



Preamble

Terms & Definitions

Context

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2.1 Terms & Definitions

OGM/P-HSE-2.1(08) Revision Number 8

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Change/ Revision Log

#	Description of Change
1	Added: Active and passive fire protection systems, Emergency Level 1&2, Fire Classes viz a viz Extinguisher Types, Bowties diagram, Swiss-cheese model, Globally harmonized system (GHS), Hazardous materials identification system (HMIS), LOPC, Heinrich (safety triangle) ratio; and process safety pyramid.

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
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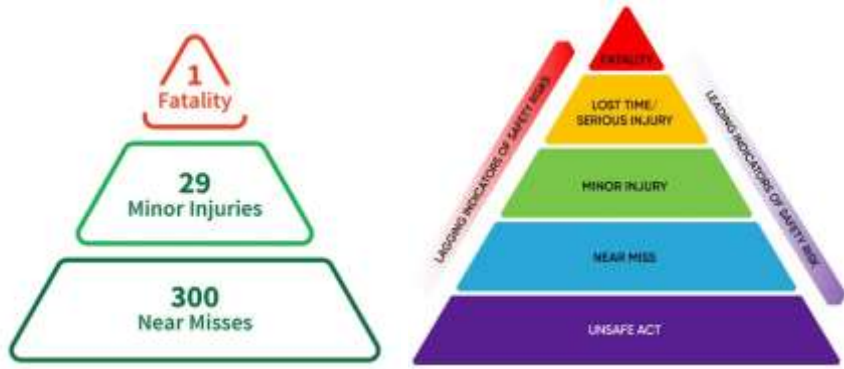
AUDIT	
Auditee	Location (field/ site) to be or being audited.
Auditor	Competent person who conducts an HSE audit.
Audit Conclusion	Outcome of an audit, after consideration of the audit objectives and all audit findings.
Audit Criteria	Set of policies, procedures or requirements used as a reference against which audit evidence is compared.
Audit Evidence	Records, statements of fact, or other documented information (qualitative or quantitative) which are relevant to the audit criteria and verifiable.
Audit Findings	Results of the evaluation of the collected audit evidence against audit criteria. The findings include good practices, nonconformities, observations or opportunities for improvement.
Audit Grade	Audit Grade for a specific location (attributed as Excellent, Good or Poor) is based upon percentage compliance level determined by Audit Team against the Standardized HSE Audit Checklist.
Audit Plan	Arrangements for an audit planned (as per audit planner/ schedule) for a specific time frame and directed towards a specific purpose.
Audit Planner (Schedule)	Audit program arrangements for a set of audits scheduled for a specific time period and directed towards specific purpose.
Audit Scope	Extent and boundaries of an audit; It generally includes a description of the physical locations, organizational units, activities and processes, as well as the time period covered.
Audit Team	One or more HSE Auditors conducting an audit, and supported by technical or subject matter experts, if needed.
Documented Information	Documented information, refers to any information required to be controlled & maintained. (It can be in any format/ media, and from any source.)
Lead Auditor	An experienced HSE Auditor of the Audit Team who is appointed as Team Leader for a specific audit.
Objective Evidence	Records, statements of fact, or other documented information (qualitative or quantitative) supporting the existence or verity of something obtained through observation, measurement, test, or other means.
EMERGENCY PREPAREDNESS AND RESPONSE	
Active Fire Protection Systems	<p>Active fire protection refers to systems that involve a triggered response to a fire. Active systems are initiated by the flame and the response may be manual (for example, a hand operated fire extinguisher qualifies as an active response) or programmed (for example, a sprinkler system). Essentially, active fire protection involves fighting a flame. These systems are considered to be a proactive approach to extinguishing fires and controlling the spread of smoke. The following list of examples are all a part of active fire protection:</p> <ul style="list-style-type: none"> • Fire extinguishers • Fire hose reels • Fire blankets • Sprinkler systems • Smoke alarms • Firefighters/ emergency services • Automated fire doors • Thermal detectors • Fire control systems
Contingency Plan	A pre-established plan to mitigate an unusual situation which has potential for harm, which incorporates the best use of local as well as remote facilities and resources.
Crisis Management Teams	<ol style="list-style-type: none"> a. Emergency Management Team (EMT), Head Office b. Location Emergency Management Teams (LMTs) <ol style="list-style-type: none"> i. Rapid Response Team (RRT) ii. Emergency Response Team (ERT) iii. First Aid & Evacuation Team
Emergency Level-1	<p>An emergency that can be controlled by the localized action at the affected area by the available personnel and resources. This level of emergency doesn't have immediate serious injuries, potential of fatality, major equipment loss, major loss of primary containment, large fire/ explosion, major vehicular incident and/ or major environment impact.</p> <ul style="list-style-type: none"> • Emergency siren is NOT sounded at this stage. • Mustering is NOT required. • LMT is NOT activated; however, the situation is critically monitored



