CONVENTION & EXHIBITION (PUTRAJAYA) SDN. BHD.

HSE RISK ASSESSMENT

Co-X/QHS/SOP11

Revision No.: 00

Effective Date: 1st November 2022

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		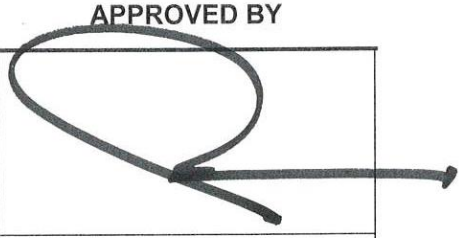
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REVISION HISTORY

Rev. No	DCN No.	Description of Changes	Effective Date
00	--	Initial Release	01/11/2022

1.0 OBJECTIVE

1.1 This procedure aim to enable a systematic methodology in conducting general risk assessment for all the activities in operation under the control of Co-X.

1.2 This procedure illustrates the generic methodology for identifying significant hazards / aspects in the all activities and finally determines the control required to minimize the risk. The control may be in the form of programs and / or operational control.

2.0 SCOPE

This procedure covers all the activities carried out by Co-X.

3.0 DEFINITION

3.1 Co-X : Convention & Exhibition (Putrajaya) Sdn. Bhd.
3.2 QHSE : Quality, Health, Safety & Environment
3.3 DC : Document Controller
3.4 HOD : Head of Department
3.5 QHSE : Quality, Health, Safety & Environment
3.6 MR : Management Representative
3.7 TRA : Task Risk Assessment

4.0 RESPONSIBILITIES

4.1 The Quality, Health, Safety & Environment (QHSE) Head of Department (HOD) is responsible for:

4.1.1 Coordinating the necessary activities.
4.1.2 To ensure the procedure is adhered to.
4.1.3 To identify health and safety hazards and perform risk assessment.
4.1.4 Responsible to ensure that all activities prescribed in the scope are being assessed.

4.2 Relevant HOD shall be responsible to identify, evaluate, review periodically and approved the Risk Register.

5.0 REFERENCE

5.1 ISO 14001:2015 Clause 6 Planning
5.2 ISO 45001:2018 Clause 6.1.2 Hazard Identification And Assessment of Risks And Opportunities

6.0 PROCEDURE

6.1 Definitions

6.1.1 The terms used in Co-X for Health, Safety and Environmental (HSE) are defined as below:

6.1.1.1 **Hazard / Aspect:**

6.1.1.1.1 **Hazard** – Source, situation or act with a potential for harm in terms of injury or ill health, or a combination of these.

6.1.1.1.2 **Aspect** – Aspect is Environmental Aspect. It is defined as elements of an organizations activities or products or service that can interact with the environment.

6.1.1.2 **Risk / Impact:**

6.1.1.2.1 **Risk** – Combination of the likelihood and consequence(s) of a specified hazardous event occurring.

6.1.1.2.2 **Impact** – Impact is Environmental Impact. It is defined as any changes to the environment whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspect.

6.1.2 Task Risk Assessment (TRA) is the process combination of:

6.1.2.1 Hazard / Aspect Identification and Risk / Impact Assessment.

6.1.2.2 **HIRADC (Co-X/QHS/SOP11-R01) and Environmental Aspect & Impact Assessment (Co-X/QHS/SOP11-R02).**

6.2 Define Parameters for the Task

6.2.1 List down all work activities / tasks that are being carried out by operation, department, section or unit. This listing shall clearly define each activity / task to avoid over-lapping and over-looking of certain functions.

6.3 Identify and Train the HSE Team

6.3.1 The Management Representative (MR) shall be nominated as the HSE team leader and together with the committee members, shall agree on the composition of the Risk Assessment Team. The size of the team will vary according to the complexity of the task. Relatively simple tasks can be assessed by one person. However, regardless of numbers, the team should include personnel who:

6.3.1.1 are responsible for the task.

6.3.1.2 have sufficient knowledge, expertise and competence in the task to being performed, have understanding of hazard(s) / aspects(s) it presents and have ability to facilitate the process.

6.3.1.3 are fully knowledgeable of the location(s), its surroundings and the hazard(s) / aspects(s) they present.

6.3.1.4 has specialized knowledge of the task(s) where it is relevant or appropriate.

6.3.2 Team members must be familiar with the TRA process and have sufficient knowledge of the work activities and environment to make informed judgments of the hazard / consequence & aspect / impact involved and measures to mitigate them. This requires knowledge and experience of the area, section, equipment or system to be worked on and an awareness of the hazards involved and their potential consequences. They should also have understanding of any relevant procedures and industry standards.

