

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022



Sustainable Development

Document Type Standard

Document Code SD-01-21-R01

Subject Incident Investigation & Analysis

Revision	Effective Date	Signing Date	No. of Pages
0	25 May 2022	25 May 2022	13

Creator	Verifier	Approver
Secretary of Workplace Safety Committee	Occupational Health & Safety Manager	Secretary of Sustainable Development Committee, SCG
(Suwan Charoenpichitnun) Secretary of Transportation Safety Committee		

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

Electronic Document Format:

The original copy of this document is stored in electronic format at the Sustainable Development Office (SD Office-SCG) under the administration of the sustainable development data system officer.

Any necessary updates to this electronic document can be carried out in accordance with the procedures set forth by SD Office-SCG. Thus, the most current version of this document shall be the one published in an electronic format by the SD Office-SCG only.

Disclaimer

The Siam Cement Group Public Company Limited, or SCG, has compiled information and knowledge based on its experience and expertise in the fields of safety, loss prevention, occupational health and safety of all personnel. The contents provided herein are compiled in good faith, with the intention to share experience and knowledge obtained from sources believed to be reliable and accurate. However, it is hereby stated that SCG assumes no liability with respect to the accuracy or correctness of the information. SCG personnel or any user accessing this document should exercise their own judgment in assessing the accuracy of the information herein as well as any risks related to the its use. The user assumes all responsibility for ensuring that the use of the contents in this document is in compliance with any applicable laws and regulations.

This electronic document is accessible with read or print only permissions. No change of content on these pages is allowed. The user has permission to save this file to local hard drives or a personal file server as a "read-only" document. SD Office-SCG shall consider the electronic format document as the only official copy.

Document Storage:

Until it is replaced by a new version, this document must be reviewed annually and can be updated as needed or at least once every three years.

Copyright: Siam Cement Group Public Company Limited, or SCG

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

Table of Contents

Subject	Page
0. Objectives	4
1. Scope	4
2. Enforcement	4
3. General Requirements of Incident Investigation and Reporting	4
4. The Incident Investigation Process	6
5. Accident Trend Analysis	11
6. References	11

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

0. Objectives

To ensure that incident investigation and analysis leads to the discovery of facts with speed and clarity via a theory-based process, encompasses analysis of key factors, basic or root causes, yields guidelines to prevent such incidents from recurring in the same area and nature of work, with prevention extended to other types of work with similar risks, and advancement in the effectiveness of existing incident control and prevention measures. Furthermore, incident investigation and analysis can also provide learning opportunities, raise awareness, and instill safety consciousness among workers in the future.

1. Scope

These standards must be applied to every activity, site or area, and business under SCG, including subsidiaries and joint ventures under the management and authority of Siam Cement Public Company Limited, regardless of format, size, and product type, as well as to any construction, modification or renovation projects which involve activities that must comply with these requirements. In the case of companies located abroad that are subject to different laws and regulations, these standards can be applied or adapted as deemed appropriate.

2. Enforcement

- The requirements according to this set of standards are considered the minimum requirements that each business unit/ company must comply with, and each business unit /company will be directly accountable for any deviation from these requirements.
- In the case that compliance with these requirements is not possible due to the nature of the organization or limitations of machinery and equipment, exemptions can be made under the guidance of the Sustainable Development Office or ESG of each business unit and SCG and approval by the person in power as designated by the company via the deviation form.
- In the case that the company has more stringent requirements, laws, or standards, adhere to the more stringent requirements, laws, or standards.

3. General Requirements of Incident Investigation and Reporting

3.1 In incident investigation and reporting, a case owner must be specified, such as the section affiliated with the injured or deceased person or the section that has ownership of the damaged asset or area where the incident occurred, etc.

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

3.2 For the following incidents, an investigation must be conducted in accordance with the Incident Investigation Standards:

- Accidents arising from factory/ company activities resulting in personal injury to employees, under supervision contractors and third parties
- Occupational illness and disease of employees and under supervision contractors.
- Incidents resulting in damage to company assets and property
- Fire and/ or Explosion
- Loss of primary containment (LOPC) of chemicals or substances categorized by law as hazardous or similar incidents, including spillage of raw materials, products, and other chemicals, the types and quantity of which are specified by each business unit
- Transportation accidents arising from factory/ company activities and resulting in the injury of employees, under supervision contractors and third parties;
- Accidents involving motor vehicles being used to conduct the company's business
- Near misses deemed by the department manager, section manager, or division manager of the section directly effected by the incident to constitute a high risk or to have the severe impact which may lead to accidents
- Off-the-Job Accidents resulting in fatality or lost working day of employee.