Terms & Definitions: OGDCL's Integrated HSE System Manual

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	<p>by Location InCharge (Chairman LMT) for assessment of any further escalation potential.</p> <ul style="list-style-type: none"> Work activities can be suspended temporarily in the localized area which is or likely to be affected. 																																																
Emergency Level-2	<p>An emergency situation which has potential to impact the affected site significantly and for which external support services may be required. It may result in serious injuries/ fatality, major equipment damage, major loss of primary containment, significant fire/ explosion, major vehicular incident, and/ or loss of controlled substance to the environment</p> <ul style="list-style-type: none"> Emergency siren is sounded with intermittent tones of 10 seconds each with 5 seconds pause, repeated 3 times. Where available, emergency announcement through Public Address system may also be made. Emergency termination would be managed through siren with continuous tone for 120 seconds. Mustering is required. However, LMT Chairman may further decide to evacuate to the Assembly Points designated outside the main gate. Employees are to wait for further instructions there. LMT is activated; however, EMT may be activated depending upon crisis level (severity) 3, 4, or 5 All operations/ activities will be stopped. 																																																
Emergency Response Post	<p>An operations centre established in a suitable location to manage the larger aspects of the emergency. In a high-impact emergency there may be a number of response posts established to support the response like any joint off-site regional response post, provincial government's response post, etc.</p>																																																
Emergency Planning Zone (EPZ)	<p>An area surrounding a facility, pipeline, or well where personnel, residents or other members of the public may be at highest risk during the early stages of an uncontrolled release of toxic materials such as H₂S or explosion or fire and the area for which the company must have a specific emergency response plan.</p>																																																
Emergency Response Plan (ERP)	<p>A comprehensive plan to protect the personnel, public, including criteria for assessing an emergency situation and procedures for mobilizing response personnel and agencies and establishing communications and coordination, that is to be followed by all parties in the event of an incident.</p>																																																
Fire Classes and Extinguisher Types	<table border="1"> <thead> <tr> <th>Type</th> <th>CLASS A Combustible materials (e.g. paper & wood)</th> <th>CLASS B Flammable liquids (e.g. paint & petrol)</th> <th>CLASS C Flammable gases (e.g. butane and methane)</th> <th>CLASS D Flammable metals (e.g. lithium & potassium)</th> <th>Electrical equipment (e.g. computers & generators)</th> <th>CLASS F Deep fat fryers (e.g. chip pans)</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>Water</td> <td>✓</td> <td>✗</td> <td>✗</td> <td>✗</td> <td>✗</td> <td>✗</td> <td>Do not use on liquid or electric fires</td> </tr> <tr> <td>Foam</td> <td>✓</td> <td>✓</td> <td>✗</td> <td>✗</td> <td>✗</td> <td>✗</td> <td>Not suited to domestic use</td> </tr> <tr> <td>Dry Powder</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✗</td> <td>Can be used safely up to 1000 volts</td> </tr> <tr> <td>CO₂</td> <td>✗</td> <td>✓</td> <td>✗</td> <td>✗</td> <td>✓</td> <td>✗</td> <td>Safe on both high and low voltage</td> </tr> <tr> <td>Wet Chemical</td> <td>✓</td> <td>✗</td> <td>✗</td> <td>✗</td> <td>✗</td> <td>✓</td> <td>Use on extremely high temperatures</td> </tr> </tbody> </table>	Type	CLASS A Combustible materials (e.g. paper & wood)	CLASS B Flammable liquids (e.g. paint & petrol)	CLASS C Flammable gases (e.g. butane and methane)	CLASS D Flammable metals (e.g. lithium & potassium)	Electrical equipment (e.g. computers & generators)	CLASS F Deep fat fryers (e.g. chip pans)	Comments	Water	✓	✗	✗	✗	✗	✗	Do not use on liquid or electric fires	Foam	✓	✓	✗	✗	✗	✗	Not suited to domestic use	Dry Powder	✓	✓	✓	✓	✓	✗	Can be used safely up to 1000 volts	CO ₂	✗	✓	✗	✗	✓	✗	Safe on both high and low voltage	Wet Chemical	✓	✗	✗	✗	✗	✓	Use on extremely high temperatures
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Muster Point	<p>The assembly point where the employees have to be gathered in a case of any emergency situation.</p>																																																
Passive Fire Protection Systems	<p>Passive protection refers to fire resistance measures. These systems are all about preventing the spread of flame and resisting ignition in the first place. This resistance is generally structural and designed to compartmentalize your facility and isolate a flame. Passive fire protection is valuable both for the safety of occupants and for the minimizing of asset damage. Through effective compartmentalization, you can maintain the structural integrity of a facility and ensure the safe evacuation of team members. The following list of examples are all a part of passive fire protection:</p> <ul style="list-style-type: none"> Fire doors Fire walls Fire floors Emergency exit lights Dampers Flame shields Intumescent paint 																																																

	<ul style="list-style-type: none"> Mortar coating Mineral fibre matting Protection of muster/ refuge points Spray fireproofing
Retrieval System	The equipment used for non-entry rescue of persons from confined spaces such as a safety harness and life line.
Spill Volume (Reportable)	Quantity of spills equal to or more than one barrel i.e. 159 liter of crude, refined products, and chemicals both on land and aqueous environment.
T-Card & Mustering System	Manual Card for the personnel to sign or swipe in and out of the plant areas used for tallying up all the personnel that have assembled at the different "Muster Points" during actual emergencies or mock drill sessions in order to check whether this equates to the total number of people on the entire plant.
HSE PERFORMANCE KPIS	
Fatal Accident Frequency Rate (FAFR) [Corporate]	$(\text{Number of Fatalities due to work related injuries in a year} / \text{Total man hours}) \times 1000,000$
Fatal Accident Frequency Rate (FAFR) [Unit Level]	$(\text{Number of Fatalities due to work related injuries in a year} / \text{Total man hours}) \times 2000,000$
First Aid Case (FAC)	An injury that requires simple treatment, such as cleaning and application of a small bandage, which does not require treatment by a medical professional.
Heinrich (Safety Triangle) Ratio	
Key Performance Indicator (KPI)	Performance indicator or key performance indicator (KPI) is a measure of performance commonly used to help an organization define and evaluate how successful it is, typically in terms of making progress towards its specific goals.
Lagging Indicators	Lagging indicators are typically "output" oriented, easy to measure but hard to improve or influence e.g. incidents related statistics, pollution load, etc.
Leading Indicators	Leading indicators are typically "input" oriented, hard to measure and easy to influence e.g. risk assessment reports, audit results, trainings outcome, etc.
Lost Workday (Time) Injury Frequency (LWIF or LTIF) [Corporate]	$(\text{No. of Fatalities} + \text{No. of Lost Time Injuries in a year} / \text{Total Hours Worked}) \times 1,000,000$
Lost Workday (Time) Injury Frequency (LWIF or LTIF) [Unit Level]	$(\text{No. of Fatalities} + \text{No. of Lost Time Injuries in a year} / \text{Total Hours Worked}) \times 200,000$
Medical Treatment Case (MTC)	An injury severe enough to require treatment by a medical practitioner (a physician or nurse), but does not cause the worker to miss any work.
Restricted Workday Injury (RWI)	An injury that restricts the worker from performing his normal duties but to continue within 24 hours of the injury.
Safe Man Hours	Cumulative hours worked since the most recent Lost Workday (Time) Injury (LWI or LTI) took place in a certain site or location.
Total Reportable (Injury) Cases	Restricted Workday Injuries + Lost Workday Injuries+ Medical Treatment Cases

