






DIMENSION BID

WIRELINE INTERVENTION | PERFORATION SERVICES

HAZARD IDENTIFICATION, RISK ASSESSMENT & DETERMINATION CONTROL (HIRADC) PROCEDURE

DBSB-HSSE-23

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PREPARED BY	CHECKED BY	APPROVED BY
 Ahmad Bin Ab. Majid Safety Officer	 Mia Idorman Ismail Vice President - Operations	 Dato' Aziz Ayob President

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AMENDMENT RECORDS

This sheet will record all amendment of this Procedure. All particulars of the amendment shall be stated clearly. The HSSE Department of Dimension Bid (M) Sdn. Bhd. (DBSB) shall be responsible for the maintenance and update of this record sheet.

CLASSIFICATION	DATE	REVISION PART	REASON/PURPOSE OF REVISION
Original Issue – Ahmad Majid	21/10/2015	Establishment of procedure	Nil
1 st Revision – Hafeez Ab Alim	5/11/2015	Overall revision	Adding responsibility, changing risk matrix and factor

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1.0 ABBEREVIATIONS & DEFINITIONS

HSE	Health, Safety & Environment
HSEC	Health, Safety & Environment Committee
SHO	Safety & Health Officer
HOD	Head of Department
FSM	Field Service Manager
HIRADC	Hazard Identification, Risk Assessment and Determination Control
JHA	Job Hazard Analysis
Unsafe Act	Performance of a task or other activity that is conducted in a manner that may threaten the health and/or safety of workers. Hazards eg: risk taking, short cuts, carelessness, lack of attention, horseplay, etc.
Unsafe Condition	A condition in the work place that is likely to cause property damage or injury. Hazards associated with unsafe acts are e.g. slippery floor, broken glass, un-guarded machinery, trailing cable, low lighting levels, etc.
Hazard	Source, situation or act with a potential for harm in terms of human injury or ill health, or a combination of this.
Risk	Combination of the likelihood of an occurrence of a hazardous event or exposure(s) and severity of injury or ill health that can be caused by the event or exposure(s).
Incident	Work related event(s) in which an injury or ill health (regardless of severity) or fatality occurred, or could have occurred, including "near miss"
ALARP	As Low As Reasonably Possible
Mitigation	Any measures that reduce the Severity of or allow recovery from an undesired event: PPE, seatbelts, airbags, shock absorbing bumpers, and back-up data tapes are typical examples of Mitigation Measures.
Prevention	Any measures that reduce the Likelihood of an undesired event occurring. For example engineering controls, training, policies, audits, journey management, ABS (automated braking system), defensive driving training etc

2.0 OBJECTIVES

The objective of this procedure is to define the HIRADC managed by DBSB the following from adverse effects to:

- People (Employees, Contractors and Tenants).
- Property.
- Environment.

As a guidelines to the identification of hazards, risk assessment and implementation of the necessary risk control measures in DBSB.

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3.0 RESPONSIBILITIES

- 3.1 Every area/ site is responsible to identify all occupational safety and health hazards and risks in all their activities at work place with guidance from HSE personnel, i.e. supervisors, engineers, foremen, etc.
- 3.2 All employees have a responsibility to minimize Risk Level to as low as reasonably possible (ALARP). This includes ensuring that their health and safety, and the health and safety of their work colleagues, is not compromised during the execution of their work duties; that the environment is not thereby damaged; that identified Hazards are immediately reported; and Control Measures are taken to reduce Risk Levels to ALARP.
- 3.3 Management
- 3.4 The Head of Department, HOD has the overall responsibility for implementation of this standard. HOD and Line Manager, FSM is responsible for ensuring that the appropriate level of Hazard Analysis and Risk Control is conducted throughout all operations in a proactive manner
- 3.5 Line Managers (FSM), Sales/Technical Engineer and Supervisors shall;
- Incorporate formal Hazard Analysis in planning, and design process.
 - Continuous monitoring activities under their control which associated with risk
 - Ensure that a suitable assessment is undertaken to identify all Hazards
 - Assess all Hazards using the Risk Assessment Matrix
 - Document the assessment in a HIRADC Record Form as attached
 - Compare Hazards to the Control Measures in place to ensure Risk Levels have been reduced to ALARP
 - If the Residual Risk Level is not ALARP, implement additional Control Measures or redefine the Activity
 - Communicate the findings of Hazard Analyses to work teams, allocating responsibilities for Control Measures
 - Ensure that potential improvements highlighted during the process are reviewed/implemented as appropriate
 - Ensure that any changes to the Activity are identified and re-assessed
 - Intervene and stop work any time the Risk Level has not been reduced to ALARP
 - Ensure that all employees aware of risk management practice and provide training if necessary.
 - Carry out formal reviews of Hazard Analysis records, update and re-assess as needed
- 3.6 Safety and Health Manager / Officer and SHEC
- HSSE Manager and SHO shall ensure the overall implementation of this procedure being applied in DBSB and responsible for amendment and communication to the organization if necessary. Where applicable, SHO and team also shall provide or outsource the training related to this standard.