3.3 Incidents other than those specified in 3.2 can be applied as appropriate and at the discretion of the section or department manager of the case owner directly affected by the incident.

3.4 In the event of work-related injury, occupational illness and disease of employees, under supervision contractors and third parties resulting in fatality, additional measures must be taken as follows:

- In the case of accidents that happened in the workplace, the Workplace Safety Committee must appoint a working group comprising representatives from all business units to participate in the incident investigation and reporting.
- In the cases of transportation accidents and road accidents, representatives from the Transportation Safety Committee and SD Office, SCG must participate in the investigation team.

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

4. The Incident Investigation Process consists of the following 11 steps:

4.1 Initial response

- In the event of an injury or fatality, eyewitnesses or victims must inform the area owner and the direct supervisor of the injured or deceased person immediately, and the assigned section shall notify the relevant government agencies. As soon as the area owner is made aware of serious work incident or injury, he or she must take action to respond to or suppress the incident in accordance with the operating procedures manual or as deemed appropriate. Moreover, the case owner must report the incident verbally through the line of command within that shift.
- In the event that a fatal accident occurs to an employee or under supervision contractor or a third party within SCG premises, or due to a transportation accident in the event that SCG is at fault, and in the case of off-the-job accident resulting in fatality, must report in accordance with the Safety Incident Information and Reporting Standard (SD-01-01).
- The area owner must carry out the collection and preservation of evidence and information regarding the incident

4.2 Initial reporting

- 1.) In all cases, the case owner must submit an initial report in writing within 24 hours of occurrence to the parties involved according to the type and severity of the incident;
- 2.) Initial report in writing must be concise and limited to known facts. Any yet unknown information shall be specified as being in the process of verification, diagnosis, or further collection.
- 3.) In the event of a serious accident or when a worker has been exposed to work-related hazard, an official report must be made to the authorities as required in Thailand by law.
- 4.) In the event that an incident occurs within an industrial estate, comply with the requirements of that industrial estate.

4.3 Line management review

The line manager or case owner responsible for the incident investigation and reporting must review the accuracy and completeness of the information in the initial report or as informed, especially the estimated incident classification and severity, for consideration in setting up an investigation team and taking additional response or mitigation actions, including asking for support from executives or related units.

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

In the case of a near miss, the line manager or case owner responsible for the incident investigation and reporting must take into account whether the incident constitutes high risk or has resulted in the severe impact that may lead to an accident in setting up an investigation team and taking additional response or mitigation actions, including asking for support from executives or related units.

4.4 Forming the investigation team

4.4.1) The line manager or case owner responsible for the incident investigation and reporting is also responsible for forming an incident investigation team of at least 3 people. The appointment of the incident investigation team members must coincide with the type and severity of the incident.

4.4.2) Work-related Incident Investigation Team

4.4.2.1) The leader of the investigation team must possess the following qualifications:

- Must be the line manager or case owner responsible for the incident investigation and reporting.
- Must have undergone training on incident investigation and analysis, including the use of incident investigation tools, such as Why Why Analysis, Fish Bone Diagram, Events and Causal Factors Charting, Cause Mapping, or other analytical tools according to the established standards.
- Should have experience in incident investigation.

4.4.2.2) The investigation team must, at the minimum, comprise the following:

- A representative of the case owner responsible for the incident investigation and reporting
- A representative of the area owner
- A representative of the job owner
- A representative who possesses knowledge, competence, skills, and experience in incident investigation and analysis
- For an occupational health incident that requires medical treatment or more, the presence of an occupational physician on the team is required.
- For an incident involving a contractor, a representative from the contractor company (Safety Officer or supervisor) should take part.
- For an incident related to the goods transportation or the use of motor vehicles in conducting the company's business resulting in fatality/ disability or loss of limb, an expert from Thaksa Phiphat School or other accredited institution should take part.

