BEST PRACTICE
IN AFA MEMBERS COMPANIES
PART 3

Health & Safety Environment

ARAB FERTILIZER ASSOCIATION
Wish you a useful Reading..
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The Best Practice in H.S.E

The Common Practice Known

Generally, PIC has safety auditing system in practice for identifying unsafe conditions and unsafe actions. In addition to that, positive approach towards worker need to establish which focuses on workers’ behavior.

Definition of this practice

PIC has established & implemented Behavior Based Safety, which is a systematic procedure to focus on workers’ behavior, with provides information on what’s wrong with them and what workers’ can do in their workplaces, as mainly the cause of most work-related injuries and illnesses as based on workers’ behavior.

Objective of this Exercise

- “NO NAME NO BLAME CONCEPT” which helps to enhance positive safety culture at workplace.
- Identify the behavior that can prevent accidents.
- Observe, gather & analysis of data helps organization: to detect significant factors and patterns contributing to incidents, understand high-severity potential events, easily communicate finding to stakeholders and management, for continuous improvement in HSE related activities.
### Behaviour Observed

<table>
<thead>
<tr>
<th>Category</th>
<th>Safe</th>
<th>At-Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. BODY POSITION</strong></td>
<td></td>
<td></td>
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<tr>
<td>Line of fire</td>
<td></td>
<td></td>
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<tr>
<td>Pinch points</td>
<td></td>
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<tr>
<td>Eyes on path</td>
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<td></td>
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<tr>
<td>Eyes on task / hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ascending / descending</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. BODY USE/ERGONOMICS</strong></td>
<td></td>
<td></td>
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<tr>
<td>Lifting / Lowering</td>
<td></td>
<td></td>
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<tr>
<td>Twisting</td>
<td></td>
<td></td>
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<tr>
<td>Pulling / Pushing</td>
<td></td>
<td></td>
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<tr>
<td>Overextended / Cramped</td>
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<tr>
<td>Assistance</td>
<td></td>
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</tr>
<tr>
<td><strong>3. TOOL/EQUIPMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selection/ Condition/User Storage</td>
<td></td>
<td></td>
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<tr>
<td>Vehicle Select/Condition/Use</td>
<td></td>
<td></td>
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<tr>
<td>Barricades &amp; warnings</td>
<td></td>
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<tr>
<td><strong>4. OFFICE ENVIRONMENT</strong></td>
<td></td>
<td></td>
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<tr>
<td>Phone posture</td>
<td></td>
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<tr>
<td>Neck and back posture</td>
<td></td>
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<tr>
<td>Back support</td>
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<tr>
<td>Shoulder posture</td>
<td></td>
<td></td>
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<tr>
<td>Wrist and arm position</td>
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<td></td>
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<tr>
<td>Feet position</td>
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<tr>
<td>Hips and legs position</td>
<td></td>
<td></td>
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<tr>
<td>Periodic rests / breaks / Leg stretch</td>
<td></td>
<td></td>
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<tr>
<td>Tripping Hazards</td>
<td></td>
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<tr>
<td>Storage</td>
<td></td>
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<tr>
<td><strong>5. ENVIRONMENT</strong></td>
<td></td>
<td></td>
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<tr>
<td>Walking / working surfaces</td>
<td></td>
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<tr>
<td>Housekeeping</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6. PARKING LOTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resting exits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No parking zone</td>
<td></td>
<td></td>
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<tr>
<td>Obstructed fire escapes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
THE COMMON PRACTICE KNOWN

Generally, permit to work system procedure is being followed to carry out all non routine activities and routine activities with high hazards. In practicing with PTW system which was paper based permits.

Definition of this practice

PIC has established & implemented Electronic Permit to Work System (E-PTW), which is a systematic procedure by using software tool MAXIMO SYSTEM.

Objective of this Exercise

- Which provides systematic control over all the permits.
- Helps management to minimize time consumption to issue permits.
- Helps in quicker planning and scheduling job activities in prior to the same day.
- To overcome any delay, as multi departments are involved in job execution.
- Reduce physical efforts to move from one to another department during issuance of permit.
- Reduced paper usage up to 50% by system generated permits.
- It provides cross reference option for mentioning related permit no’s, isolation tag no’s, safety certificates, attach P&ID’S & other job related documents.
- After permit issued and job executed, permit is scanned by using printed bar code which automatically uploaded with respective permit in Maximo system.
- It provides complete record and archive of scanned copies of all permits.
### THE BEST PRACTICE IN ELECTRONIC PERMIT TO WORK (E-PTW)

**TABLE:**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PERMIT CLASSIFIED</th>
<th>VALIDITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Permit</td>
<td>Cold Permit</td>
<td>8 Hours</td>
</tr>
<tr>
<td></td>
<td>Hot Permit</td>
<td>8 Hours</td>
</tr>
<tr>
<td>Complimentary Permit</td>
<td>Cold Permit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hot Permit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lifting work permit</td>
<td>8 Hours</td>
</tr>
<tr>
<td></td>
<td>Confined Space Entry</td>
<td>8 Hours</td>
</tr>
<tr>
<td></td>
<td>Electrical/Substation</td>
<td>24 Hours</td>
</tr>
<tr>
<td></td>
<td>Radiography</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suitability of Grade Excavation</td>
<td>14 Days</td>
</tr>
<tr>
<td>Special Permit</td>
<td>Live work permit</td>
<td>8 Hours</td>
</tr>
</tbody>
</table>
THE BEST PRACTICE IN H.S.E
### Cold Permit To Work

**Company:** Petrochemical Industries Company (K.S.C)

**Location:** PW Y

**Date:** 13-Dec-2016, 09:00:00 AM

**Valid To:** 13-Dec-2016, 04:00:00 PM

**Project Area:** Safety

**Equipment/Line:** Safety

**Critical to Process Safety:** No

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**This Cold Permit is issued to perform the following:**

- **Check List No.** 15
- **Check List Name:** Electrical/Instrument

**Required Protective Equipment:**

- Safety Vests
- Safety Shoes
- Eye Goggles
- Ear Protection
- Respirators
- Gloves
- Hard Hat
- Fall Protection
- Hearing Protection
- Safety Harness
- Respirator

**Approved:**

- 

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**Other Checklist:**

- Additional Permit/Tag/Reports
- Instruction Report No.
- Drawn Tag No.

**Other Instructions:**

- The permit is valid for work as specified. Work instructions are agreed with the safety officer.

- The permit is valid for the work area as specified.

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**Area Supervisor:**

- Signature
- Date

**Area Manager:**

- 

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**Cold Permit in the – Closed:**

- 

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**Recommendations:**

- 

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**THE BEST PRACTICE IN H.S.E**
Objective of this exercise
This aims to enhance positive safety culture among employees.

The Best Activity(ies) adopted
This practice helps to encourage and direct involvement of senior level management employees to interact with the workforce and motivate them.
This will further strengthen the safe working environment by sharing of experience & knowledge which builds positive influence among the employees. All the Employees (PIC & Contract) can be pointed out with a Green/Yellow/Red card for their behaviors exhibited during the execution of any tasks.

The Added value of this Practice
This practice is adapted to improve the behavior of the employees and safely execute their work tasks with zero tolerance & to enhance their motivation levels.

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**DEFINITION OF THIS EXERCISE**

PIC established standardized procedure will help to both “reward the acceptable and reprimand the unacceptable behaviors” of the all the employees towards the PIC Health, Safety, Security & Environment work practices, Rules and Regulations.

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**Occurrence**

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Green</th>
<th>Yellow</th>
<th>Red</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Occurrence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>Written notice by employee department • Inform ER</td>
<td>Verbal Warning (To be recorded)</td>
<td>Written warning by employee department • Inform ER Note¹</td>
</tr>
<tr>
<td>Second</td>
<td>Verbal warning by employee department Note² • Inform ER</td>
<td>Written Warning (if received 2nd card within 6 months period from the first occurrence)</td>
<td>Final written warning by employee department • Inform ER Note¹</td>
</tr>
<tr>
<td>Third</td>
<td>Converted to 1st Red (if received 3rd card within 6 months period from the second occurrence)</td>
<td>Converted to 1st Red (if received 3rd card within 6 months period from the second occurrence)</td>
<td>Transfer to ER • Apply PIC List of Sanctions and Fines Note³</td>
</tr>
</tbody>
</table>

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**Notes:**
1. Note¹: Specific guidelines for warning notes.
2. Note²: Additional notes for second occurrence.
3. Note³: List of sanctions and fines for further occurrences.
Objective of this exercise
This program will involve all levels of management & utilize safety audits to detect safety violations & to review and ensure quality of audit findings and initiating corrective actions on monthly basis.

The Best Activity(ies) adopted
This practice is adapted to conduct safety audits in a systematic approach and incompliance with rules & regulations by the active involvement of area supervisors and other disciplines in order to provide a safer workplace for all employees. Safety audit program improves statistical analyze of audit findings & timely tracking and follow up of corrective actions. There are three types of audits namely: Scheduled, Silent hour and Un-scheduled.