6.4 Identify Activity and its Sub-activity

6.4.1 Prior to commencing the TRA process, the team should carry out preparatory work to ensure that its members have sufficient background information on which to base their judgments. This should include reviewing the overall work program and breaking it down into a sequence of tasks. The team should also be familiar with the physical layout of the area, other plant or equipment in the area.

6.4.2 The leader will determine the time frame to complete the TRA exercise.

6.4.3 When carrying out the preparatory work, the team should consider the following:

6.4.3.1 What is the purpose of the task.

6.4.3.2 What are the critical activities in performing the task and how.

6.4.3.3 Are there simultaneous operations that have a significant safety impact on the task (e.g. other tasks occurring as part of the same work-scope, or other work in an adjacent area)?

6.5 Identifying Hazard / Aspect and Applicable Legal Requirement

6.5.1 Once the TRA Team is prepared, the TRA exercise can be carried out. The TRA team shall carry out the assessment and recording the same on the TRA form for occupational health & safety and environmental separately. This should be done by way of a full group discussion under the direction of the TRA team leader to ensure that all members are given adequate opportunity to express their views.

6.5.2 The identification shall cover:

6.5.2.1 All activities (routine, non-routine, normal, abnormal & emergency).
6.5.2.2 Activities of all personnel having assess to the workplace (including contractors and visitors).
6.5.2.3 Human behavior, capabilities and other human factors.
6.5.2.4 Identified hazards outside the workplace.
6.5.2.5 Hazards created in the vicinity of the workplace.
6.5.2.6 Infrastructure, equipment and material at the workplace.
6.5.2.7 Any applicable legal obligations relating to risk assessment and implementation of necessary controls.

6.5.3 The team leader must allocate sufficient time to allow the TRA team to identify all hazards / aspect against each sub-activity. A hazard / aspect consideration table is a useful prompt to ensure that no hazards or aspects are missed. An example of such a matrix is included in **Appendix A** (for occupational health and safety hazards) and **Appendix B** (for environmental aspect & impact). Record of those involved with the evaluation shall be kept by way of including their names as "Assessors" in the TRA form. The TRA team shall also assess the type of activity and refer to the table as in **Appendix C** (risk assessment matrix).

6.5.4 Once all hazards / aspect associated with the task are established, the consequences or hazard / aspect effects (i.e. the harm which could possibly occur) to people or asset or environment that may be affected need to be identified and listed in the TRA form. Consideration should also be given to others who may become affected i.e. personnel working in close proximity to the area where the task is being undertaken, visitors to the work site, etc.

6.5.5 The TRA team shall also identify if the sub-activity needs to comply with any applicable OSH or Environmental Legislation and record the same in the TRA form.

6.5.6 Condition of assessment shall be highlighted for the purpose of identifying the condition for environment or OSH. The condition of assessment are:

6.5.6.1 N – Normal. Referring to the environment aspect. E.g. to spill detergent (<0.5 litre) during filling into washing machine is normal.

6.5.6.2 AbN – Abnormal. Referring to environment aspect. E.g. to spill detergent (>0.5 litre) during filling into washing machine is abnormal.

6.5.6.3 E – Emergency. Referring to environment or OSH where the situation will be an emergency situation. E.g. oil spillage (>200 litre), explosion.

6.5.6.4 R – Routine. Referring to the OSH routine activity. E.g. periodic task to be done.

6.5.6.5 NR – Non-routine. Referring to the OSH non-routine activity. E.g. ad hoc activity done.

6.5.6.6 W – Work at workplace. Referring to OSH hazard present when executing the task.

6.5.6.7 V – Vicinity workplace. Referring to OSH hazards created in the vicinity of the workplace.

6.5.6.8 O – Outside workplace. Referring to OSH hazards originating outside the workplace.

6.6 Identification of Applicable Legal Requirements

6.6.1 Assessor shall identify any applicable legal related to Environmental / OSH that is required to mitigate the risk or eliminate the identified aspect / hazard.

6.6.2 The legal mentioned shall be shall be referring to Environmental Quality Act & Regulations, Occupational Safety & Health Act & Regulations and Factories & Machineries Act (Safety Health and Welfare) regulations.

6.7 Identify Existing Control Measures

6.7.1 The TRA team must work systematically through the list of hazards / aspects to specify all the existing controls measures (if any), for each of the associated sub-activity that is in place to mitigate the risk. These measures should be based on good safe working practice in order to reduce the residual risk to as low as reasonably practicable (ALARP). A control guidelines hierarchy may be used to assist in this process.

6.7.2 When considering the control, it is best to consider first on engineering control available, followed by administrative control and then PPE or spill kit control.