Process Safety Pyramid		
Total Reportable (Injury) Case Frequency (TRCF) [Corporate]	(Total Reportable Injury Cases in a year / Total Exposed Hours) / 1000,000	x
Total Reportable (Injury) Case Frequency (TRCF) [Unit Level]	(Total Reportable Injury Cases in a year / Total Exposed Hours) / 200,000	x
Total Reportable Occupational Illness Frequency (TROIF) [Corporate]	(Total Occupational Illnesses in a year / Total Hours Worked) / 1000,000	x
Total Reportable Occupational Illness Frequency (TROIF) [Unit Level]	(Total Occupational Illnesses in a year / Total Hours Worked) / 200,000	x
Total Vehicle Incident Rate (TVIR) [Corporate]	(Total Vehicular Incidents in a year / Business Use Driven KM) / 1000,000	x
Total Vehicle Incident Rate (TVIR) [Unit Level]	(Total Vehicular Incidents in a year / Business Use Driven KM) / 200,000	x
GENERAL		
Asphyxiant	A vapor or gas which can cause unconsciousness or death by suffocation (lack of oxygen).	
Balanced Scorecard (HSE)	It is a 'basket' of measures providing information on a range of HSE activities; It defines who, what, when, where, why and how by using a) Results, b) Program and c) Culture derived from leading and lagging indicators to set benchmarks that align with the organizations vision and report progress at all organizational levels.	
Boiling Liquid Expanding Vapor Explosion (BLEVE)	A boiling liquid expanding vapor explosion (BLEVE) is an explosion caused by the rupture of a vessel containing a pressurized liquid that has reached temperatures above its boiling point.	
Brownfield	The projects which are modified or upgraded are called Brownfield projects or a brownfield is the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.	
Carcinogen	A substance or agent capable of causing cancer or having the potential to cause cancer. Carcinogen (H) Known to cause cancer in humans. Carcinogen (A) Known to cause cancer in animals. Carcinogen (S) Suspected to cause cancer.	
Cardio Pulmonary Resuscitation (CPR)	A combination of artificial respiration (mouth to mouth) and artificial circulation (external cardiac compression).	
Change Management Committee	Committee to review the significance of requirement (concept/ design) related to amendments/ modification in the production fields or plants in order to accord approvals and also commission the completed tasks.	
CNS Depressant	A chemical that may cause loss of functioning and possible damage to Central Nervous System (CNS). Central Nervous System depressants may include a majority of hydrocarbons in the refinery. Symptoms from overexposure are headache, dizziness, nausea, unconsciousness and possibly, death.	
Combustible Liquid Competence	A liquid having a flash point at or above 100 °F (37.8 °C). The ability to perform a particular job in compliance with performance standards. Being competent means having the knowledge and skill that you need and knowing how to apply it in a safe & environment conscious way. It means that you're qualified to do the job.	
Competent Person	A person who is suitably qualified (whether by experience, training or	



	both) to perform the work or function described in the relevant regulation.
Compliance Obligation	There are two kinds of compliance obligations: mandatory compliance obligations and voluntary compliance obligations. Mandatory compliance obligations include laws and regulations while voluntary compliance obligations include contractual commitments, community and industry standards, ethical codes of conduct, and good governance guidelines. A voluntary obligation becomes mandatory once you decide to comply with it.
Context	An organization's context is its business environment. It includes all of the issues, factors, and conditions that could influence or be influenced by its HSE Management System.
Confined Space (Hazardous)	A confined space is a place which is substantially enclosed (though not always entirely), and where serious injury can occur from hazardous substances or conditions prevailing within the space or nearby (e.g. lack of oxygen) i.e. exists with IDLH conditions.
Confined Space (Non-Hazardous)	A confined space which normally exists without IDLH conditions. Non-hazardous confined spaces are floating roof tank tops, tower skirts, sunken valve and pump manifold areas, cooling tower cells, and fin fans.
Consultation	Seeking views for decision-making.
Corrosive	A chemical that causes visible destruction of, or irreversible alterations in, living tissue.
Dispersion Modeling	Mathematical computerized simulation of how air pollutants disperse in the ambient atmosphere. The dispersion models are used to estimate the downwind ambient concentration of air pollutants or toxins emitted from sources such as industrial plants, vehicular traffic or accidental chemical releases. They can also be used to predict future concentrations under specific scenarios (i.e. changes in emission sources).
Dead Man's Switch	A dead man's switch is a switch that is automatically operated if the human operator becomes incapacitated, such as through death, loss of consciousness or being bodily removed from control.
Documented Information	Information required to be controlled and maintained by an organization and the medium on which it is contained; Documented information can be in any format and media and from any source.
Due Diligence	Due diligence means that employers shall take all reasonable precautions, under the particular circumstances, to prevent injuries or accidents in the workplace. Reasonable precautions are also referred to as reasonable care. It refers to the care, caution, or action a reasonable person is expected to take under similar circumstances. Also check ALARP.
Event	Occurrence of a particular set of circumstances.
Environment	Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans and their interrelations.
Environmental Aspect	Element of an organization's activities, products or services that can interact with the Environment; A significant environmental aspect has or can have a significant environmental impact.
Environmental Impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
Early Production Facility (EPF)	To accelerate the time to first oil and gas, production is started early while full field development is being planned and permanent facilities are being built. Early-production Facilities (EPF) help operators bring their new discoveries on-stream fast.
Ergonomics	The science of studying people at work, and designing tasks, jobs, tools, equipment, facilities, and the work environment so that people can be safe, healthy, effective, efficient, productive and comfortable.
Explosive	A chemical that causes a sudden, almost instantaneous release of pressure, gas or heat when subjected to sudden shock, pressure or high temperature.
Exposure	The measurement of time during which the subject is at risk from vulnerability (hazard).
FEED	Front-End Engineering Design (FEED) is an engineering design approach used to control project expenses and thoroughly plan a project before a fix bid quote is submitted. It may also be referred to as Pre-project planning (PPP), front-end loading (FEL), feasibility analysis, or early project planning.
Fire Watch	A qualified person designated to monitor the area of hot work involving welding or cutting, take appropriate action to reduce risk of fire and if



	necessary extinguish an incipient stage fire.
Fugitive Emissions	Emissions of gases or vapors from pressurized equipment due to leaks and various other unintended or irregular releases of gases, mostly from industrial activities.
Failure Mode and Effect Analysis (FMEA)	<p>Failure mode and effect analysis is a tool that examines potential product or process failures, evaluates risk priorities, and helps determine remedial actions to avoid identified problems.</p> <p style="font-size: small;"> DET = detection FMEA = failure mode and effects analysis OCC = occurrence Resp = responsible RPN = risk priority number SEV = severity </p>
Flammability Limits	<p>Flammability limits, also called flammable limits, or <i>explosive limits</i> give the proportion of combustible gases in a mixture, between which limits this mixture is flammable. Gas mixtures consisting of combustible, oxidizing, and inert gases are only flammable under certain conditions. The lower flammable limit (LFL) (lower explosive limit) describes the leanest mixture that is still flammable, i.e. the mixture with the smallest fraction of combustible gas, while the upper flammable limit (UFL) (upper explosive limit) gives the richest flammable mixture. Increasing the fraction of inert gases in a mixture raises the LFL and decreases UFL.</p>
Flammable Liquid	<p>A liquid with a flash point below 100 °F (37.8 °C). Further classification is as under:</p> <ul style="list-style-type: none"> • Class IA flammable liquids have a flash point below 73 °F and a boiling point below 100 °F • Class IB flammable liquids have a flash point below 73 °F and a boiling point greater than or equal to 100 °F • Class IC flammable liquids have a flash point greater than or equal to 73 °F and below 100 °F • Class II combustible liquids have a flash point greater than or equal to 100 °F and below 140 °F • Class IIIA combustible liquids have a flash point greater than or equal to 140 °F and below 200 °F • Class IIIB combustible liquids have a flash point greater than or equal to 200 °F
Flash Point	The lowest temperature of a flammable liquid at which it gives off sufficient vapors to form an ignitable mixture with the air near the surface of the liquid or within the container used.
Fuel Load	The total quantity of combustible contents of a building, space, or fire area, including interior finish and trim, expressed in heat units or the equivalent weight in wood.
Globally Harmonized System (GHS)	<p>System for Classification and Labelling of Chemicals by types of hazard and proposes harmonized hazard communication elements, including labels and safety data sheets as follows:-</p> <p><i>Hazard classification:</i> Provides specific criteria for classification of health and physical hazards, as well as classification of mixtures.</p> <p><i>Labels:</i> Chemical manufacturers and importers are required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided.</p> <p><i>Safety Data Sheets:</i> Have a specified 16-section format.</p> <p><i>Information and training:</i> Employers are required to train workers on the labels elements and safety data sheets format to facilitate recognition and understanding.</p> <p>GHS consists of three major hazard groups :</p> <ol style="list-style-type: none"> 1. Physical hazards.