The Added value of this Practice
This practice helps the organization follows through on the findings of a safety audit, the workplace will be safer, and there will be a reduced likelihood of worker injury, illness, and death. This will further identifies the periodic training requirements for developing quality auditors and initiating measures to promote and monitor & measure the effectiveness of the audit system.

DEFINITION OF THIS EXERCISE
PIC established one of the most effective tools & a structured and systematic safety audit program which can help in identifying different levels of risks & taking remedial measures towards its effective management.
The Best Activity(ies) adopted
In general, employees are thrust into locations and situations that in most cases they have never seen or experienced themselves. This training is to enhance the ability among employees experience to handle emergencies without endangering themselves & to improve safe practices for fire prevention program, to be alert for conditions which may cause fires and report them immediately.

The Added value of this Practice
This training method allows the employees to acquire practical knowledge in a relatively short timeframe & practice decision making in real critical situations which include, appropriate methods of handling hazardous materials & training of firefighting strategies suited to the company.

Petroleum Industries Company
KUWAIT

The Best Practice in
Firefighting Simulation

Definition of This Exercise
PIC highly rates the importance for firefighting simulation trainings purposes lies in its ability to enhance employees experience to handle incident situations without panic in nature & in a safe, contained, comfortable, controllable, and measurable environment.

Objective of This Exercise
The prime objective is to set all measures relating to safeguarding of human life, preserve property by prevention, detection, and extinguishment of fires at the incipient stages.
WHY KM?

KM program designed to identify, capture, transfer & retain critical knowledge within the organization to improve performance.

>>>

KM ENGAGEMENT

SWFD/CI is conducting KM Engagement Meetings with Senior Management, Leaders and employees to start KM Process

>>>

KM CONCEPTS

SAFCO has developed a unique KM concept that aligned with SABIC Values and the model linked to success in planning

>>>

KM CAFÉ

KM Café is a platform for identified experts to share knowledge, implemented ideas, best practices or success story

>>>
**HSE AREA OF PRACTICE**
Major Emergency Drill

**THE COMMON PRACTICE KNOWN**
Emergency drill was conducted as per requirement.

**THE BEST ACTIVITY (IES) ADOPTED**
Major emergency drill conducted with all possible (credible) worst case scenarios at a time. It is reflecting a realistic situation that could happen in the site with participation of external authorities/support. The drill is observed by external authorities. This recognized as best practice among all Jama’a members by Jama’a.

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The Added Value of the Best Practice

**Procedure enhancement:**
Many Emergency Scenarios have been developed for conducting major drill in different location and incorporated in SHEM11.01 Crisis Management and Emergency Response Planning Procedure.

**More Assurance of Risk Control**
Emergency response team members, Incident Commander are aware of all risk during drill conducted in SAFCO/IBB. It helps to support and react when real emergency arises.

**Communication, Leadership and Accountability**
All Senior Management members are part of Emergency drill.
HSE AREA OF PRACTICE
SAFCO Knowledge Management (KM) Program

The Common Practice Known
SAFCO Knowledge Management Program developed to leverage knowledge of SAFCO experienced/talented employees, internal critical knowledge related to work process, and mutual knowledge critical to strengthen our business best practice in long run.

Program Objectives are:
- Identify, collect & Share Critical Knowledge.
- Support succession planning by having a systematic knowledge transfer process (leadership & spine positions)
- Bridge competency gap between generations
- Stimulate innovation culture and improve organizational performance (behavior & decision)
The Best Activity(ies) adopted

KM categories:

KNOCKLEDGE CATEGORIES

The knowledge in SAFCO can be categorized into the following:

Succession Planning Spine
positions / Technical Ladder /
Experts / Retirees

RCA / PHA /
PMT / SHEM/
Lesson learned /
Best practices

MFG Work
Processes / Critical
Equipment

INDIVIDUAL’S
KNOWLEDGE &
EXPERIENCES

COLLABORATED
KNOWLEDGE

TYPES OF
KNOWLEDGE
ASSETS

MANUFACTURING,
PROCESSES, & CRITICAL
EQUIP. KNOWLEDGE
**KM MODEL**

**1. IDENTIFY CRITICAL KNOWLEDGE**

**IDENTIFIED THROUGH:**
- Equipment / work processes
- Spine positions
- Retirees

**IDENTIFIED BY:**
Department Sr. Mangers & SMEs during F2F meeting.

**2. SOURCES OF THE KNOWLEDGE**

**INDIVIDUALS:**
- Subject Matter Experts
- Incumbent of leadership / Spine Position
- Retirees

**TEAM COLLABORATION:**
- RCA / PHA / PMT
- Projects

**3. RETAIN & SHARE KNOWLEDGE**

**RETENTION THROUGH:**
- Knowledge Documentation
- Submission of ideas / best practices / success stories

**SHARING THROUGH:**
- Bi-monthly knowledge Cafe
- Embedded tasks in IDP for each identified learner

**REWARDS & RECOGNITION:**
- Motivation and encouragement

**CONTINUOUS IMPROVEMENT**
Process Flow:

1. **Starts**
   - Engage with Experts (KM Road Show)
     - Leaders
     - Spine / Critical positions
     - Subject Matter Experts (SME)

2. **Specify Knowledge Topics/Subjects**
   - Select the Appropriate Critical Knowledge/Topics To Be Shared
   - Identify Learners
   - Develop Curriculum & learning materials

3. **Focused Learners**
   - KM Café/Ignite
     - Organize session in every 2 month for knowledge sharing
     - Specific Theme & agenda
     - Development Actions with implementation (IDP)

4. **Documentation & Storage in Knowledge Portal**

5. **Knowledge Implementation & lesson learned**

**OUTPUT**
- Recognition
- Propose Nomination for:
  - SABIC learning program
  - SABIC Teach SABIC program
  - SABIC Technical Conference (STC)
  - Innovation Day by Technical
  - New ideas / suggestions
WHY KM?
KM program designed to identify, capture, transfer & retain critical knowledge within the organization to improve performance.

KM ENGAGEMENTS
WFD/CI is conducting KM Engagement Meetings with Senior Management, Leaders and employees to start KM Process

KM CONCEPTS
SAFCO has developed a unique KM concept that aligned with SABIC Values and the model linked to succession planning

KM CAFÉ
KM Café is a platform for identified experts to share knowledge, implemented ideas, best practices or success story
Objective of this program:
- Identify, collect & Share Critical Knowledge.
- Support succession planning by having a systematic knowledge transfer process (leadership & spine positions)
- Bridge competency gap between generations
- Stimulate innovation culture and improve organizational performance (behavior & decision)

SAFCO KM provides avenues for critical knowledge sharing and to showcase their implemented ideas and best practices to SAFCO community through KM Cafe.
SAFCO has embarked on another journey in the People Development Strategy by introducing & inaugurating SAFCO Knowledge Management (KM) Program.

Objective of this program:

- Identify, collect, & share critical knowledge.
- Support succession planning by having a systematic knowledge transfer process (leadership & spine positions).
- Bridge competency gap between generations.
- Stimulate innovation culture and improve organizational performance (behavior & decision).

SAFCO KM provides avenues for critical knowledge sharing and to showcase their implemented ideas and best practices to the SAFCO community through KM Cafe.

SAFCO President attended in the KM Engagement Meeting With Senior Managers.
The knowledge in SAFCO can be categorized into the following:

- **INDIVIDUAL'S KNOWLEDGE & EXPERIENCES**
  - Succession Planning Spine positions / Technical Ladder / Experts

- **TYPES OF KNOWLEDGE ASSETS**
  - RCA / PHA / PMT / SHEM / Lesson learned / Best practices
  - Manufacturing, Processes, & Critical Equip.
  - MFG Work

- **COLLABORATED KNOWLEDGE**
The knowledge in SAFCO can be categorized into the following types:

**INDIVIDUAL’S KNOWLEDGE & EXPERIENCES**

- Manufacturing, Processes, & Critical Equipment
- RCA, PHA, PMT, SHEM, Lesson learned, Best practices

**KNOWLEDGE CATEGORIES**

- Succession Planning
- Spine positions / Technical Ladder / Experts

**KM MODEL**

1. **IDENTIFY CRITICAL KNOWLEDGE**
   - Identified through:
     - Equipment / work processes
     - Spine positions
   - Identified by:
     - Department Sr. Managers, Managers, KM Ambassador, & SMEs

2. **SOURCES OF THE KNOWLEDGE**
   - Individuals:
     - Subject Matter Experts
     - Incumbent of leadership / Spine Position
   - Team Collaboration:
     - RCA / PHA / PMT
     - Projects

3. **RETAIN & SHARE KNOWLEDGE**
   - Retention through:
     - Knowledge Documentation
     - Submission of ideas / best practices / success stories
   - Sharing through:
     - Bi-monthly knowledge cafe
     - Embedded tasks in IDP for each identified learner
   - Rewards & Recognition:
     - Motivation and encouragement

**CONTINUOUS IMPROVEMENT**
Workforce development & Continual Improvement (WFD/CI) has conducted engagement meetings with Department Line Managers and employees to deliver KM message, appoint KM Ambassador and experts within the department.
Workforce development & Continual Improvement (WFD/CI) has conducted engagement meetings with Department Line Managers and employees to deliver KM message, appoint KM Ambassador and experts within the department.