6.8 Assess Consequence / Impact and Its Rating

6.8.1 The TRA Team shall that shall carry out a qualitative evaluation of the following parameters against each sub activity (with the assumption that there are no existing control measures in place at the time of evaluation):

6.8.1.1 Likelihood (L) of occurrence

The likelihood shall be considered with the presence of existing control measure.

6.8.1.2 Severity (S) of aspect or hazard

The severity shall be considered as practicably possible from the impact or consequence.

The qualitative assessment matrix for calculation purpose is in **Appendix C** (risk assessment matrix).

6.9 Risk Rating & Risk Category

6.9.1 The TRA Team shall calculate the value of the risk rating. This is done by the following formula: L x S

6.9.2 The hazard or aspect shall be considered as significant when the rating for severity (S) is 4 and more.

6.9.3 On obtaining the value of the risk rating, the TRA team shall record the Risk Category from the Matrix in **Appendix D.**

6.10 Risk Evaluation – Legal Compliance

6.10.1 The assessor shall base on current situation to evaluate the current control that is required by legal requirement to determine the compliancy.

6.10.2 When legal compliance is fully complied, “C” for comply shall be entered.

6.10.3 When only partial legal compliance being addressed, “PC” for partially comply shall be entered. E.g. Out of 20 regulations in, one or few not complied.

6.10.4 When the whole of the act or regulations or COP not being compliance, “NC” for non-comply shall be entered.

6.11 Determination of Controls

6.11.1 The TRA team shall identify any control measures to be taken and record in the TRA form. Control measures are to be identified when the risk category is III or higher. In the event where identified legal is not being complied (NC) or partially complied (PC), the risk category shall be III and IV respectively.

6.11.2 In considering the additional control recommended, it is best that the team to consider the best approach. Start with elimination, and followed by substitution, engineering, administrative and then PPE or spill kit. The identified control can be in the means of objective / targets with management program, management programs, or additional Standard Operating Procedures.

6.11.3 Once all the controls have been identified that reduces the risk, the following final question should be asked:

6.11.3.1 have all additional necessary control measures been fully / effectively identified?
6.11.3.2 are any additional competencies required to complete the task?
6.11.3.3 is the risk effectively controlled?

6.12 Development of Objective, Management Program and Operational Controls

6.12.1 The TRA Team will have a Program Register called the Management Program that consists of the Action Plan, Resource Needed, Timescale and Responsible Person to implement the corrective action required to mitigate the risk/impact.

6.12.2 The success of a TRA and implementation of the control measures will depend upon how effectively it has been communicated. The value of the hazard / aspect identification and risk assessment will be wasted if people carrying out a task are not fully aware of, or do not thoroughly understand, the hazards and the precautions put in place.

6.12.3 Means of communication can take place in many forms such as:

6.12.3.1 Written Standard Requirements of a HSE program for employees / contractors.
6.12.3.2 Standard Operating Procedure / Work Instruction.
6.12.3.3 Point of discussion during HSE Committee Meetings / other operational or technical meetings.

6.12.3.4 Point to address during toolbox meetings.
6.12.3.5 HSE Trainings / Inductions.

6.13 Implement and Monitor Controls

6.13.1 Once the team is satisfied that all the hazards / aspects have been identified and that suitable controls have been put in place to reduce the risk to an acceptable level, the team should continue monitoring / supervising the task(s) and not become complacent. By monitoring an ongoing basis, the team should always be aware of any changes in personnel, conditions at the work-site, or if the TRA is found to be incomplete or incorrect.

6.13.2 If it becomes necessary, they should re-assess the task to review the effectiveness of the control measures.

6.13.3 The Hazard / Aspect Register needs to be reviewed if there's changes in:

6.13.3.1 Process.
6.13.3.2 Operational.
6.13.3.3 Activities.
6.13.3.4 Major accidents happen which previously not identified.

6.13.4 The Hazard / Aspect Register needs to be reviewed as per recommended by the management during Management Review Meeting (MRM).

