	Packing Group I (Hazard Class 8: Corrosive)	500/1100	50/110	
Hydrogen (w/ methane), Compressed	UN2034	Division 2.1 Flammable Gas	500/1100	50/110	
Hydrogen Peroxide, Aqueous Solution (20-60%)	UN2014	Packing Group II (Hazard Class 5: Oxidizer)	1000/2200	100/220	
Hydrogen Peroxide, Aqueous Solution (8-20%)	UN2984	Packing Group III (Hazard Class 8: Corrosive)	2000/4000	200/440	
Hydrogen Peroxide, Stabilized > 60%	UN2015	Packing Group I (Hazard Class 5: Oxidizer)	500/1100	50/110	
Iron Chlorosulfate	UN3264	Packing Group III (Hazard Class 8: Corrosive)	2000/4000	200/440	
Lime	UN3262	Packing Group 3	2000/4400	200/440	
Lime-Magnesium					
Molten Iron****				1000 liters (7, 2t)	
Molten Titanium Dioxide Slag****				1000 Liters (3,6t)	
Nitrogen**	UN1066	UNDG Class 2 Division 2.2	2000/4400	200/440	
Oxygen	UN1072				
Paraffin	UN1223	Packaging Group 3	2000/4400	200/440	
Sodium	UN1428	Packing Group I (Hazard Class 4: Flammable Solid)	500/1100	50/110	
Phosphoric Acid	UN1805	Packing Group III (Hazard Class 8: Corrosive)	2000/4400	200/440	
Potassium Hydroxide Solution	UN1814	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Sasol Gas	UN1971	Flammable gas	500/1100	50/110	
Sodium Aluminate	UN1819	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Sulfur Dioxide	UN1079	Division 2.3, Inhalation Hazard (Zone C)	100/220	10/22	
Suphuric Acid	UN1830	Strong Acids/Bases (Packing group 2)	2000/4400	200/440	
Sodium Hydroxide Solution	UN1824	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	

Chemical	UN Code	UN Dangerous Goods Hazard Class or Grouping	CCPS Internal Incident Class. (as pure substance) kg/lb.	Tronox PS Incident Class. (10% of CCPS) or Local Reg. req't (as pure substance) kg/lb.	Level 0 Near Miss
Sodium Hydroxide, Solid	UN1823	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Sodium Silicate	UN1760	N/A	1000/2200 *	100/220*	
Sulfur	UN1350	Packing Group III (Hazard Class 4: Flammable Solid	2000/4400	200/440	
Sulfuric Acid	UN1830	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Sulfuric Acid	UN2796	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Sulfuric Acid, fuming >30% free sulfur	UN1831	Toxic Inhalation Hazard Zone B	25/55	2.5/5.5	
Sulfuric Acid, fuming <30% free sulfur	UN1831	Packing Group I (Hazard Class 8: Corrosive)	500/1100	50/110	
Sulfuric Acid, spent	UN1832	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Titanium Oxychloride	UN3264	Packing Group II (Hazard Class 8: Corrosive Liquid, Acidic, Inorganic, n.o.s, (Titanium Oxychloride, Hydrogen Chloride)	N/A/NA	100/220	Less Than
Titanium Tetrachloride	UN1838	Toxic Inhalation Hazard Zone B	25/55	2.5/5.5	
Titanium Sulfate	UN1760 or UN2796	Packing Group II (Hazard Class 8: Corrosive)	1000/2200	100/220	
Toluene	UN1294	Packing Group II (Hazard Class 3: Flammable Liq.	1000/2200	100/220	
Vanadium Tetrachloride	UN2444	Packing Group II (Hazard Class 8: Corrosive)	500/1100	50/110	
Zirconium Oxychloride	UN3260	Packing Group II (Hazard Class 8: Corrosive)	500/1100*	50/11*	

**API RP754:2016 Version / ***tapped at 1550 +_ 30 Degrees Celcius / ****tapped at 1670-1710 Degrees Celcius.

- ^ The Cl2 quantity to trigger a L1 incident is <10% of CCPS recommended limits. This is an internal Tronox standard, recognising a low tolerance to Cl2 emissions.
- *Estimated classification per comparing similar HMIS groups

13.0 APPENDIX 2 - GHS Aquatic Toxicity Codes

Stated below is a list of GHS Aquatic Toxicity Codes for use in Environmental incident classification. Based on the nature of the incident and the characteristics of the material, an escape into secondary containment may also be considered an environmental release:

Very Toxic:

- H400 – VT to aquatic life
- H410 – VT to aquatic life with long lasting effects

Toxic:

- H401 – T to aquatic life
- H411 – T to aquatic life with long lasting effects

Harmful:

- H402 – H to aquatic life
- H412 – H to aquatic life with long lasting effects
- H413 – May cause long lasting harmful effects to aquatic life
- H420 – Harms public health and the environment by destroying ozone