KM Engagement Meetings With Line Managers & Employees
KM Café is a platform for the experts to share the critical knowledge, talent skills implemented ideas, best practices or success stories.

- Organize session in every 2 month for knowledge sharing
- Identified focus learners
- Specific Theme & agenda
- Development Actions with implementation (IDP)

KM Café Outcome

B. Reparing Nomination for:

- SABIC learning program
- SABIC Teach SABIC program
- SABIC Technical Conference (STC)
- Innovation event

Reward & Recognition

Generating New ideas / suggestions

Engage with Experts (KM Road Show)

Specify Knowledge Topics/ Subjects

KM Café/Ignite

Documentation & Storage in Knowledge Portal / ECM

Knowledge Implementation & lesson learnt
KM Café Outcome

Enhance competency & master the knowledge

Preparing Nomination for :-
- SABIC learning program
- SABIC Teach SABIC program
- SABIC Technical Conference (STC)
- Innovation event

Generating New ideas / suggestions

Reward & Recognition
1st KM Café

Date: 14 – 18 May 2017 (5 days)
Topic: Ammonia Know-How
Department: SF 2 Operation
Shared By: Mr. Syed Moazzam Moin
(Production Engineer)

Sr. Manager, SF2 Operation opens the session with inspiring notes to the participants

Participation from SAFCO & Al-Bayroni Employees
KM Café was conducted on 14th to 22nd of May, 2017.

1st KM Café
Date: 14 – 18 May 2017 (5 days)
Topic: Ammonia Know-How
Department: SF 2 Operation
Shared By: Mr. Syed Moazzam Moin (Production Engineer)

Session 1
Group photo with Sr. Manager (A), WFD/CI and the Expert

Group photo with Sr. Manager (A), WFD/CI and the Expert
1st KM Café

SESSION 2

Date: 21 – 22 May 2017 (2 days)
Topic: Basic Dynamics Innovation Strategy & Driver
Department: WFD / CI
Shared By: Dr. Zuhair Y Al-Taha
Manager (A), Continual Improvement

Dr. Zuhair is sharing his experience in innovation
Group photo with participant from SAFCO & SHARQ Employees
Sr. Manager, Process Engineering opens the session with inspiring notes.
Session 3

1st KM Café

Date: 21 May 2017

Topic: SHARING BEST PRACTICE/SUCCESS STORIES - Key Performance Indicators For Sustainability Evaluation In Fertilizer Industry

Department: Process Engineering

Shared By: Mr. Tauseef Siddiqui Zia Sustainability Specialist

Knowledge Sharing Moment by Expert

Sr. Manager, Process Engineering opens the session with inspiring notes.
WHY KM?
KM program designed to identify, capture, transfer & retain critical knowledge within the organization to improve performance.

KM ENGAGEMENT
SWFD/CI is conducting KM Engagement Meetings with Senior Management, Leaders and employees to start KM Process

KM CONCEPTS
SAFCO has developed a unique KM concept that aligned with SABIC Values and the model linked to success in planning

KM CAFÉ
KM Café is a platform for identified experts to share knowledge, implemented ideas, best practices or success story

KNOWLEDGE MANAGEMENT (KM) PROGRAM QUARTERLY NEWSLETTER, Vol # 2, Q3/2017

KM INSIGHTS
WHAT TO SHARE
KM EVENTS
CRITICAL KNOWLEDGE is
information, work processes, know-how that significant / important to organization success and performance which need to be retained and pass on

QUALITY OF KNOWLEDGE is
a process of validation and re-validation to assure accuracy and relevance of knowledge before sharing/transferring process

KNOWLEDGE TRANSFER is
the act of transferring knowledge from one individual to another by means of mentoring, training, documentation, and other collaboration.

KNOWLEDGE MANAGEMENT (KM) PROGRAM
QUARTERLY NEWSLETTER, Vol # 2, Q3/2017

KNOWLEDGE MANAGEMENT
is the process to identify, capture, transfer & retain critical knowledge within the organization to improve performance.
SAFCO/IBB has identified these categories for the source of knowledge for sharing:

- Succession Planning
- Spine Positions
- Subject Matter Experts (SMEs)

**Sources of Knowledge for Sharing**

- Manufacturing Work Processes
- SOP / Manuals
- Critical Equipment

MANUFACTURING, PROCESSES, & CRITICAL EQUIP. KNOWLEDGE

- Analysis Studies (e.g., RCA, PHA)
- Plant Management Team (PMT)
- SHEMS
- Implemented Idea (Success Stories / Best Practice)

INDIVIDUAL'S KNOWLEDGE & EXPERIENCE

COLLABORATED KNOWLEDGE
An engagement meeting with KM Ambassadors was held on 1 June 2017. The objective of the meeting were to provide an awareness about KM Concept, explain roles & responsibility, share forward plans and get feedback.
2 - KNOWLEDGE SHARING SESSIONS

Knowledge Sharing sessions have been conducted in Q3/2017. Departments contributed to share knowledge through their Subject Matter Experts (SMEs).

Date: 13 June 2017
Topic: The Effect of Outgassing on Control Valves and Uniqueness from Flashing
Department: Asset Engineering
Shared By: Mr. Sanjit Samal (Lead Engineer)
August 2017

Date: 2 August 2017
Topic: Refractory type installation method & performance
Department: Asset Engineering
Shared By: Mr. Yasser H ElAttar (Sr. Engineer)

Date: 7 August 2017 (0.5 days)
– KM Café Session 1
Topic: Urea Best Practise
Department: Process Engineering
Shared By: Mr. Akbar Siddiqui Ali (Process Engineer)
Date: 7 August 2017
(0.5 days) – KM Café
Session 2 Topic: Compound Fertilizer (CF) Plant History &
Process Department: IBB – CF
Shared By: Mr. Jamal Mohammad Abusalem
(Staff Engineer)
Mr. Loganathan L Logaprabhu (Sr. Analyst)
Date: 23 August 2017
Topic: Gas Cooler tube to tube sheet weld repair & Tube Plugging
Department: Inspection
Shared By: Mr. Javed Muhammad A. (Engineer)
September 2017

Date : 25 September 2017
Topic : Galvanic Corrosion
Department : Asset Engineering
Shared By : Mr. Aneez A Mohammed (Engineer)

Date : 28 September 2017
Topic : Design & Installation of Leak Sealing Clamps
Department : Project Development & Control
Shared By : Mr. Thomas, Punnackattu Varughese (Sr. Engineer)
KNOWLEDGE MANAGEMENT (KM) PROGRAM

PRACTICAL APPROACH TO RETAIN & SHARE INVALUABLE KNOWLEDGE

MARCH 2017

WORKFORCE DEVELOPMENT & CONTINUAL IMPROVEMENT

AGENDA

- Objectives
- Business Case
- Definitions & Concept
- 3 KM Categories
- 3 KM Model & Process Flow
- Implementation Plans & Organization
- Measuring KM Performance
- Challenges

OBJECTIVES

- Identify, collect & Share Critical Knowledge.
- Support succession planning by having a systematic knowledge transfer process (leadership & spine positions)
- Bridge competency gap between generations
- Stimulate innovation culture and improve organizational performance (behavior & decision)
1 SENIORITY & ATTRITION

- SABIC & its Affiliates started the business decades ago.
- Most of its employees pioneered operating & maintaining assets started leaving the organization – retirement or other reasons
- In case of SAFCO, nearly 50% of professional employees are having more than 20 year experience in SAFCO alone

2 KNOWLEDGE /COMPETENCY GAPS

- New Government Policy of recruiting youngsters
- Lately, getting fresh talents is growing in SABIC to run business and operating the plant – early development program
- Create huge gaps on the knowledge/competency & experience between experience & new employees.
KNOWLEDGE MANAGEMENT (KM) PROGRAM

PRACTICAL APPROACH TO RETAIN & SHARE INVALUABLE KNOWLEDGE

SAFCO KNOWLEDGE MANAGEMENT (KM) DEFINITIONS & CONCEPT

KNOWLEDGE MANAGEMENT
is the process to identify, capture, transfer & retain critical knowledge within the organization to improve performance.

KNOWLEDGE TRANSFER
is the act of transferring knowledge from one individual to another by means of mentoring, training, documentation, and other collaboration.