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4.0 PROCEDURE

4.1 Hazard Identification

4.1.1 In the phase of establishing and implementing the Health & Safety Management System, occupational safety and health hazards and risk identification and assessment shall be identified using the flow chart as per the **Appendix 1: Occupational hazards identification, risk assessment and determining control**.

4.1.2 All the occupational safety and health hazard identification and risk assessment and risk control shall be carried out in the Hazard Identification, Risk Assessment and Determining Control Form as per the **Appendix 2**.

4.1.3 Once the task to be assessed has been selected, discussion on the assessment shall be carried out with the employee to acquire their input on the hazards for the job that they are performing.

4.1.4 The employee will also be consulted on the recommended control measures as required in the Communication, Participation and Consultation procedure.

4.1.5 The hazard identification, risk assessment and risk control for tasks carried out by subcontractors must be carried out prior to the actual work and activities at DBSB. The supervisor or person in-charge of sub-contractors shall conduct the risk assessment and proposed risk control.

4.1.6 The inputs to be taken into consideration prior to starting the hazard identification process includes the following:

- Legal and other requirements.
- HSE Policy.
- Records of incidents and accidents, past, current and potential risk.
- Non-conformances from monitoring, clients' audits, management walkabouts and management system audits.
- Information from employees, HSE consultations, review and improvement.
- Activities in the work places.
- HSE inspection report by HSE Manager/SHO.
- Minutes of HSE committee meeting.
- External Consultant site review report.
- Accident/ Incident statistics
- Human Behavior and other human factors
- Identify hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organization within the workplace.
- Work area design, processes, installation, machinery, operating procedure and work organization.

4.1.7 Information on process and activities includes the following:

- Site plan
- Process flow charts
- Chemical Safety Data Sheet
- Inventory of hazardous material

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- Manual/operating instructions of machineries.

4.1.8 The sequence of each job should be identified.

- Once a job task has been chosen, it must be broken down into logical step.
- Limit the number of steps in Job Hazard Analysis (JHA) to a manageable number. Most jobs can be described in ten (10) or less step.
- The basic job steps must be kept in their proper sequence to ensure a proper analysis.

4.1.9 Potential hazards group for each basic job step shall be identified, such as but not limited to below:

<i>Physical</i>	<i>Chemical</i>	<i>Biological</i>	<i>Others (Psychosocial)</i>
<ul style="list-style-type: none"> • Noise/Vibration • Extreme Temperature (Heat/Cold) • Radiation • Machinery /Equipment • Height/Gravitational • Electrical • Fire/Explosion • Confined Space • Slip/Trip/Fall • Vehicles • Ergonomic • Dust/Airborne particles • Falling / Flying Object • Water / Fire 	<ul style="list-style-type: none"> • Toxic • Corrosive • Flammable • Explosive • Irritant • Harmful • Carcinogen 	<ul style="list-style-type: none"> • Animal • Plant • Bacterial • Viruses • Yeast • Fungi • Parasite 	<ul style="list-style-type: none"> • Shift work • Repetitive work • Stress • Harassment/Threat • Violence • Radioactive • Drugs & Substance addiction • Natural disaster

4.2 Risk Assessment

4.2.1 Risk assessment is an assessment to determine the significant risk by the three factors:

- Likelihood of the hazard occurrence;
- Severity of the hazard occurrence.
- Legal Requirement/ others requirement for the activities

4.2.2 The likelihood of the hazard occurrence shall be determined by assigning a score between 1 to 5 in evaluating the likelihood of the hazard to occur base on the previous accidents, incidents and near misses records.

4.2.3 The frequency of risk to take into consideration of adequacy of existing control and occurrence of hazard.

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4.2.4 **Likelihood of hazard** occurrence is defined as below in Table 1:

Likelihood of Occurrence			
		Accident / Injury / Illness	
1	Very Unlikely	No Cases so far	The probability to happen is extremely small (< 1%)
2	Unlikely	One Case in 5 to 10 years	Could happen, However very rare (1% to 9%)
3	Likely	One case in 1 to 5 years	Chances to happen is relatively high (10% to 59%)
4	Most Likely	One case within 6 months to 1 year	Can happen frequently (60% to 94%)
5	Certain	One case in less than 6 months	Expected to happen (95% to 100%)

Table 1: Hazard Likelihood Matrix

4.2.5 The severity (consequences) of the hazard occurrence shall be determined. Assign a score between 1 to 5 in evaluation of severity of damage to employees safety or health and the company property/ equipment and the following shall be considered:

4.2.6 The previous record of accident/ incident reports, which has occurred for the task being analyzed.

4.2.7 Severity requires some judgment and we have to consider the worst case scenario, if incident happened with considering the control measure in place.