	<p><i>Classes</i></p> <ul style="list-style-type: none"> Acute toxicity. Skin corrosion/irritation. Serious eye damage/eye irritation. Respiratory or skin sensitization. Germ cell mutagenicity. Carcinogenicity. Reproductive toxicity. Specific target organ toxicity - single exposure. Specific target organ toxicity - repeated exposure. Aspiration hazard. <p>2. Health hazards.</p> <p><i>Classes</i></p> <ul style="list-style-type: none"> Explosives. Flammable gases. Aerosols. Oxidizing gases. Gases under pressure. Flammable liquids. Flammable solids. Self-reactive substances and mixtures. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances/mixtures, in contact with water, emit flammable gases Oxidizing liquids. Oxidizing solids. Organic peroxides. Corrosive to metals. <p>3. Environmental hazards.</p> <p><i>Classes</i></p> <ul style="list-style-type: none"> Hazardous to the aquatic environment (acute and chronic). Hazardous to the ozone layer. 										
<p>Global Warming (Greenhouse Effect)</p>	<p>Global warming is when the earth heats up (the temperature rises). It happens when greenhouse gases (carbon dioxide, nitrous oxide, CFCs, methane, etc.) trap heat and light from the sun in the earth's atmosphere, which increases the temperature. The heat and light can get through the atmosphere, but it can't get out due to damage in the protective layer i.e. ozone.</p>										
<p>Greenfield</p>	<p>The Greenfield project means that a work which is not following a prior work. In infrastructure the projects on the unused lands where there is no need to remodel or demolish an existing structure are called Green Field Projects.</p>										
<p>Hazardous Atmosphere</p>	<p>An atmosphere that may expose entrants to the risk of death, impairment of ability to exit, injury or acute illness from one or more of the following causes:</p> <ul style="list-style-type: none"> • Flammable gas, vapor or mist in excess of 10 percent of the lower explosive limit (LEL) • Atmospheric oxygen concentrations below 19.5% or in excess of 23.5% • Atmospheric concentration of any substance which could result in employee exposure in excess of its permissible exposure limits (PEL) • Any other atmospheric condition that is Immediately Dangerous to Life or Health (IDLH) 										
<p>Health Surveillance</p>	<p>The monitoring of workers for the purpose of identifying changes in health status due to occupational exposure to a vulnerability (threat), and includes biological monitoring.</p>										
<p>Hazardous Materials Identification System (HMIS)</p>	<p>A rating system developed by the American Coatings Association, which categorizes a chemical from 0 (low or Insignificant hazard) to 4 (high hazard). Four areas are categorized based on health, flammability and physical hazards, as well as personal protection.</p> <div data-bbox="1138 2145 1455 2462" style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Chemical Name</td> </tr> <tr> <td style="background-color: #000080; color: white;">HEALTH</td> <td style="text-align: right; border: 1px solid black;">0</td> </tr> <tr> <td style="background-color: #FF0000; color: white;">FLAMMABILITY</td> <td style="text-align: right; border: 1px solid black;">0</td> </tr> <tr> <td style="background-color: #FFA500; color: white;">PHYSICAL HAZARD</td> <td style="text-align: right; border: 1px solid black;">0</td> </tr> <tr> <td style="background-color: #000000; color: white;">PERSONAL PROTECTION</td> <td style="text-align: right; border: 1px solid black;">0</td> </tr> </table> </div>	Chemical Name		HEALTH	0	FLAMMABILITY	0	PHYSICAL HAZARD	0	PERSONAL PROTECTION	0
Chemical Name											
HEALTH	0										
FLAMMABILITY	0										
PHYSICAL HAZARD	0										
PERSONAL PROTECTION	0										
<p>Housekeeping</p>	<p>Maintaining the working environment in a tidy manner so that, in particular, access and movement is not hindered.</p>										