QUALITY OF KNOWLEDGE
is a process of validation and re-validation to assure accuracy and relevance of knowledge before sharing/transfer process.
INSPiRE

Leaders Inspire and explore potential of People Knowledge

ENGAGE

Organization Engages with the right experts to retain the critical knowledge possessed

CREATE

WFD&CI Create useful knowledge management system/process and monitor implementation

DElIVER

Expert Deliver maximum knowledge to learners to enhance/sustain performance
The knowledge in SAFCO can be categorized into the following:
**KNOWLEDGE MANAGEMENT (KM) PROGRAM**

**PRACTICAL APPROACH TO RETAIN & SHARE INVALUABLE KNOWLEDGE**

1. **IDENTIFY CRITICAL KNOWLEDGE**
   - IDENTIFIED THROUGH:
     - Equipment / work processes
     - Spine positions
     - Retirees
   - IDENTIFIED BY:
     Department Sr. Managers & SMEs during F2F meeting,

2. **SOURCES OF THE KNOWLEDGE**
   - INDIVIDUALS:
     - Subject Matter Experts
     - Incumbent of leadership / Spine Position
     - Retirees
   - TEAM COLLABORATION:
     - RCA / PHA / PMT
     - Projects

3. **RETAIN & SHARE KNOWLEDGE**
   - RETENTION THROUGH:
     - Knowledge Documentation
     - Submission of ideas / best practices / success stories
   - SHARING THROUGH:
     - Bi-monthly knowledge Cafe
     - Embedded tasks in IDP for each identified learner
   - REWARDS & RECOGNITION:
     - Motivation and encouragement

**CONTINUOUS IMPROVEMENT**
# Knowledge Management (KM) Program

**Governance Structure**

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| **Sponsor** |  - Ensure functional buy-in and support  
  - Assign resource  
  - Provide support, guidance when necessary  
  - Overseeing KM Program |
| **KM Leaders** |  - Overall planning, facilitation and co-ordination with different KM leaders to ensure timely and successful completion of the program  
  - Identify and seek approval for support/resource needed  
  - Responsible to ensure the timely launch of KM program within the function and smooth execution of the program on the continuous basis.  
  - Ensure KM Ambassador actively plays role in assigned domain and overall KM program planned activities  
  - Review & validate knowledge capture  
  - Ensure proper implementation of mentoring program  
  - Periodic report of the program status to Sponsor |
| **Continual Improvement (CI)** |  - Develop KM model  
  - Prepare overall KM planning and implementation process  
  - Facilitate and provide guidance and organize KM events and trainings  
  - Review and consolidate knowledge captured  
  - Facilitate and provide input on pairing of mentor/mentees  
  - Centre of main communications with regard to KM Program  
  - Monitoring and reporting. Measure program effectiveness and continual improvement |
| **KM Ambassador** |  - Support KM leader to co-ordinate the program within the function  
  - Active roles in ensuring knowledge capture, retain and transfer within organization.  
  - As an expert in his area and work closely with SME within and outside his area.  
  - Screen & review knowledge/best practice from employees  
  - Support mentoring program by facilitating the pairing process, including cross function & after learning action  
  - Work with KM Specialist for overall KM process  
  - Monitoring and reporting |
| **Experts (SMEs) / Spine Position / Retirees** |  - Collaborate and work with KM Ambassador for any KM related in their area  
  - Identify critical knowledge and prepare learning materials  
  - Deliver and share the knowledge topic  
  - Support KM Ambassador to follow with participant for any required after learning action |
**Sponsors**
- Ensure functional buy-in and support
- Assign resource
- Provide support, guidance when necessary
- Overseeing KM Program

**KM Leaders**
- Overall planning, facilitation and co-ordination with different KM leaders to ensure timely and successful completion of the program
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- Review & validate knowledge capture
- Ensure proper implementation of mentoring program
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KM Ambassadors
- Support KM leader to co-ordinate the program within the function
- Active roles in ensuring knowledge capture, retain and transfer within organization.
- As an expert in his area and work closely with SME within and outside his area.
- Screen & review knowledge/best practice from employees
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- Work with KM Specialist for overall KM process
- Monitoring and reporting

KM Specialist
- Develop KM model
- Prepare overall KM planning and implementation process
- Facilitate and provide guidance and organize KM events and trainings
- Review and consolidate knowledge captured
- Facilitate and provide input on pairing of mentor/mentees
- Centre of main communications with regard to KM Program
- Monitoring and reporting. Measure program effectiveness and continual improvement
KNOWLEDGE MANAGEMENT (KM) PROGRAM

PRACTICAL APPROACH TO RETAIN & SHARE INVALUABLE KNOWLEDGE

1. Engage with Experts (KM Road Show)
   - Leaders
   - Spine / Critical positions
   - Subject Matter Experts (SME)
   - Retirees

2. Specify Knowledge Topics/Subjects
   - Select the Appropriate Critical Knowledge/Topics To Be Shared
   - Identify Learners
   - Develop Curriculum & learning materials

3. KM Café/Ignite (sharing sessions)
   - Organize session in every 2 month for knowledge sharing
   - Specific Theme & agenda
   - Development Actions with implementation (IDP)

4. Documentation & Storage in Knowledge Portal
   - Portal / ECM

5. Knowledge Implementation & lesson learned

OUTPUT
- Recognition
- Propose Nomination for:-
  - SABIC learning program
  - SABIC Teach SABIC program
  - SABIC Technical Conference (STC)
  - Innovation Day by Technical
  - New ideas / suggestions

STARTS
## Implementation Plans

<table>
<thead>
<tr>
<th>#</th>
<th>ACTIONS</th>
<th>TARGET DATE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Develop a KM framework and process model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>MGT Engagement for review and approval</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Establish, identify &amp; appoint names for KM organization</td>
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<tr>
<td>4</td>
<td>Kick off meeting with all KM Ambassadors &amp; Change Management</td>
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<tr>
<td>5</td>
<td>Conduct roadshow meeting to identify critical knowledge</td>
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<tr>
<td>6</td>
<td>Launch KM Café for knowledge sharing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Develop GO Knowledge Portal &amp; Post Materials</td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>Knowledge Transfer/Sharing Program in KM Cafe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Review knowledge capture &amp; retention progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Monitoring and Reporting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Evaluate the effectiveness &amp; Look for continuous improvement</td>
<td></td>
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</tbody>
</table>
## CI lange Management Plan

<table>
<thead>
<tr>
<th>ACTION</th>
<th>TARGET DATE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch KM Café – engagement session with experts &amp; leaders (5 sessions)</td>
<td></td>
<td></td>
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<tr>
<td>Motivational Message from Leaders (video)</td>
<td></td>
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<tr>
<td>Send frequent communications to SAFCO community (explain why, what &amp; how)</td>
<td></td>
<td></td>
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<tr>
<td>Theme contest</td>
<td></td>
<td></td>
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<tr>
<td>Send “Expert Insight” video</td>
<td></td>
<td></td>
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<tr>
<td>Create KM portal</td>
<td></td>
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<tr>
<td>Create recognition program based on the approved procedures</td>
<td></td>
<td></td>
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<tr>
<td>Organize knowledge day to exhibit and promote KM concept</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Measuring Km Performance

<table>
<thead>
<tr>
<th>#</th>
<th>INDICATOR</th>
<th>METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of best ideas/suggestions identified.</td>
<td>KPI</td>
</tr>
<tr>
<td>2</td>
<td>Number of shared knowledge sessions (Internally / external)</td>
<td>KPI</td>
</tr>
<tr>
<td>3</td>
<td>Number of Success Stories / Best Practices implemented per department</td>
<td>KPI</td>
</tr>
<tr>
<td>4</td>
<td>Number of Employee Recognized (Recognition Program)</td>
<td>System</td>
</tr>
</tbody>
</table>
Success Factors

- Leaders are personally involved in KM Program
- Support from Sr. Managers & Line Managers to ensure nominated Employees attend the scheduled sessions and complete all components of the program
- Experienced employees to be nominated & share their knowledge
- Link Knowledge Sharing to IDPs of learners
- Achieve Knowledge Sharing KPIs

Challenges In Building Km Systems

<table>
<thead>
<tr>
<th>#</th>
<th>CHALLENGES</th>
<th>ACTION PLANS</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Culture – getting people to share knowledge</td>
<td>Change Management &amp; Engagement</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Recognition</td>
<td>Improve current Recognition procedure/guideline to include KM and align with SABIC</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>IT Enabler</td>
<td>To engage with IT &amp; SABIC KM to explore options</td>
<td></td>
</tr>
</tbody>
</table>
THE ADDED VALUE OF THE BEST PRACTICE:

Procedure enhancement:
By sharing critical knowledge throughout the organization by most experienced members, and by having KM Café and dialogue, so many enhancement outcomes are produced by cascading best practice adopted in different unit.

More Assurance of Risk Control:
Assurance of retaining critical knowledge through documenting & sharing them to young employees

Communication, Leadership and Accountability
KM program is sponsored by Company President and in each department there is a KM ambassador who has the role to champion knowledge sharing implementation within his department. The program has clear governance structure with R&R and identified milestones.

Economical and Social Impact
Sharing accumulated knowledge & wisdom within the employees support new generations to build on success of experienced professionals and learn from mistakes to create greater future and sustain business growth.
## The Added Value of the Best Practice:

### Procedure enhancement:
Scenario has been developed for conducting drill in two different locations and incorporated in SHEM11.01 Crisis Management and Emergency Response Planning Procedure.

### More Assurance of Risk Control:
Emergency response team members, Incident Commander are aware of all risk during drill conducted different location. It helps to support and react when real emergency arises.

### Communication, Leadership and Accountability:
All Senior Management members are part of Emergency drill.

### HSE AREA OF PRACTICE:
Simulation of Dual Emergency Drill in Two Locations.

### THE BEST ACTIVITY(IES) ADOPTED
Simulation of dual emergency cases in two locations, at a time and practiced how to expand the incident command system to handle such a situation.