4.2.8 **Severity (consequences)** is defined as below in Table 2:

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Severity of Occurrence (Consequences)		
1	Negligible	First Aid Only for injury & illness
2	Minor	Medical Treatment, Outpatient for injury & illness (Not LTI)
3	Major	Hospitalized, disabling injury but recoverable / illness but recoverable (≥ 1 day LTI)
4	Critical	Permanent Disability / Irrecoverable illness (e.g. cancer, hepatitis)
5	Catastrophe	Single or more casualty

Table 2: Severity Matrix

4.2.9 Risk score is obtained by multiplying the individual factor scores of likelihood (frequency) and severity (consequences) accordingly.

TOTAL RISK = LIKELIHOOD X SEVERITY

4.2.10 Legal and other requirement to which DBSB subscribes is defined as below:

Legal & Other Requirements	
Y	Complied
N	Not Complied
NA	Not applicable

Table 3: Legal & other Requirement

4.2.11 The classification of HSE risks are as per the **Risk Matrix** table below:

RISK		LIKELIHOOD				
		Rare [1]	Unlikely [2]	Possible [3]	Likely [4]	Almost Certain [5]
CONSEQUENCES	Insignificant [1]	1	2	3	4	5
	Minor [2]	2	4	6	8	10
	Moderate [3]	3	6	9	12	15
	Major Injury [4]	4	8	12	16	20
	Fatality [5]	5	10	15	20	25

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Table 4: Risk Matrix

The level of the risk which require appropriate level of action and attention is classified by the Table 5 below.

Risk Rating	Risk Level
1 ~ 4	Low
5 ~ 12	Medium
15 ~ 25	High

Table 5: Risk Classification

4.2.12 Risk Classification report generated by HIRADC database will be documented.

- 4.2.13 **The Risk Classification Report shall be updated regularly at a minimum of once every 12 months.** However, a frequent updates may be required as follows:
- Before any significant change to work method or business activities.
 - When responsibilities are reapportioned.
 - As a result of a safety audit/ workplace inspection.
 - As an integral part of an accident investigation.

4.2.14 Any changes to the hazard identification and risk assessment shall be documented in the HIRADC database, to derive in JHA and communicated to the affected work unit / site person.

4.3 Determination Control

- 4.3.1 When the hazards and potential accidents/ incidents involved in each step and their causes are understood, the next-step is to develop ways to prevent their occurrence.
- 4.3.2 Determination control can be translated into 2 step which is Prevention and Mitigation. Prevention is a measure taken to prevent of the likelihood of risk to happen while Mitigation is a measure taken to minimize the effect or severity of the risk or hazard.

Risk control shall be put in place as follows:

Risk	Description	Action
1 – 4	LOW	Risk which is identified as LOW can be considered as acceptable and further reduction is unnecessary. However if the risk can be solved almost immediately However, if the risk can be resolved quickly with effective control measures shall be performed and recorded.
5 – 12	MEDIUM	MEDIUM risk requires planned approach to control the hazards and adopt temporary steps if necessary. All action taken must be documented onto the risk assessment form including the incident investigation date.
15 – 25	HIGH	HIGH risk requires immediate action to control hazard as stated on the control hierarchy. All action taken must be documented onto the risk assessment form including the incident investigation date.

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4.3.3 The following Hierarchy of Controls – shall be considered to prevent or reduce the risk, in order of preference as per the **Appendix 3**:

- Elimination
- Substitution
- Isolation
- Engineering Controls
- Administrative Controls
- Personal Protective Equipment

4.3.4 The person in charge and the expected completion date shall be documented, for the implementation of risks control in the HIRADC database.

5.0 COMMUNICAITON

This HIRADC process has to be communication thru affected organization and the documents to be recorded by affected organization and SHO

6.0 RECORDS

Title	Department in charge	Retention Period
Hazard Identification, Risk Assessment And Determining Control (HIRADC) Forms	HSE & Related Department	3 years
Job Hazard Analysis (JHA)	HSE & Related Department	3 years
HIRADC Summary Register	HSE & Related Department	3 years

5.1 Supervisor or engineer to prepare the proposal if there are any changes to be edited due to occupational hazards and risk with approval from line manager. Upon approval by HSE Personnel only then will HSE Department have the authority to amend the information in the HIRADC database softcopy.