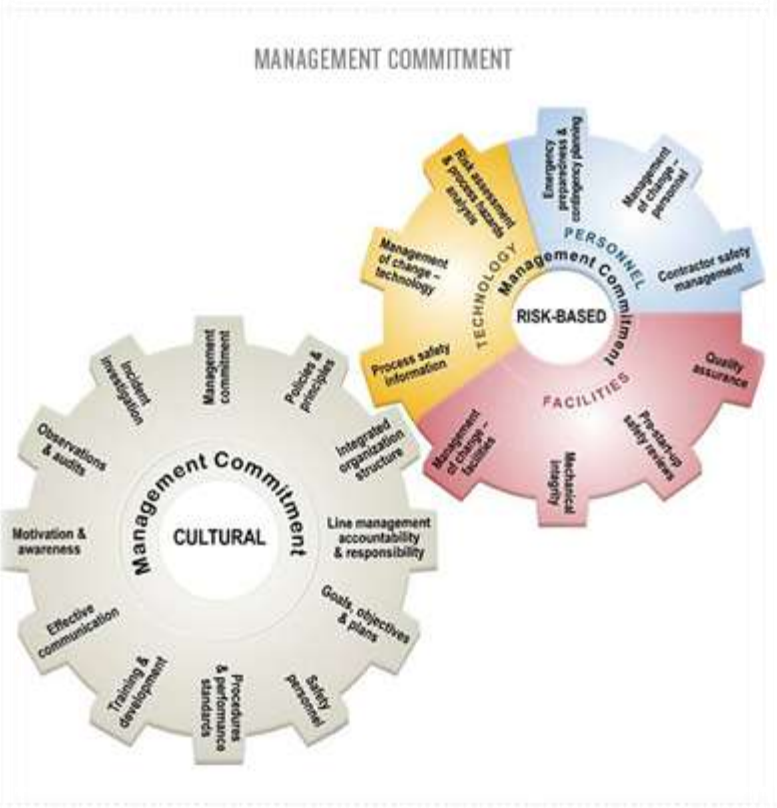
HSE Management Review Committee (MRC)	HSE Management Review Committee consists of Sectional ICs to meet quarterly to seek & analyze Performance of HSE System, Objective/ Targets and plan ahead accordingly.
HSE Management System	The part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing and maintaining the HSE policy.
HSE Objective	Overall HSE goal, arising from the HSE policy, that an organization sets itself to achieve, which is quantified where practicable.
HSE Performance	Measurable results of the HSE management system, related to an organization's control of its HSE aspects, based on its HSE policy, objectives and targets.
HSE Plan	A description of the means of achieving HSE objectives, generally it includes set of HSE Monitoring Plans; HIRA Plan; Emergency Drills Plan; Training Plan; Waste Disposal Plan; Emergency Response Plan, etc.
HSE Policy	Statement by the organization of its intentions and principles in relation to its overall HSE performance which provides a framework for action and for the setting of its HSE objectives and targets.
HSE Target	Detailed performance requirement, applicable to the organization or parts thereof, that arises from the HSE objectives and that needs to be set and met in.
Immediately Dangerous to Life and Health (IDLH)	Any condition that (a) poses an immediate or delayed threat to life; or (b) would cause an irreversible adverse health effect; or (c) would interfere with an individual's ability to escape unaided from a confined space. The level of contaminant that would pose an IDLH atmosphere is substance specific.
Inerting	The displacement of an atmosphere in a confined space by a noncombustible gas such as nitrogen, to such an extent that the resulting atmosphere will not support combustion or life. This condition results in an IDLH (oxygen deficient) atmosphere. Inert confined space entries are not normally done by company personnel.
In-Service Welding	The hazardous practice of welding on equipment (e.g., tank, pipe, vessel, exchanger, etc.) which has not been purged (gas free) and has not been removed from service through conventional methods. This includes but is not limited to grinding, burning or welding.
Interested Party	Individual or group concerned with or affected by the HSE performance of an organization.
Irritant	A chemical that causes reddening, swelling and pain short of actual tissue damage. Irritants are not corrosive. Their inflammatory effect is reversible.
Job Vulnerabilities / Hazard Analysis (JVA / JHA)	The process of carefully studying and recording each step of a job, identifying existing or potential job vulnerabilities / hazards (both safety and health), and determining the control measures to reduce or eliminate the impact.
Journey Management	The planned movement of people and equipment from one place to another place including communications, route, schedule stops, hazard warnings, provisioning, breakdown and other contingencies.
Just Cause	Good or fair reason(s) for discipline.
Lifecycle	It refers to the consecutive and interlinked stages of a product system from the acquisition of materials to end-of-life disposal. The E&P lifecycle includes all associated activities, products, and services and may include procured materials and services as well as end-of-life treatment, decommissioning, and disposal.
Line Break	The intentional opening of a process system that may contain flammable, corrosive, or toxic material or a material under pressure or temperature such that an unplanned opening of the system may result in injury to workers. Examples include spreading flanges, opening exchangers, pulling pumps, cold cutting pipe, etc. Line break, depending on equipment used, could be cold work or hot work.
Life Cycle Perspective	A life cycle perspective includes consideration of the HSE vulnerabilities (threats & opportunities) of an organization's reservoirs, materials, activities, products, and services that it can control or influence. Stages in a life cycle include acquisition of raw materials, design, production, transportation/delivery, use, end of life treatment, and final disposal.
Light Intensity	To assess whether lighting is sufficient in workplace, following light intensity ranges are used. Employees should understand the effects of lighting on their health and safety. In particular, they need to understand visual fatigue: its causes, prevention, symptoms, and recovery techniques.



Terms & Definitions: OGDCL's Integrated HSE System Manual

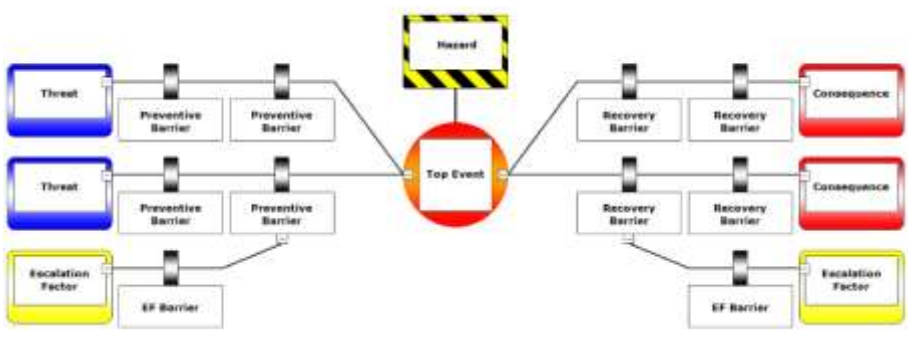
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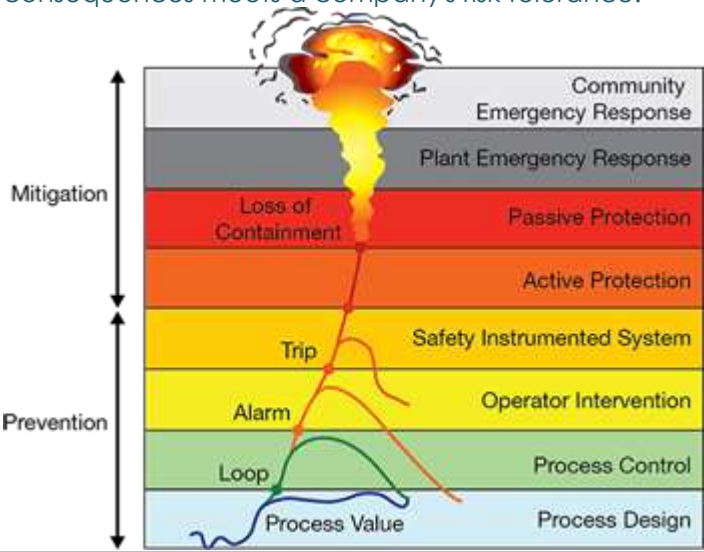
	Task/ Area	Range of Luminance (Lux)
	Emergency lighting (at floor or tread levels) in exits, exit routes, stairs, and underground walkways	At least 10 (on average)
	Simple visual tasks e.g. lobby area; washrooms; loading into trucks	30 – 100
	Medium visual tasks e.g. bookkeeping; filing; material receiving and packing areas	300 – 1000
	More visually demanding tasks e.g. QC/ inspection; proofreading; workshops/ machine work	3000 – 10000
MSDS	Material Safety Data Sheet which refers to the purchased material. (also called PSDS in case of selling of the material).	
Mounted Enclosure	Small enough to prevent complete physical entry (e.g., cabinet, junction box, analyzer enclosure, etc.).	
Non-Pressurized Building Containing Enclosure(s)	Building containing purged or pressurized equipment (e.g., analyzer building, blend building, etc.)	
Outsource	When an organization makes an arrangement with an outside organization to perform part of a function or process, it is referred to as outsourcing. To outsource means to ask an external organization to perform part of a function or process normally done in-house.	
Oxidizer	A chemical that initiates or promotes combustion in other materials causing fire through the release of oxygen or other gases.	
Participation	Involvement in decision-making.	
PDCA Cycle	PDCA (Plan–Do–Check–Act or Plan–Do–Check–Adjust) an iterative four-step management method used in business for the control and continuous improvement of processes and products. It is also known as the Deming Wheel, Shewhart Cycle, Control Circle/Cycle, or Plan–Do–Study–Act (PDSA).	
Permit to Work (PTW) System	A permit-to-work system is a formal written system used to control certain types of work that are potentially hazardous. A permit-to-work is a document which specifies the work to be done and the precautions to be taken. Permits-to-work form an essential part of safe systems of work for many maintenance activities. They allow work to start only after safe procedures have been defined and they provide a clear record that all foreseeable vulnerabilities / hazards have been considered.	
Personal Protective Equipment (PPE)	<p><i>Category A: Basic PPE i.e. a) Coverall / Dangri, b) Warm Jacket / Leather Jacket, c) Safety Shoes, d) Safety Glasses, e) Hard Hat, f) Ear Muffs and g) Cotton Gloves.</i></p> <p><i>Category B: Specific PPE i.e. a) Gloves (Leather, Chemical Resistant, and Latex), b) Face Shields (Welding Shields and Goggles), c) Flame Resistant Clothes, d) Long Safety Shoes, e) Gas Mask, f) Chemical Apron and f) Safety Harness.</i></p> <p><i>Category C: Emergency PPE i.e. complete Turnout Gear/Fire Kit (Fire Suit), SCBA, Air Purifying Respirator (APR), and Safety Vests/Clothing with Reflective Material designed for high nighttime visibility.</i></p>	
Prevention of Incidents	Use of processes, practices, materials or products that avoid, reduce or control incidents, which may include engineering (design) controls, reduction of hazards/ risks, isolation of hazards/ risks, administrative controls and use of PPE.	
Prevention of Pollution	Use of processes, practices, materials or products that avoid, reduce or control pollution, which may include recycling, treatment, process changes, control mechanisms, efficient use of resources and material substitution.	
Pressurized Building Containing Pneumatic Controls	Pressurized building containing control equipment that has the potential to release purged air (e.g., pressurized control room).	
Process Safety Information (PSI)	Physical, chemical, and toxicological information related to the chemicals, process, and equipment. It is used to document the configuration of a process, its characteristics, its limitations, and as data for process hazard analyses.	