### THE COMMON PRACTICE KNOWN
Internal Emergency Drill
THE BEST PRACTICE IN H.S.E

SAFCO has initiated to analyse all worldwide incidents which are related to major safe work processes such as:

- Hot work
- Gas Test
- Confined Space Entry
- Working At Height
- Lifting & Crane Operations
- Electrical Safety
- Equipment Isolation & System Blinding
- Chemical Safety

After identifying the root causes of those incidents and compared with SAFCO Management System and developed safe work processes action for the above mentioned areas. Comprehensive campaign schedule has been prepared, communicated to all working crews. In addition, the detailed safe work practices are shared during campaign sessions led by Sr. Manager and EHS Manager. The pocket size safe work practices guidelines were issued to participants to be aware all safe work practices prior to start the abovementioned jobs for safe execution and completion.

THE BEST ACTIVITY(IES) ADOPTED

The campaign is intended to stress on the eight work processes that contributed to most worldwide incidents according to recent statistics. It will also provide tips for performing the processes per established safe work practices/procedures and explain the basic knowledge required to accomplish and continue day-to-day job activities safely.

HSE AREA OF PRACTICE:

Big8 Safe work practices campaign

THE COMMON PRACTICE KNOWN

Safe work practices points addressed in procedure is prepared as booklet and leaflet for distributing to all employees and contractor.
Communication, Leadership and Accountability:
Big 8 Safe work processes and action are delivered through campaign by Sr. Managers, EHS Manager and Safety Representatives.

Occupational Health Enhancement:
Big 8 Safe work processes and its recommended safe work action are supported the organization to achieve occupational health issues.

Minimizing Environmental Impact:
It helped everyone in organization to aware of environment impact while carry out Big 8 safe work processes.

Improved HSE Control on Contractors (Service Providers):
Specify:. All third parties are well known about consequence of 8 work processes, and its safe work action. This helped towards achieving Zero incidence rate.

Economical and Social Impact
Help to alert the workforce by Big 8 Safe work practices and carry out job safely.

THE ADDED VALUE OF THE BEST PRACTICE:

Procedure enhancement:
The outcomes of worldwide incident analysis and Big 8 safe work processes are waiting to incorporate in SHEM08.00 Safe work practices

MORE ASSURANCE OF RISK CONTROL:
Employees and contractors are aware of Big 8 safe work processes and its recommended Safe work action and helped to reduce the risk at jobsite while executing 8 processes activities.
SAFCO initiatively conducted a Cyber-Attack drill in collaboration with SABIC Global IT and Global IT Security, testing the response and the effectiveness when handling similar situation. The drill was escalated to Regional Crisis Management since it might affect SABIC-IT Global Network. SABIC-IT and Global IT Security teams were engaged and participated during the drill, when SAFCO’s Manufacturing Network was disconnected from SABIC-IT Business Network avoiding any impact on SABIC Business Network and other SABIC affiliates, then, all have been resumed back after all clear announced. Beside the readiness test, the drill was aiming to test and enhance SAFCO’s procedures for Cyber-Attack Emergency Response.

**The Added Value of the Best Practice:**

**Procedure enhancement:**
Possible Emergency Scenarios of modern Information Technology threat have been developed for conducting major drill in SAFCO/IBB and incorporated in SHEM11.01 Crisis Management and Emergency Response Planning and SHEM14.05 Information Security Procedures.

**More Assurance of Risk Control:**
Emergency response team members, Incident Commander are aware of all risk during drill conducted in SAFCO/IBB. It helps to support and react when real emergency arises.

**Communication, Leadership and Accountability:**
All Senior Management members are part of Emergency drill.
HSE AREA OF PRACTICE: Life Saving Rules (LSR)

The Common Practice Known
All unsafe acts are observed by anyone of personnel on organization and reported in SAFCO Incident Management system in accordance with SHEM10 Incident Reporting, Classification, Investigation and Analysis Procedure. Corrective action is assigned to department to improve the safety attitude of work force by providing training and conducting awareness.

The Best Activity(ies) adopted
SAFCO has developed Life Saving Rules (LSR) Program based on life cycle illustrated below:

This programs are highlighted the key procedure requirements, Job associated hazards and reference to Safety, Security, Health, and Environment Management Standard (SHEMS) procedure.
Below mentioned basic rules relate to the highest risk activities in our day to day operations. This is reminded the employees to adhere the safe work practices to avoid personal injuries
Rules are defined for the ten critical and high risk activities based on last 5 years incident analysis and benchmarking with Saudi Basic Industries Corporation (SABIC) Affiliates. Specific rules are listed in SHEM08.01 Procedure and training materials. Also LSR booklet was developed and printed in multi languages for employees and contractor reference.

The comprehensive LSR training materials have been developed to educate the employees and to fully comply with requirements in order to maintain “Just Culture” in SAFCO/IBB. This training program are conducted through visual training materials, Pocket size comprehensive LSR booklet in multiple lanuguage, actual site condition and exercises for identifying of LSR Breach also. Pre Evaluation Questionnair prepared based on pre awareness conducted prior to launch this program is provided to all participants to evalaute their knowlegde, understanding, involvement and commitment. In addition post evaluation questionnaire are circulated through online link for evaluation to certify the empemployees and contractors. All participants are signed in LSR Ackowledgement Form at the end of the training session for committing to follow the requirement and agree to take action inline with HR Policy against the person when the investigation team identified rootcuase of the LSR breach falls under violation as per Human Failure chart indicated below:
After completion of training by employees, contractor and contractor management are encouraged to report LSR breach in eSHEM Incident Management system which is working on SAP platform. Once LSR breach is reported and is investigated by certified rootcause analysis investigation team leader from other area/department where it is not observed. The Investigation Team is responsible to identify the rootcause of the LSR breach and apply it on humar failure chart to take corrective action. Final investigation team is reviewed by LSR Implementation Team which under the sponship of SAFCO/IBB President. Action is being taken based on human failures identified by the team inline with SABIC HR Policy if personnel violated or action is assigned for improving communciation, leadership expectation, training and amend existing the procedures if it is error.

In addition, High Level Specific Key Performance Indicators (KPI's) are developed to monitor, track the effectiveness of this program and also report to Senior Management Team. These KPIs are cascaded to departmental EHSS Key Performance Program to all concern involvement. The recognition program (Best LSR Breach reporter, Best LSR Investigation Team, Best LSR Breach Investigation Team member and Best Department for achieving full compliance of LSR breach) is also developed to motivate the employees and line management towards a Just and Learning Culture.

Sample Booklet:
SAFE SYSTEMS OF WORK

This is the Life Saving theme

This is what we expect you to do when you get involved with this theme

Complying with Life Saving Rules minimises the risk from the hazard defined here.

This is the icon for this life saving rule, wherever you see it you should consider the topic and what you need to do

These are the procedures that are relevant to this theme

WHY IS THIS A LIFE SAVING THEME?

HAZARD
Danger to life by (potential) exposure to hazards that must be controlled during planned work.

WHAT ARE THE RULES?

HOW WILL I KEEP MYSELF AND OTHERS SAFE WHEN CARRYING OUT AN ACTIVITY?

I will seek out and follow the approved safe system of work:

- Job Method / Permanent Instruction
- Permit-to-Work

When required to use a WP I will:

- Satisfy myself that all hazards have been identified and all risks are removed or effective controls in place
- Read and understand the WP to ensure the work is identified by an SOP or listed in the permit before I sign it
- Comply with the specified permit conditions & restrictions and ensure other permits needed are in place
- Ensure the (Last Minute) Risk Assessment has been completed
- Respond to identified change in the working environment or LCR0 situation
- Immediately stop the work if the work conditions, as documented in the work permit, change
- Ensure the work site is left in a safe condition when work is complete or suspended

WHERE CAN I FIND MORE DETAILS?

FURTHER INFORMATION

SHM 08.10 - Work Permits and related local procedures, instructions
THE ADDED VALUE OF THE BEST PRACTICE
Procedure enhancement:

This Program is addressed in SHEM08.01 General EHSS Rules procedure.

More Assurance of Risk Control:
Specify: Employees and contractors are aware key procedure requirements, Job associated hazards and reference to SHEMS procedure to control risk.

Communication, Leadership and Accountability:
Company President is sponsor of this program. All Sr. Manager is responsibility to share implement LSR program in their site.

Occupational Health Enhancement:
Specify: Occupational injury/illness incident is prevented by implementing LSR program and achieving one of the company EHSS Goals (Employees & Contractor Incidence Rate).

Minimizing Environmental Impact:
Specify: Accidental release of hazardous and nonhazardous are minimized/avoided by implementing LSR requirements.

Improved HSE Control on Contractors (Service Providers):
All third parties are well known about LSR requirements prior to mobile their manpower to SAFCO/IBB towards achieving Zero incidence rate.