7.0 REFERENCE

8.0 APPENDICES

- Appendix 1 - HIRADC Flowchart
- Appendix 2 - HIRADC Form
- Appendix 3 - Hierarchy Control Measure Action Guidelines
- Appendix 4 - HIRADC Summary Register

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Appendix 1 : HIRADC Flowchart

Flow	Step	Responsibility	Description
1. Start	1.	HSEC / SHO / Supervisors / Work Unit's Head or PIC	1. Introduction to HIRADC
2. Identify Hazards	2.	HSEC / SHO / Supervisors / Work Unit's Head or PIC	2. Conduct hazard Identification with Involvement of subordinates.
3. Assess and classify the risk to health & safety	3.	HSEC / Supervisors / Work Unit's Head or PIC	3. Assess risk based on frequency and severity.
4. Is risk classified as high and medium risk?	4.	HSEC / Supervisors / Work Unit's Head or PIC	4. Determine whether the risk is classified as high, medium or low risk as per risk classification table.
5. Can the risk be eliminated?	5.	SHO / Engineers	5. Decide on elimination of hazard
6. Eliminate the risk	6.	HSEC / Contractor / Vendor / Owner	6. If YES, eliminate the risk 6a. If NO, implement risk control. For high risk, propose objective and targets and establish corresponding management programs.
6b(i). Approval of elimination and process change	6b.	HSEC	6b (i). Approval of elimination and process change or 6b (ii). Approval of objectives and targets, management programs for high risk
6c. Implement the risk control	6c.	HSEC	6c. Implement the control measure introduced to reduce the risk
6d. Monitor, review and reassess risk	6d.	HSEC	6d. Monitor and review the control measures to reassess risk
6e. Is the risk reduced?	6e.	HSEC	6e. If control measures reduced the risk, proceed to 7; If not, proceed to 6a to redevelop other measures
7. Approve operational control/ safe working procedure	7.	HSEC / SHO	7. Approve operational control/safe work procedures and ensure existing work procedures are updated to reflect the safe work procedure
8. Train employees	8.	HSEC / Supervisor / Work Unit's Head	8. Use approved operational control /safe work procedures to train employees
9. Keep records			
10. Verify effectiveness			

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Appendix 2 : HIRADC Form

(Refer to attachment)

 DIMENSION BID <small>WORKFORCE INTERVENTION PERSONALISATION SERVICES</small>				DIMENSION BID (M) SDN BHD				REVISION : 0	
HAZARD IDENTIFICATION, RISK ASSESSMENT & DETERMINING CONTROL (HIRADC) FORM									
No.	Work Activity	Routine/ Non-routine	Location	Area	Last Review Date	Next Review Date			
		Name _____ Signature _____ Date _____							
Conducted by									
Approved by									

RE EXAMPLE

Note : (L) – Likelihood (S) – Severity (R) – Risk = (L X S)

Activity Steps	HAZARD		INITIAL RISK			CONTROL MEASURES		RESIDUAL RISK		
	Hazard Description and Worst Case Consequences with no Prevention or Mitigation Measures in Place	Loss Category/ Population Affected	Likelihood	Severity	Risk Level	Current and Planned Prevention Measures to reduce Likelihood	Current and Planned Mitigation Measures to reduce Severity	Likelihood	Severity	Risk Level
Steaming the CTU and the Fluid Pump Finish points: Hands near the plungers Power Pack and Control Cab doors WCs: Major injury to personnel	Hazard Description and Worst Case Consequences with no Prevention or Mitigation Measures in Place	Loss Category/ Population Affected	Likely (3)	Major (-3)	Intolerable (9)	Review previous STEAM report Tag out the Engine and the Air Supply while steaming the CTU Power Pack Use drop tray/pan Check that drain plugs are installed at all times, notifying every class @ beginning of STEAM. Bleed pressure before knocking down any section.	Carry absorbent paper Safety harness Spill Kit Complete at ALL TIMES. Asking class to check it @ beginning of STEAM. Using Impact glove	Unlikely (2)	Minor (-2)	Low (4)

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Appendix 3: Hierarchy Control Measure Action Guidelines

- **Elimination**
Getting rid of a hazardous job, tool, process, machine or substance is perhaps the best way of protecting workers.
- **Substitution**
Sometimes doing the same work in a less hazardous way is possible. Controls must protect workers from any new hazards that are created.
- **Isolation**
Hazards needed to be isolate in order workers are not exposed to it. eg. Contain the particular hazard area to prevent workers expose to the hazard.
- **Engineering Control**
Jobs and processes can be reworked to make them safer. For example, containers can be made easier to hold and lift.
- **Administrative Control. Signage / Warning signs**
Job rotations and other procedures can reduce the time that workers are exposed to a hazard.
- **Personal Protective Equipment**
This is used when other controls aren't feasible and where additional protection is needed. Workers must be trained to use and maintain their equipment properly. The employer and workers must understand the limitations of the equipment. The employer is expected to require workers to use their equipment whenever it is needed. Care must be taken to ensure that equipment is working properly. Otherwise, PPE may endanger workers' health by providing an illusion of safety.