7.0 RECORDS

7.1 Co-X/QHS/SOP11-R01 HIRADC
7.2 Co-X/QHS/SOP11-R02 Environmental Aspect & Impact Assessment

8.0 APPENDIX / ATTACHMENT

8.1 Hazard Identification Matrix [Appendix A]
8.2 Environmental Aspects and Impacts Identification Matrix [Appendix B]
8.3 Risk Assessment Matrix [Appendix C]
8.4 Risk Control Plan Matrix [Appendix D]
8.5 Process Flow

APPENDIX A: Hazard Identification Matrix

Type	Hazard description	Consequences
Chemical	chemical splash onto skin, eye	skin or eye irritation
	chemical (high concentration) splash onto skin	skin burnt
	chemical (high concentration) splash onto eyes	blindness
	explosion	Fatality
	acute inhalation of vapor (short period of exposure to high concentration of chemical vapour) - e.g. n-hexane	narcosis (unconsciousness), due to a repressive effect on the central nervous system.
	chronic inhalation of vapor (repeated or prolonged exposure to relatively low concentration of chemical vapour) - e.g. n-hexane	Chronic effect - e.g. cause peripheral neuropathy (disease of the peripheral nerves), an irreversible effect
	chronic inhalation of fume (repeated or prolonged exposure to relatively low levels of substance) - e.g. lead	anaemia, a reduced ability of the blood to distribute oxygen throughout the body
	inhalation of toxic substance	refer to SDS
	swallow (ingestion) of chemical	refer to SDS
	fire	Fatality
	exposed to carcinogens - e.g. benzene	leukaemia - cancer of blood-forming tissues
	inhalation of smoke	asphyxiation (acute lack of oxygen that can cause death)
Physical	exposed to X-ray	cancer
	exposed to excessive noise	hearing impairment
	exposed to high/low temperature	hyperthermia / hypothermia
	exposed to laser	damage to the eyes, skin
	exposed to microwave frequency (e.g. cellular tower), > permissible limit	DNA damage
	exposed to low frequency (1 to 300 Hz)	no potential health effect as to date
	exposed to infrared (gas cutting, welding, brazing, laser or furnace operation)	impaired vision or blindness
	exposed to ultra violet (from welding)	photoconjunctivitis (snow blindness)
	exposed to ultra violet (from sun ray)	sunburn / swelling (skin)
Biological	exposed to pathogenic virus (e.g. hepatitis virus)	acquired hepatitis A / B / C
	exposed to pathogenic virus (e.g. pricked with HIV contaminated syringe)	AIDS
	exposed to toxic plant (e.g. aconite, wolfbane, monkshood in contact with skin)	numbness, tingling, cardiac irregularity
	exposed to fungi (inhale fungal spore)	allergy and asthma
	exposed to pathogenic bacteria (e.g. e. coli (O157:H7) from water treatment activity)	diarrhoea, vomiting, stomach cramp
	exposed to pathogenic bacteria (e.g. typhoid fever bacteria from canteen food)	typhoid fever
	exposed to allergen	rashes

Type	Hazard description	Consequences
Ergonomics	repetitive motion	cumulative trauma disorder (CTD) - tendonitis
	awkward posture (e.g. twisting while lifting, bending over to lift, lateral or side bending)	Physical injury
	wrong sitting posture	back injury
	vibration impact (e.g. pneumatic hammers, chain saws)	CTD - Reynaud's Syndrome or white finger, intermittent numbness and tingling, and eventual loss of sensation and control in the fingers and hands.
	long hours on computer	red eyes
	forceful hand exertion (handling tools that have handles with hard or sharp edges) from carpentry or construction works	CTD - Trigger finger, finger snapping and jerking movements
	forceful hand exertion (twisting and forceful gripping motions with hands)	CTD - De Quervin's Disease, pain, tenderness, and swelling over the thumb side of the wrist, and difficulty gripping
Psychosocial	sexual harassment	mental stress
	verbal harassment	mental stress
	exposed to noisy / crowded workplace	mental stress
	having excessive load	mental stress
Others	exposed to conductive material	electric shock
	exposed to high static voltage	electric shock
	exposed to high voltage	electrocuted
	hit/poked by object/mass	bodily injury
	cut/poked by sharp object/edges	bodily injury
	hand drawn into rotating gears	hand injury
	finger drawn into rotating gears	finger injury
	finger caught in between moving shaft and stopper	finger injury
	Snake bite	Fatality
	lack of oxygen	asphyxiation (acute lack of oxygen that can cause death)
	fall from height	bodily injury
	fall on same level	bodily injury
	hit by falling object	head injury
	hit by vehicle	bodily injury
	stab/puncture by flying object	bodily injury
	stab/puncture by moving parts of machinery	bodily injury
	hand sheared between two machines	hand injury
	finger sheared between a machinery part and workpiece	finger injury
	finger drawn in between counter-rotating parts	finger injury
	finger caught in between rotating and fixed-parts	finger injury
	body caught in between materials in motion	bodily injury
	contact against hot surface	skin burn
	contact against abrasive material	skin abrasion
	finger crushed by moving parts	finger injury
	finger crushed by stamping machine	finger injury