Economical and Social Impact
LSR program helped to carry out all high risk activities job safely to reach their home.
HSE AREA OF PRACTICE
Sharing EHSS Lesson Learning From Incident (SELFI) Mechanism and its Procedure

THE COMMON PRACTICE KNOWN
EHSS Incident Initial Notification and its investigation report received from SABIC affiliates and other company is communicated to all employees through email to be aware incidents, root cause and key learning points.

The Best Activity(ies) adopted
SAFCO initiatively developed a “Sharing EHSS Lesson Learning From Incident (SELFI)”. It is a comprehensive unified mechanism and procedure to streamline the processes of activity after receiving EHSS Incident Initial Notification and Investigation Reports to enhance lesson learning culture in SAFCO/IBB.

SELF is a pragmatic approach mechanism to identify, evaluate, prepare the mitigation action and communicate applicable Sharing EHSS (Environment, Health, Safety and Security) Lesson Learning From Incident (SELFI) based on EHSS Incident Information. It is an unique program in industry.

SELF is a combined work flow for developing key lesson learning points based on EHSS Incident Initial Notification and Investigation Report as indicated below.
Dedicative Team members from different disciplines are selected to review and evaluate the developed lesson learning points based on identified gaps, comparison between SAFCO management system and recommended action related to incident rootcauses, with available resources. The organization is indicated below:
The detailed lesson learning presentation is prepared as SELFI - Notification and SELFI - Investigation.

SELFI - Notification is prepared as per workflow illustrated in above. It is prepared based on initial incident notification received from inside and outside the company to enlight the safe work practices to concerned for preventing similar incident in subsequent year.

SELFI - Investigation is prepared as per workflow illustrated in above. It is prepared based on final incident investigation report. Gap analysis is carried out by EHSS Team between SAFCO Management system and root causes and its recommended action addressed in final report. Finally, SELFI Review Team will review, and evaluate the recommended action of gap analysis from EHSS Team prior to implement at site. All approved action is uploaded in Q-Pulse tracking system for implementing by concerned person. In addition, the final presentation is reviewed by SELFI Program Ambassador, SELFI Review team and Program Implementation Leader prior to share lesson learning points among department SHEM Administrators through monthly SELFI meeting scheduled in advance. Department SHEM Administrator is shared the same lesson learning presentation with their working group through different EHSS meetings. All feedback is collected from participants and maintained for improving the mechanism.
SELF PROGRAM
A SAFCO UNIQUE MECHANISM

OBJECTIVE
To share the unique sharing lesson learning from incident mechanism

INSPIRATIONAL THOUGHTS TO DEVELOP
SELF PROGRAM
WhatDoesitmeanforanorganization-tolearn?
“ORGANIZATIONS HAVE NO MEMORY.
ONLY PEOPLE HAVE MEMORY AND THEY MOVE ON”.

Background
What is the background?
- EHSS Incident Analysis.
- External Study & Other institution all nherent Safety.
- Bench marking with SABIC Joint Venture Companies.
- Inad equate mechanism in SABIC SHEMS Standard.

-Trevor Asher Kletz
Author -Concept of Inherent Safety
Promotor of Hazop.
Fellow of the Royal Academy of Engineering, the Royal Society
of Chemistry, the Institution of Chemical Engineers, and the
American Institute of Chemical Engineers.
SELF
Sharing EHSS Lesson Learning From Incident
Objectives of this SELFI is to:

- Prevent similar incident in SAFCO/IBB.
- Reduce the number incidents.
- Help to achieve the organization EHSS Goals & SHEMS Compliance Rate.
- Improve employees and contractor knowledge & awareness to comply with safe Operating and safe work practices.
- Maintain SAFCO/IBB company reputation and brand value among stakeholders.

What is SELFI?

SELFI is a pragmatic approach mechanism to identify, evaluate, prepare the mitigation action and communicate applicable Sharing EHSS (Environment, Health, Safety and Security) Lesson Learning From Incident (SELF) based on EHSS Incident Information. It is an unique program in industry.

What is EHSS Incident Information?

EHSS Incident information means EHSS Incident Notification, EHSS Incident Investigation Report/Alert from SABIC Bulletin or Other institutions and SAFCO/IBB Incidents.
ORGANIZATION

SRT member will be consulted for developed action and lesson learning from incident by EHSS team as per SELF1 workflow prior to share the package to all employees.

PIL - Program Implementation Leader
SRT - SELF1 Review Team (Subject Matter Expert)
SPA - SELF1 Program Ambassador
EHSS TEAM – Environment, Health, Safety and Security Team
What are the benefits:
- World class EHSS Performance
- Global Leader in EHSS performance among Fertilizer Company.
- Improve EHSS Culture in sustainable manner
- Effective implementation of company Policies.
- Increase SAFCO/IBB company reputation and brand value among stakeholders.

| § | Abdulrahman Ali Al Zuraig | Sr. Manager EHSS |
| § | Tawfiq S Al-Eisa | EHS Support Manager (A) |
| § | Abdulkariem Jaber Al-Shehri | Safety Engineer |
| § | Subair Ahamed | Safety Analyst |

Which procedure will be addressed the entire SELF1 process?
The comprehensive SELF1 procedure will be incorporated in SHEM10 EHSS Incident Reporting, Classification, Investigation and Analysis procedure for continual improvement.

Every incident is an alert notice that something went wrong with people, equipment, procedures, or materials to — investigate — implement — then share learning lessons.

Engineer Abdulrahman Ali Al-Zuraig
Sr. Manager - EHSS
Incident Details

**DATE : 16 APRIL 2016**  **TIME : 11:40HRS**  **CLASS A**  **CLASSIFICATION : MULTIPLE FATALITY**

On April 16th, 2016 at around 11:40 am, during turn around activity of EG1 Plant at UNITED, fire erupted at Reactor R-2110 bottom section. The incident resulted in 12 fatalities and 11 injuries (Class A) at the top section of the reactor due to asphyxiation, exposure to toxic gases, and/or smoke inhalation.

**Root Causes**

The following root cause is concluded by investigation team leader:

- Inadequate enforcement of TA work processes by steering committee causing Site TA Management system deficiency
- Lack of TA Risk Assessment (method statement, Level-5, rescue plan)
- Incorrect Benchmarking Paradigm affecting Business Planning effectiveness

**Contributing Causes**

- Job ownership is not clear - Roles and responsibility not clearly defined during Catalyst replacement
- No confined space emergency and rescue scenario in ERP
- Ineffective SWP system implementation
- Absence of an official procedure for catalyst replacement.
**Process Schematic**

**PROCESS DESCRIPTION:**
EO Reactor is a shell and tube reactor.

Tubes contain silver alumina catalyst necessary for reaction Ethylene and Oxygen are fed in the tubes to produce EO. Heat of reaction is removed by Boiler Feed Water in shell.

EO Catalyst replacement takes place typically between two to three years during total unit shutdown.

**Reactor Description:**
EO reactor has a diameter of 7.15m. Reactor consists of 18,000 Stainless steel tubes of a 38.1mm diameter. Tubes height is 11.16 m and reactor total height is 15.9m. The reactor consists of two sections, top (2.7m high) and bottom separated by Tubes and tube sheets. There are four man ways (24” each) two in the top and two in the bottom of the reactor.

**Reactor Catalyst Replacement Process:**
Four manways are opened for reactor accessibility. Springs holdings catalyst at the top and bottom are removed. Spent catalyst is unloaded by Air Lancing and verified by high intensity flood lights. Reactor tubes are cleaned by air blowing Polyurethane Swabs from top to bottom. Inspection completed, bottom springs fixed and new catalyst loaded.
Load top inerts, fix the top springs.
Quality check done for new catalyst loaded.
Box up the two reactors for start up.
Simple Process Description if process related Incident.
Event Analysis

Simple Process Description if process related Incident.
WHY KM?

KM program designed to identify, capture, transfer & retain critical knowledge within the organization to improve performance.

>>>

KM ENGAGEMENT

SWFD/CI is conducting KM Engagement Meetings with Senior Management, Leaders and employees to start KM Process

>>>

KM CONCEPTS

SAFCO has developed a unique KM concept that aligned with SABIC Values and the model linked to success in planning

>>>

KM CAFÉ

KM Café is a platform for identified experts to share knowledge, implemented ideas, best practices or success story

Incident Location - Pictures
RECOMMENDATIONS

Improve the enforcement of turnaround work process.
Address the clear roles and responsibilities

Lesson Learning from incident

- EHSS have to be a primary deciding factor in TA planning and scheduling… “Saving lives” is the Highest Priority … Not Saving Time …
- Systems are not sufficient, Processes are not enough; People Culture is what matters
- Task delegation should take into consideration personnel capabilities and training requirements
- Behavioral based safety is significant in increasing the safety awareness and engagement of employees and contractors.
- Having clear understanding of roles & responsibilities with proper competencies and job ownership is a major factor of safe and successful TA
### Proactive Action Based on Gap Analysis