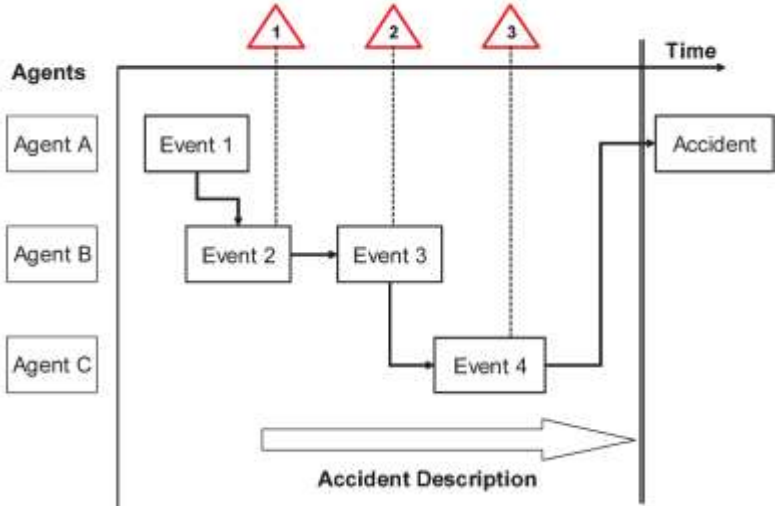
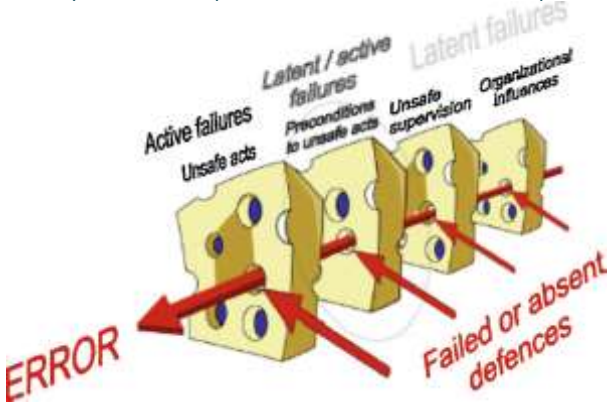
<p>Process Safety & Risk Management (PSRM) Model</p>	
<p>Process Hazard Analysis (PHA)</p>	<p>A process hazard analysis (PHA) (or process hazard evaluation) is a set of organized and systematic assessments of the potential vulnerabilities (threats / hazards) associated with an industrial process. The techniques include Checklist; What-If; HazId; HazOp; Process Hazards Review (PHR); Failure Modes Effects and Analysis (FMEA); Layers of Protection Analysis (LOPA).</p>
<p>Product Safety Data Sheet (PSDS)</p>	<p>MSDS when prepared by the relevant team for our own products.</p>
<p>Pyrophoric</p>	<p>A chemical that will ignite spontaneously in or at a temperature of 103 F (54.4 C or below).</p>
<p>Reproductive Hazards</p>	<p>Chemicals that affect the reproductive capabilities of males, females and a developing fetus. Reproductive (M) – for males Reproductive (F) – for females Reproductive (D) – developmental hazard for fetus Reproductive (S) – suspect, effects seen at levels not expected in industry</p>
<p>Sensitizer</p>	<p>A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.</p>
<p>Short Term Exposure Limit (STEL)</p>	<p>The maximum permissible concentration of a material, generally expressed in ppm in air, for a defined short period of time (typically 5 or 15 minutes, depending upon the country). This "concentration" is generally a time-weighted average over the period of exposure. These values, which may differ from country to country, are often backed up by regulation and therefore may be legally enforceable.</p>
<p>Simultaneous Operations (SIMOPS)</p>	<p>Simultaneous operations means different operations carried out by different teams or companies in same location with possibilities of impacts or interferences between substances, material or personal which can cause undesirable circumstances.</p>
<p>Toolbox Talk Program</p>	<p>Toolbox talks are a program developed by OGDCL to bring a HSE culture into its working environment. Instead of lengthy, somewhat rigid formal training sessions, employees take part in a 10-15 minute relaxed safety briefing. These talks take place directly in the workplace, whether it be a manufacturing floor or at a construction site.</p>
<p>Unstable (Reactive) Chemical</p>	<p>A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.</p>
<p>Vesicant</p>	<p>A chemical which, if it can escape from the vein, causes extensive tissue damage, with vesicle formation or blistering.</p>