APPENDIX B: Environmental Aspects & Impacts Identification Matrix

No.	List of environmental aspect – Examples
1	Release of CO2 due to burning of fuel for generate electricity energy
2	Emission of dark smoke
3	Discharge of spent engine oil
4	Disposal of general wastes, e.g. plastics, cotton
5	Disposal of scheduled wastes, e.g. lead acid battery, bilge water, spent hydraulic oil
6	Release of gas into atmosphere
7	Generation of noise

No.	List of environmental impact – Examples
1	Air pollution
2	Storm water/ marine water contamination
3	Groundwater contamination
4	Soil contamination
5	Affect to marine life
6	Depletion of natural resources
7	Global warming
8	Ozone depletion
9	Loss of Aesthetic Quality
10	Acoustic Impact on Staff and Community

APPENDIX C: Risk Assessment Matrix

Scale	Likelihood of occurrence (L)	Description (criteria) Number of occurrence (n)
1	Very unlikely	No case so far
2	Unlikely	One case in 5 to 10 years
3	Likely	One case in 1 to 5 year
4	Most likely	One case within 6 months to 1 year
5	Certain	Once case in less than 6 months

Severity Table for OSH

Severity of injury or ill health that can be caused by the event or exposure(s)

Severity (S)		**Description**
1	Negligible	No or slight injury, or no health effect, or requiring only first aid, and/or not affecting work performance
2	Minor	Minor injury or health effect, or requiring outpatient medical treatment, or affecting work performance such as restriction to activities, and/or causing away from work =< 4 calendar days
3	Major	Major injury (e.g. loss of consciousness, lost of finger(s) or toe(s), broken limb(s) - refer to OSH(NADOOPOD) regulation 2004 First Schedule) or ill-health (including occupational poisoning or disease - refer to OSH (NADOOPOD) regulation 2004 Third Schedule), or hospitalized, disabling injury but recoverable, and/or causing away from work more than 4 calendar days,
4	Critical	Single fatality or permanent total disability (e.g. lost an eye, lost of limb(s)), or ill-health causing irreversible health effects (e.g. cancer, total lost of hearing)
5	Catastrophe	Multiple fatalities

Severity Table for Environmental

Severity of impact that can be caused by the environmental aspect

Severity (S)		**Description**
1	Negligible	No environmental damage or issue.
2	Minor	Contamination. Damage sufficiently to attack the environment within plant area.
3	Major	Moderate environmental damage. Sufficient to pollute the environmental at plant area including nearby river, soil or air. May cover up to 50m from plant. Affecting adjacent community, flora and fauna.
4	Critical	Significant environmental damage. Significantly polluting the environment in surrounding plant area including river, soil or air. May cover the range from 50m from plant. Affecting nearby community, flora and fauna.
5	Catastrophe	Severe environmental damage. Severely polluting the environment in surrounding plant area including river, soil or air. May cover the range of > 200m from plant. Affecting state community, flora and fauna.

APPENDIX D: Risk Control Plan Matrix

Risk Rating	Risk Category	Risk Level	Action and Time Scale
1 – 3	**I**	**Trivial**	No action required.
4 – 6	**II**	**Acceptable**	No additional action required. Existing control measures (ECM) to be monitored and maintained
8 – 16	**III**	**Significant**	Efforts shall be made to reduce the risk. Risk reduction measures shall be implemented within 6 months
20 -25	**IV**	**Intolerable**	Work shall not be started until the risk has been reduced. Where the risk involves work in progress, urgent (within 3 working days) action (minimum administrative control) shall be taken to bring the risk to Risk Category IV or less, and further action shall be taken accordingly

PROCESS FLOW

RESPONSIBILITY	OUTLINE	ACTION
- MR - HSE team	1 Identify and train TRA team	- MR and HSE team shall identify, agree and train the Task Risk Assessment (TRA) team
- TRA team	2 Identify activity and its sub-activity	- TRA team shall carry out identify activity and its sub-activity
- TRA team	3 Identify hazards / aspects, consequences, compliance to applicable legal requirement	- TRA team shall identify hazards / aspects, consequences and compliance to applicable legal requirement
- TRA team	4 Identify existing control measures	- TRA team shall identify all existing control measures to mitigate the risk.
- TRA team	5 Assess consequence / impact and its rating	- TRA team shall assess consequence / impact and its rating by carrying out a qualitative evaluation.
- TRA team	6 Determine control	- TRA team shall identify any control measures to be taken and record in TRA form
- TRA team	7 Communicate	- Communicate TRA and control measures to the people carrying out the task
- TRA team	8 Implement and monitor control	- Implement and on-going monitoringof the controls that have been put in place