<table>
<thead>
<tr>
<th>S. No</th>
<th>GAPS IDENTIFIED IN SAFCO MANAGEMENT SYSTEM</th>
<th>PROACTIVE / PREVENTIVE ACTION</th>
<th>RESPONSIBLE</th>
<th>TARGET DATE</th>
<th>STATUS</th>
</tr>
</thead>
</table>
| 1     | Turnaround Management Manual and Turnaround Procedure.  
§ Specific roles and responsibilities for turnaround organization chart working group are not addressed.  
§ Step by step procedure each activities are not addressed with specific time frame.  
§ Manual / procedure is not sponsored by one of the Senior Management Team Member.  
§ Periodical review is not conducted by the team for reviewing and updating TA manual/ procedure.  
§ No awareness for all turnaround working groups.  
§ Job titles are indicated as per old organization in TA Management manual and TA procedure  
§ IMTIYAZ requirements are not reflected | Amend the turnaround management manual and turnaround procedure | Senior Manager – TA & Major Maintenance | 31.12.2016 | Completed |
| 2     | Turnaround Risk Assessment:  
No hazard identification mechanism.  
Competent working group. | Develop mechanism to identify and ensure all hazards associated with turnaround job for risk assessment. | SHEM02 Administrator | 31.12.2016 | Completed |
| 3     | Roles and Responsibility for Catalyst Replacement Job | Role and responsibilities shall be defined in dedicative specific catalyst replacement procedure | Senior Manager – Process Engineering | 18.10.2016 | Completed |

If the proactive/preventive action is not completed as per original target date, it shall be reported as EHSS Concern in eSHEM IM by the person who noticed.
# Proactive Action Based on Gap Analysis

<table>
<thead>
<tr>
<th>S. No</th>
<th>GAPS IDENTIFIED IN SAFCO MANAGEMENT SYSTEM</th>
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<th>TARGET DATE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Catalyst Replacement Procedure</td>
<td>Dedicative and Specific catalyst replacement procedure shall be developed (based on OEM design configuration, catalyst properties, method statement, manpower competency, Risk assessment and emergency response for individual plant).</td>
<td>Senior Manager – Process Engineering</td>
<td>18.10.2016</td>
<td>Completed</td>
</tr>
<tr>
<td>5</td>
<td>Emergency Drill</td>
<td>Emergency drill requirement shall be included in TA EHSS plan for implementation</td>
<td>SHEM05 Administrator</td>
<td>31.12.2016</td>
<td>Completed</td>
</tr>
<tr>
<td>3</td>
<td>Roles and Responsibility for Catalyst Replacement Job</td>
<td>Role and responsibilities shall be defined in dedicative specific catalyst replacement procedure</td>
<td>Senior Manager – Process Engineering</td>
<td>18.10.2016</td>
<td>Completed</td>
</tr>
</tbody>
</table>

If the proactive/preventive action is not completed as per original target date, it shall be reported as EHSS Concern in eSHEM IM by the person who noticed.

**REMEMBER**

**INCIDENTS ARE PREVENTABLE.**
Ehss Incident Notification Details

<table>
<thead>
<tr>
<th>DATE</th>
<th>LOCATION</th>
<th>SEVERITY</th>
<th>CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 OCTOBER 2017</td>
<td>HADEED</td>
<td>B</td>
<td>LOST WORK DAY INCIDENT - CONTRACTOR</td>
</tr>
</tbody>
</table>

On 18th October 2017 at around 14:45Hrs, While a contractor employee was transferring materials from a pick up point to work site during hot mill complex turnaround suddenly, a Forklift hit him in his left foot with the steel frame. Immediately, the injured person was sent to HADEED clinic for first aid and then transferred to the hospital for further treatment. Doctor diagnosed his injury as left foot trauma with fissure fracture on base of 4th toe and recommended for 2 days sick leave.
SELF Notification

EMPLOYEE LEFT HAND FINGER INJURY

SELHK017-86-MGF

EHSS INCIDENT NOTIFICATION DETAILS

DATE: 13 OCTOBER 2017
LOCATION: SPA COOLING TOWER
SEVERITY: D
CLASSIFICATION: FIRST AID - INCIDENT - EMPLOYEE

INCIDENT DESCRIPTION:
On 13th October 2017, at 10:30 hrs, a maintenance area employee suffered an injury to his left hand, fingers while lifting and aligning a pipeline in the area. A water fill was being conducted in the area by a SPA Cooling Tower. The employee was injured while aligning a pipeline in the area.

PREVENTIVE ACTION / SAFE WORK PRACTICE:
The following precautionary measures should be considered while lifting and aligning pipelines and other equipment. Ensure that the load is properly aligned and that the correct lifting equipment is used. Ensure that the lifting equipment is properly secured before lifting.

SAFETY PROCEDURE REFERENCE:
- SHEMOS 01 - General (OH&S) Rules
- SHEMOS 06 - Lifting Operations
- SHEMOS 02 - Standard Maintenance Procedure
SELFI Investigation

INCIDENT DETAILS

DATE: 16 FEB 2017       TIME: 09:15HRS       CLASS C       CLASSIFICATION: MEDICAL TREATMENT EMPLOYEE INJURY

On 18th February-2017 around 9:15hours, an employee while coming out through the main door of the toilet in the first floor of SAFCO Operations building slipped and fell down. He sustained injury in right shoulder which was later diagnosed as joint dislocation. He went to First Aid Unit for medical assessment and return back to his normal duty on same day.

ROOT CAUSES

The following root causes concluded by investigation team leader:

- Lack of procedure for wash basin taps diffuser inspection and replacement.

CONTRIBUTING CAUSES

The following contributing causes concluded by investigation team leader:

- Quality control inadequate during construction.

OBSERVATION

The following observations found by investigation team leader:

- Floor outside the toilet is slippery in presence of water (different tile).

- The affected employee after observing the soapy water did not call the janitor and get it cleaned.

- The affected employee listened to the colleague to move the hand which proved harmful.

- The janitor did not report the issue of wash basin counter water dripping to his supervisor.

No. 2
LESSON LEARNING FROM INCIDENT

- Compliance of first aid guidelines will protect personnel from serious injuries.

- Full compliance with EHSS rules will eliminate the potential hazards.
Communication, Leadership and Accountability:
Company President is sponsor of this program. All Sr. Manager is responsibility to share all SELFI during monthly department EHSS Meeting to avoid similar incident.

Occupational Health Enhancement:
Specify: Occupational injury/illness incident lesson learning points are helped to prevent work related incident for achieving one of the company EHSS Goals (Employees & Contractor Incidence Rate).

Minimizing Environmental Impact:
Specify: Major environment incidents lesson-learning points are shared through SELFI program to minimize/avoid environment impact and highlight environment control measures against spill /release of hazardous and nonhazardous chemical in line with SAFCO environment standard in case of similar incident occurred.

Improved HSE Control on Contractors (Service Providers):
Specify: All third parties are well known about incident, which occurred in SAFCO/IBB proactively work towards achieving Zero incidence rate.

Economical and Social Impact
Help to alert the workforce by SELFI Program and carry out job safely to reach their home.

The added value of the best practice
Procedure enhancement:
This SELFI procedure is addressed pragmatic approach mechanism to highlight key learning points, analysis and identify gaps in SAFCO Management system based on root causes from incident. It is included in SAFCO SHEM10 EHSS Incident Reporting, Classification, Investigation and Analysis Procedure.

More assurance of risk control:
Employees and contractors are aware of all incident key learning points, root causes & its recommendations, identified gaps in SAFCO management system, and proactive action from SAFCO incident and outside incident, which was applied in SELFI mechanism.
The Best Activity(ies) adopted

**Shem Learning Approach:**

It is a structured learning and development program to ensure that employees have a consistent & relevant experience and background SHEM awareness, knowledge & skills. Putting all employees through regular training & skill evaluation in their respective areas to ensure that all employees at least have sufficient exposure to the knowledge & getting minimum required skill to execute the job safely. SHEM training program allows employees to strengthen those skills as per specific job requirements & position to ensure SHEM qualification of each employee.

Following are three Types of SHEM learning:

- **A) Awareness**
  
  Employee should able to understand why and what SHEMS competencies are important. It shall be completed through
  - SHEM e-Learning training

- **B) Knowledge**
  
  Employee able to explain in depth what SHEM’s competence elements are & how can he contribute at his job level. Knowledge is being done through one of the below:
  - Class room training session with written assessment & employee shall secure 80% Marks
  - Participants is enrolled by Workforce Development (WFD) to complete the required e-Learning Program only & employee shall secure 80% Marks in assessment.

  For all SHEM classroom Training sessions, WFD is publish SHEM Training calendar and coordinate with SHEM element.
administrators/Sub element Administrator/Back-up to conduct the classroom training with pre and post assessment.

c) Skill Certification

SHEM Skill is employee ability to explain how to perform relevant SHEMS skills, what the related consequence are & how it can be fully implemented in his job area or in the organization according to his job scope. It is being done through below steps:

- Class room training session with knowledge assessment where employee shall secure 80% Marks
- On the Job Training with his Line Manager
- Skill certification evaluation – Interview / Walk through / Practical demonstration (i.e. Incident reports, Job Safety Analysis (JSA) preparation, Conduct Pre Startup EHSS Review (PSER), Stewardship of recommendations etc.)