Sustainable Development Office

Document Type:	Standard	Document Code:	SD-01-21-R01
Subject:	Incident Investigation & Analysis	Revision:	0
		Effective Date:	25 May 2022

- Other relevant experts
- For an off-the-job accident leading to fatality, disability, or loss of limb, a representative from the personnel or Human Resource Department should take part.

4.4.2.3) The investigation team must have the following qualifications:

- At least one member, including the leader, must have undergone training on incident investigation and analysis, including the use of incident investigation tools, such as Why Why Analysis, Fish Bone Diagram, Events and Causal Factors Charting, Cause Mapping, or other analytical tools according to the established standards.
- At least one member, including the leader, must have knowledge and understanding of production processes, machinery, equipment or chemicals related to the incident.
- They should possess experience in the investigation of incidents related to the production process, machinery, equipment, or chemicals
- For an incident involving a contractor, there should be a representative from the contractor company who possesses knowledge and understanding of work related to the incident.
- For an occupational health incident, at least one member, including the leader of the investigation team, must have knowledge and understanding of occupational health.
- For an incident related to the goods transportation or the use of motor vehicles in conducting the company's business, there must be at least one expert, including the leader of the investigation team, with knowledge of goods transportation safety standards or road safety standards.

4.4.3) The investigation team must complete the investigation and prepare the report within the timeframe.

4.5 Collecting the facts and evidences

The investigation team must carefully uncover the facts, record the chronology of the events as well as information from interviews with involved parties, and conduct a thorough examination of evidence for the benefit of reviewing, investigating, and preparing the report by gathering facts and evidence of the event or the circumstances that led to the incident (before the incident); facts during the incident, and facts immediately following the incident, encompassing physical and environmental evidence, operating evidence, and human evidence.

4.6 Determining the key factor

The incident investigation team must analyze the cause of the incident by using various tools such as Why Why Analysis, Fish Bone Diagram, Events and Causal Factors Charting, Cause Mapping, or other analytical tools in order to

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

develop corrective and preventive actions. A comprehensive analysis of the data collected from step 4.5 will ensure the identification of system failure as well as human behavior failure and physical failure of equipment and machinery. Rather than attempting to assign blame to a guilty party, the analysis should focus on identifying the cause or specific circumstances leading or contributing to the incidence in order to develop corrective and preventive actions that will help protect against recurrence or the occurrence of more serious incidents.

4.7 Determining systems to be strengthened

Based on the cause of the incident as determined by analysis, the incident investigation team must identify failures, such as management of change, knowledge, abilities, awareness, and training, in the SCG Safety Framework, the Goods Transportation Safety Standards, the Road Safety Standards, or other related standards to ensure continuous improvement and prevent recurrence. Such failures must be specified in the final report.

4.8 Developing corrective and preventive actions

- 4.8.1) The incident investigation team must develop corrective and preventive actions to address the cause of the incident as determined by, and that is consistent with the results of, the incident root cause analysis undertaken in Step 4.6.
- 4.8.2) Consideration of measures to eliminate or mitigate risks should be undertaken according to the hierarchy of control.
- 4.8.3) An assessment of relevant risks, such as environmental risk assessment or HAZOP, must be performed every time following an accident. This may be specified as one of the preventive actions.

4.9 Reporting of investigation results

- 4.9.1) The investigation team must complete the investigation and deliver a report comprised of the following to all parties who were directly involved as well as all parties who were not directly involved in the incident:
 - 1.) A preliminary report
 - 2.) A final report
 - 3.) one page “lesson learned” summary on the incident

Management at each level must receive at minimum items 1-3 of the incident report within the specified period time.

- 4.9.2) In the case of injury resulting in loss of limb, disability, or fatality, the accident investigation report must be submitted to the company's Occupational Health and Safety Committee for review and suggestions

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

regarding further corrective and preventive actions. The company can schedule meetings in addition to monthly board meetings as the situation necessitates.

4.9.3) There must be a process for reviewing and approving the final report or in writing, whereby the approver must not be the same person as the lead of the investigation committee and must hold a higher position by one level or more. (In the case that the Managing Director is the leader of the investigation committee, he or she can act as the report approver.)