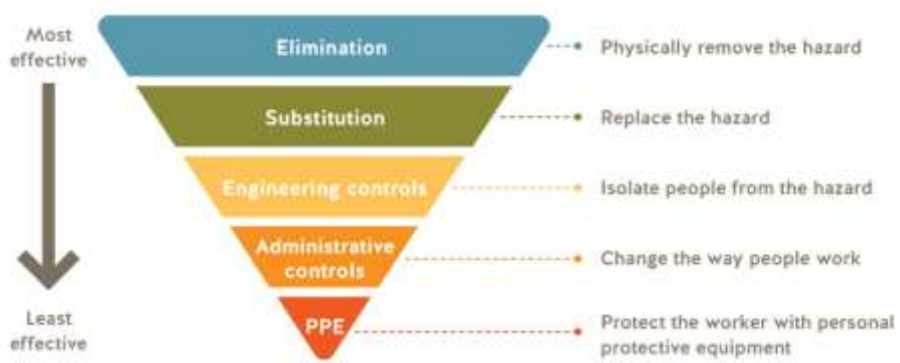
Walk-in Enclosure	Similar to mounted enclosure, but large enough to allow complete physical entry (e.g., walk-in compressor control equipment).
Workplace	A workplace is a place where an organization's work is performed. A place is an organization's workplace only if it is under its control, at least to some extent.
Worker	Person performing work or work-related activities that are under the control of the organization.
Xenobiotic	A chemical (or, more generally, a chemical mix) which is not a normal component of the organism which is exposed to it. Xenobiotics, therefore, include most drugs (other than those compounds which naturally occur in the organism), as well as other foreign substances.

INCIDENT INVESTIGATION

Bowtie Diagram	<p>A 'bowtie' is a diagram that visualizes the risks and multiple plausible scenarios in an easy to understand picture. The diagram is shaped like a bow-tie, creating a clear differentiation between proactive and reactive risk management.</p>  <p>The diagram illustrates a central 'Top Event' (red circle) leading to a 'Hazard' (yellow and black striped box). To the left, 'Threat' (blue boxes) and 'Escalation Factor' (yellow box) lead to 'Preventive Barrier' (white boxes). To the right, 'Recovery Barrier' (white boxes) and 'Escalation Factor' (yellow box) lead to 'Consequence' (red boxes). The 'Top Event' is connected to 'Preventive Barrier' and 'Recovery Barrier'.</p>
Controlled Activity	This is an activity in a work environment (as a condition of employment i.e. physical location, equipment, material or vehicle) related to OGDCL workforce member where OGDCL can set HSE policies, standards and procedures (PSP) and directly supervise and enforce its application. Incidents arising from controlled activities are reported, investigated and tracked.
Continual improvement	Process of enhancing the HSE management system to achieve improvements in overall HSE performance in line with organization's HSE policy.
Contributing Surface Cause	Major but not the root level cause of an incident (implicating or has potential to implicate) an injury or illness e.g. in case of a fall from a ladder contributing surface causes may be a) slippery floor, chemical leak, broken valve and/or untrained worker indicating <i>unsafe condition</i> and b) person did not inspect, ignored the vulnerability (hazard), failed to report the vulnerability (hazard) and/or himself created the vulnerability (hazard) indicating <i>unsafe behavior</i> .
Corrective & Preventive Action Request (CPR)	An HSE System Tool/Form for continuous improvement to timely document an issue or an emerging issue to enable focus on systematic investigation of discrepancies (violation, failures and/or deviations) in an attempt to prevent their recurrence (for corrective action) or to prevent occurrence (for preventive action).
Design Root Cause	Root level cause of an incident (implicating or has potential to implicate) an injury or illness e.g. in case of a fall from a ladder primary surface causes may be a) nonexistence of maintenance plan, flawed inspection plan and/or nonexistence of implementation strategy indicating <i>unsafe condition</i> and b) failing to provide tools, inadequate supervision, non-enforcement of rules and/or inconsistent training of the person indicating <i>unsafe behavior</i> .
Dangerous Occurrence	Readily identifiable event with potential to cause an accident or disease to persons at work and the public or of significant actual or potential material damage. (Also see <i>Near Hit</i> .)
Fatality	Death of workforce member caused by a work related incident, regardless of the time intervening between injury and death.
First Aid Case	Work related injuries or illnesses that involve a single treatment of minor bruises, cuts, burns, scratches etc. and not requiring medical care of the level to take the patient to the Hospital. This includes injuries / illnesses that require minor treatment, e.g. any one-time treatment, cleansing, application of bandages / band-aids, treatment of minor scratches, cuts, burns, splinters, etc.

<p>Line Of Fire Injuries</p>	<p>Line of fire injuries occur when the path of a moving object or the release of hazardous energy (to be taken as a harms-way) intersects with an individual's body.</p>
<p>Layers of Protection Analysis (LOPA)</p>	<p>A method used to evaluate high-consequence scenarios determining if the combination of probability of occurrence and severity of consequences meets a company's risk tolerance.</p> 
<p>Loss of Primary Containment (LOPC)</p>	<p>An unplanned or uncontrolled release of any material from primary containment, including non-toxic and non-flammable materials (e.g. steam, hot condensate, nitrogen, compressed CO2 or compressed air).</p>
<p>Lost Workday (Time) Injury (LWI o LTI)</p>	<p>A work related injury or illness which results in the OGDCL's or contractor's workforce member declared medically unfit to attend duty on the next calendar day (24 hrs) after the day of injury. The criteria "24 hours" include rest days, weekend days, scheduled holidays, public holidays or subsequent days after ceasing employment; However, if medical practitioner declares that the injured person is fit to attend office within 24 hours, then the injury shall <u>not</u> be LWI or LTI.</p>
<p>Monitored Activity</p>	<p>This is an activity where OGDCL can influence but cannot set HSE policies, standards and procedures (PSP) and cannot directly supervise and enforce its application. Incidents arising from monitored activities are reported, investigated (where possible) and tracked.</p>
<p>Near Hit/ Near Miss</p>	<p>An unplanned event that do not result in injury, illness, or damage – but has the potential to do so. Only a fortunate break in the chain of events prevents an injury, fatality or damage. Human error is commonly an initiating event, a faulty process or system invariably permits or compounds the harm, and is the focus of improvement. Other familiar terms for these events is a “close call”, “dangerous occurrence”, or in the case of moving objects, “near collision”.</p>
<p>Occupational Health Illness</p>	<p>Any illness suffered due to occupational matter like Noise Induced Hearing Loss, Food Poisoning, Musculoskeletal Disorder, etc.</p>
<p>Opportunity</p>	<p>A circumstance or a set of circumstances that could lead to the improvement of HSE performance.</p>
<p>Medical Treatment Case (MTC)</p>	<p>An injury severe enough to require treatment by a medical practitioner (a physician or nurse), but does not cause the worker to miss any work.</p>
<p>Permanent Partial Disability (PPD)</p>	<p>Any work related injury or illness which results in complete loss, or permanent loss of use, of any part(s) of the body or any permanent impairment of function or parts of body, regardless of any pre-existing disability of the injured member of impaired body function. A PPD is not related to the ability of the injured person to do is normal work, e.g. it is classified as a PPD if he has lost a finger, toe, arm, limb, etc. but (upon recovery) is still able to do his normal work or any other work that permits for the partial disability.</p>
<p>Permanent Total Disability (PTD)</p>	<p>Any work-related injury or illness, which permanently incapacitates an employee from doing any work and results in termination of employment.</p>
<p>Primary Containment</p>	<p>A tank, vessel, pipe, transport vessel or equipment intended to serve as the primary container for, or used for the transfer of, a material. Primary containers may be designed with secondary containment systems to contain or control a release from the primary containment.</p>
<p>Primary Surface Cause</p>	<p>Most superficial level of cause of an incident (implicating or has potential to implicate) an injury or illness e.g. in case of a fall from a ladder primary surface causes may be defective ladder indicating <i>unsafe condition</i> and hurriedness of the person indicating <i>unsafe behavior</i>.</p>
<p>Process Safety Incident</p>	<p>An undesirable event / condition, generally traceable through a trip or alarm via the instrumentation circuit e.g. an unplanned or uncontrolled</p>