4.9.4) Should the need arise to withdraw a corrective or preventive action (CA/PA) because the specified action is deemed ineffective in preventing incidence or it is discovered that there are already other appropriate actions in place after the final report has already been approved, the action in question must be reviewed by the final report approver and notified to the investigation committee.

4.9.5) The company must have a system in place for record keeping and storage of final incident investigation reports and all relevant documents and must be able to provide authorized stakeholders with access to this information in its entirety at all times. However, at the business units level record keeping and storage can be undertaken in accordance with the requirements of each business unit.

4.10 Communicating of investigation results

Communicating the results of an incident investigation is an important part of preventing recurrence and contributes to expansive mutual learning. In communicating investigations results, consideration must be given to personal privacy, such as by not disclosing the name or face of the injured or deceased, etc. The guidelines for communicating incident investigation results are as follows:

4.10.1) Each business units must prepare a one page “lesson learned” from every accident within 7 working days of the approval of the final report and communicate the lesson learned across the company within the time period specified by each business units. In the case of a near miss which constitutes a high risk or has a severe impact which may lead to accidents, the timeframe for creating and communicating the one page “lesson learned” can be determined in accordance with the period specified by each business units.

4.10.2) In the cases of fatal accidents and fatal off the job accidents, each business units must submit a one page “lesson learned” to the Workplace Safety Committee and SD Office, SCG for communication across business units to coincide with the meeting of the SCG Management Development Committee (MDC).

4.10.3) For other types of incident communications, proceed with the requirements of each business units.

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

4.10.4) Other sections or companies with similar risks, production processes, or operations must implement the corrective and preventive actions to prevent the recurrence of accidents of the same nature.

4.11 Following up and Verification

Each business unit must have a system for the following up and verification of the corrective and preventive actions specified in the incident investigation report and must periodically report the status of the actions to management until all corrective and preventive actions have been undertaken through various channels.

5. Accident Trend Analysis

The details and causes of incidents, as well as corrective and preventative actions (CA/PA) in the past one year and three or five years, must be analyzed in relation to the following topics in latest Safety Incident Information and Reporting Standard (SD-01-01)

- Incident Frequency Rate: IFR
- Occupational Illness Frequency Rate: OIFR
- Lost Time Incident Frequency Rate: LTIFR
- Incident Severity Rate: ISR
- Number of Fatalities and Number of Organ Loss Cases
- Number of Off-the-job accident cases for initiating campaigns to promote the prevention of off-the-job accident.

Trend analysis of accident rate above must be performed to identify the factors responsible for accidents. The results of the gap analysis must also be applied to establish an annual plan for occupational health and safety key performance indicators (KPIs).

6. References

- 1) Relevant legal articles, as cited in Attachment 7
- 2) SCGP-SD-OHS-S02: Incident Investigation & Safety Data Reporting Corporate Standard
- 3) SD-OH-S-0003: Occupational Illness & Disease Reporting and Investigation
- 4) Occupational Health and Safety, Anusak Chinpaisal.
- 5) Knowledge Incident Investigation Training by SCG Chemicals
- 6) Investigation of Occupational Accidents and Diseases, International Labour Office Geneva
- 7) Internal memorandum regarding the guidelines for fatality reporting.
- 8) SD-01-06: Goods Transportation Safety Standard

Sustainable Development Office

Document Type: Standard	Document Code: SD-01-21-R01
Subject: Incident Investigation & Analysis	Revision: 0
	Effective Date: 25 May 2022

- 9) "Road Accident Injury Investigation," <https://r8way.moph.go.th/>.
- 10) *Road Traffic Injury Investigation Manual*, the Bureau of Epidemiology, the Department of Disease Control 1-13, Provincial Public Health Office, the Ministry of Public Health and Cross-Country Multidisciplinary Network.
- 11) Incident and Hazard Reporting and Investigation Procedure, La Trobe University. 2005
- 12) Accident Investigation, Canadian Center for Occupational Health & Safety (CCOHS). 2002
- 13) http://www.thailandindustry.com/indust_newweb/articles_preview.php?cid=15912
- 14) Industrial Hygiene and Occupational Health and Safety Curriculum of the School of Medicine, Suranaree University of Technology.
- 15) Incident [Accident] Investigations: A Guide for Employers, OSHA, December 2015
- 16) SCG Safety Framework
- 17) SD-01-01: Safety Incident Information and Reporting