	Loss of Primary Containment (LOPC) from a process, or an undesired event or condition that, under slightly different circumstances, could have resulted in a LOPC.
Restricted Workday Case (RWC):	A RWC is a work related injury or illness which results in the OGDCL's or contractor's workforce member being unable; (1) to perform one or more routine duties, or (2) to work the full day on, or the next calendar day after the day of injury/illness. A RWC occurs when the injured person is temporarily assigned to do other, less strenuous work (than the normal job) e.g. an injured maintenance technician doing light office work. This also includes situations where the worker does perform his routine duties but for less period of time than normal shift timings because of restriction of work.
Root Cause Analysis (RCA)	A structured process that uncovers the physical, human, and latent causes of any undesirable event in the workplace.
STOP Card	Influenced by STOP (Safety, Training, Observation and Program) Card, an HSE management tool proposed by DuPont and adopted by OGDCL. By encouraging all the employees to observe, identify and intervene the unsafe acts or accident symptom at workplace, it aims at "instantly" eliminating the hidden dangers and reducing occurrence of accident through small behavior based "on-spot talks" so that job/work can resume safely.
Swim Lane Diagram or STEP (Sequential Timed Event Plot) Diagram	<p>Tool used to analyze an accident by connecting events to indicate how they prompted a final result. It enables the investigator to build a graphical timeline and utilize it for further accident assessments techniques.</p> 
Swiss Cheese Model	<p>A simplified model used to illustrate analyses of major accidents and catastrophic systems failures by exhibiting multiple, smaller failures leading up to the actual hazard. Each slice of cheese represents a safety barrier or precaution relevant to a particular hazard.</p> 
UBUC	Unsafe Behavior Unsafe Condition.
Uncontrolled Activity	If an activity is not controlled or monitored, it is an uncontrolled activity. This is an activity where OGDCL does not set or influence HSE policies, standards and procedures (PSP) and does not supervise HSE performance. Incidents arising from uncontrolled activities are neither reported, investigated or tracked; although these incidents should be assessed for potential learning that could be applied within OGDCL.
RISK MANAGEMENT	
ALARP (As Low As Reasonably Practicable)	Fundamental principle is that the residual risk shall be reduced as far as reasonably practicable as any additional cost involved in reducing the risk further would not be proportionate to the benefit gained.

Barrier (Hazards Control Hierarchy)	Functional grouping of safeguards or controls selected to prevent a major accident or limit the consequences.
Enterprise Risk Management (ERM)	ERM is a way to effectively manage risk across the organization through the use of a common risk management framework. This framework can vary widely among organizations but typically involves people, rules, and tools.
Hazard	Any process/operation/activity related event or gap in the protection efforts or source that could potentially cause damage and give opportunity for improvement.
Hazard Communication (HAZCOM)	Disseminating safety information about hazards in a workplace.
Hazards Control Hierarchy (Barriers)	<ul style="list-style-type: none"> ⊗ Elimination is removal of hazard by eliminating a requirement to carry out a task, use of particular equipment or use of a chemical. ⊗ Substitution is replacement of the material; plant; equipment; process; or work practice with a less hazardous one. ⊗ Engineering controls reduce the reliance of human factors; engineering controls can be redesign of equipment, redesign of process or increase of automation. Engineering controls also include change in layout, ventilation, guards, enclosures, firewalls etc. ⊗ Administrative controls are the procedural aspects, such as planned and preventive maintenance, HSE awareness events, Standard Operating Procedures (SOPs), work permit system, job hazards analysis and competence of personnel. ⊗ Personal Protective Equipment (PPE) is the last and might be the least effective method as it relies on human behavior. 
Hazard Identification (HAZID)	A study by a multi-disciplinary team to identify potential hazards.
Hazard and Operability Study (HAZOP)	A study by a multi-disciplinary team to identify hazards and operability problems, including causes, consequences, safeguards and remedial actions.
HIRA Plan	Formal plan to carry out hazards identification and risk assessment of an oil & gas installation or office building.
HIRA Team	Team of appropriate domain professionals (subject matter experts) trained on hazards identification & risk assessment methodologies.
Individual Risk	Risk to which an individual is exposed during a defined period of time.
Inherently Safer Design	Design which eliminates or reduces major accidents through measures that are permanent/ inseparable from the design.
Risk (Rating)	Numerical value of an impact as combination of an incident-likelihood and consequence-severity within a 5x5 risk matrix.
Risk Assessment	Overall process of estimating the magnitude of impact and deciding whether or not it is significant.
Risk Criteria	Terms of reference which evaluates the significance of a risk as Low = 1-6; Medium = 7-12; High = 13-20; Intolerable = 21-25.
Risk Dashboard	Graphical presentation of the risks.
Risk Management	System to eliminate or mitigate the risks.
Risk Matrix	A visualization tool for Enterprise Risk Management (ERM). Also known as Risk Heat Map or Risk Heat Chart, it shows risk likelihood on the horizontal axis (X) and risk impact on the vertical axis (Y).
Risk Owner	Entity accountable as well as authoritative to manage a risk.
Risk Register	Record used to identify applicable hazards to assess risks.
Risk Source	Element which has potential to give rise to a risk.
Risk Tolerance	Readiness to bear a risk after risk treatment.
Risk Treatment	Controlling, avoiding or transferring the risk.
Significant Risk	Intolerable or high risk.