Qualification Panel Team

Following panel shall be responsible to conduct the test:
- Specialist/Engineer (Anyone)
- Department SHEM Adminsitor

Notes:
1st time - No need for approval
2nd time - Manager to investigate
3rd time - Requires 2nd level approval for the 3rd attempt
**SHEM Learning Approach** is prepared as per workflow illustrated in below. It is prepared based on gap analysis and taken as a challenge by EHSS Improvement Sub-committee which is under SHEM Committee (SHEMC).

1. **Initiation**
   - Develop Competency framework
   - Develop Learning curriculum/resources
   - Develop Learning Materials
   - Develop SHEM Competency Framework
   - Develop Learning Matrix

2. **Analyse Requirements**
   - Organize TTT
   - SHEM Audit
   - Q-Pulse
   - Design Development Roadmap for each Job Level

3. **Develop**
   - Develop Assessment Checklist & Question banks
   - Design Certification Process
   - Design Simplification Process & deployment Plan
   - Update IDPs and Training calendar
   - Awareness and Change Management

4. **Deployment**
   - Publish e-learning
   - Approve new procedure

5. **Sustain Implementation**
   - Audit to ensure successful deployment
   - Continuous monitoring & reporting
   - Training as needed

**Continuous Improvement**
<table>
<thead>
<tr>
<th>Learning Level</th>
<th>Pre-Training</th>
<th>During Training</th>
<th>Post-Training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Awareness</strong></td>
<td>Participants will be enrolled by WFD to the required e-Learning</td>
<td>E-learning to be completed as per the target date given (1 month for each module)</td>
<td>Complete the online assessment right after the e-learning and secure 50% score</td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td>Department Training Coordinators to Schedule employees to attend as per the matrix Read the training material from portal prior to the training program</td>
<td>Attend 4 hrs. training session Two hrs. self preparation for test Complete the test at SAFCO learning Center &amp; secure 80% Marks</td>
<td>Refresher After three Years</td>
</tr>
<tr>
<td><strong>Skill</strong></td>
<td>Department Training Coordinators to Schedule employees to attend as per the matrix Read the training material from portal prior to the training program</td>
<td>Attend 4 hrs. training session Two hrs. self preparation for test Complete the test at SAFCO learning Center &amp; secure 80% Marks</td>
<td>On the job training with immediate supervisor &amp; After three weeks can appear in Walk through interview for Skill certification</td>
</tr>
</tbody>
</table>
Objective: To improve SHEM learning relevant competence skills, knowledge and awareness

<table>
<thead>
<tr>
<th>Target Employees</th>
<th>GRADE (6-12)</th>
<th>GRADE (13 and above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Employees</td>
<td>1,017</td>
<td>144</td>
</tr>
<tr>
<td>Positions</td>
<td>All Position below Manager</td>
<td>Manager &amp; above and staff</td>
</tr>
<tr>
<td>Refresher</td>
<td>Every 3 Years</td>
<td>Every 3 years</td>
</tr>
</tbody>
</table>
### Awareness, Knowledge & Skills Description

<table>
<thead>
<tr>
<th>Awareness (✓)</th>
<th>Knowledge</th>
<th>Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall ownership</td>
<td>Explain in depth what SHEMS</td>
<td>Explain how to perform relevant SHEMS skills</td>
</tr>
<tr>
<td>Adherence to policy</td>
<td>Assess Risk</td>
<td>Execute safely</td>
</tr>
<tr>
<td>Leadership behavior</td>
<td>Take appropriate Action</td>
<td>Enforce Compliance within his area</td>
</tr>
<tr>
<td>Common Understanding of SHEM requirements why and what</td>
<td></td>
<td>Manage Risk &amp; understand consequence to develop action plan &amp; according to job scope</td>
</tr>
<tr>
<td>Learning Level</td>
<td>Pre-Training</td>
<td>During Training</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
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1st time - No need for approval
2nd time - Manager to investigate
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LINE MANAGER will be accountable for employee readiness before appearing in Technical advancement interview (Same for Supervisor).
Employee will be subject..
### SHEM Learning Requirements To be Qualified as a Sr. Lead Operator

<table>
<thead>
<tr>
<th>Awareness</th>
<th>Knowledge</th>
<th>Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>Management commitment Accountability &amp; Responsibility</td>
<td>8.01 General SHE Rules (Traffic &amp; Plant SHE Rules and Identification Signs)</td>
</tr>
<tr>
<td>0.08</td>
<td>Management of EHS Violation, Non-conformances And Penalties</td>
<td>10.00 Incident reporting classification, investigation &amp; analysis</td>
</tr>
<tr>
<td>0.07</td>
<td>Awards &amp; Recognition</td>
<td>2.01 PHA (Risk Assessment)</td>
</tr>
<tr>
<td>8.05</td>
<td>Electrical Safety</td>
<td>7.04 Tank &amp; pressure vessel program</td>
</tr>
<tr>
<td>9.00</td>
<td>MOC</td>
<td>08.10 Gas Testing</td>
</tr>
<tr>
<td>7.02</td>
<td>Relief Devices Program</td>
<td>12.07 Ionizing Radiation Safety</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Awareness</th>
<th>Knowledge</th>
<th>Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.03</td>
<td>Environmental Assessment</td>
<td>06.0 PSSR</td>
</tr>
<tr>
<td>7.03</td>
<td>Protective Instrumentation System Testing</td>
<td>8.03 Handling &amp; Storage of Compressed Gas Cylinders</td>
</tr>
<tr>
<td>14.01-05</td>
<td>Security Standard</td>
<td>8.07 Tools Handling</td>
</tr>
<tr>
<td>12.01</td>
<td>Illumination &amp; Ongoing trip testing, T&amp;T Valves and Care Handling, and Vibration Monitoring</td>
<td>7.01</td>
</tr>
<tr>
<td>3.02</td>
<td>Maint Procedures</td>
<td>9.00 MOC</td>
</tr>
<tr>
<td>12.02-06</td>
<td>Hazard Communication</td>
<td>7.09 Cathodic Protection Program</td>
</tr>
<tr>
<td>7.09</td>
<td>Ionizing Radiation Safety</td>
<td>8.02 Laboratory SHE Rules</td>
</tr>
<tr>
<td>12.07</td>
<td></td>
<td>13.00 ENVIRONMENTAL STANDARDS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Awareness</th>
<th>Knowledge</th>
<th>Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>Contractor SHE Management</td>
<td>5.00 Health &amp; Industrial Hygiene</td>
</tr>
<tr>
<td>0.08</td>
<td>Safe Lifting of Mobile Eq</td>
<td>7.03 Instrument, Devices &amp; Alarm Management Program</td>
</tr>
<tr>
<td>0.07</td>
<td>Piping Program</td>
<td>16.04 Product SDS Label Preparation and Communication</td>
</tr>
<tr>
<td>8.05</td>
<td>Maintenance Procedures</td>
<td>9.00 MOC</td>
</tr>
<tr>
<td>9.00</td>
<td>MOC</td>
<td>08.10 Ionizing Radiation Safety</td>
</tr>
<tr>
<td>7.02</td>
<td>Relief Devices Program</td>
<td>13.00 ENVIRONMENTAL STANDARDS</td>
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</tbody>
</table>
## SHEM LEARNING READINESS ACTION PLAN

<table>
<thead>
<tr>
<th>SN.</th>
<th>Action</th>
<th>Responsibility</th>
<th>Status/Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Design SHEM competency framework mapped to each job level</td>
<td>BSM/MUR</td>
<td>Completed</td>
</tr>
<tr>
<td>2</td>
<td>Map SHEM competencies with learning requirements and develop learning matrix</td>
<td>MUR</td>
<td>Completed</td>
</tr>
<tr>
<td>3</td>
<td>Develop training manuals for each SHEM element</td>
<td>BSM</td>
<td>Completed</td>
</tr>
<tr>
<td>4</td>
<td>Develop certification Process</td>
<td>MUR</td>
<td>Completed</td>
</tr>
<tr>
<td>5</td>
<td>Develop administration reporting system to monitor SHEM learning process</td>
<td>MIF</td>
<td>Completed</td>
</tr>
<tr>
<td>6</td>
<td>Communicate monthly report of SHEM Learning compliance to UD</td>
<td>MIF</td>
<td>Continuous</td>
</tr>
<tr>
<td>7</td>
<td>Design SHEM Development Roadmap for each job level</td>
<td>MUR</td>
<td>Completed</td>
</tr>
<tr>
<td>8</td>
<td>SHEM competency Matrix review</td>
<td>EHHSS Improvement Committee</td>
<td>Completed</td>
</tr>
<tr>
<td>9</td>
<td>Update employees IDPs</td>
<td>MIF</td>
<td>Completed</td>
</tr>
<tr>
<td>10</td>
<td>Arrange Train-The-Trainer program for SHEMS administrators/sub-element administrators</td>
<td>BSM/MUR</td>
<td>Completed</td>
</tr>
<tr>
<td>11</td>
<td>Review &amp; approve training manuals by SHEM Administrators</td>
<td>EA/SEA</td>
<td>Completed</td>
</tr>
<tr>
<td>12</td>
<td>Create Question banks for each learning manuals</td>
<td>EA/SEA</td>
<td>Completed</td>
</tr>
<tr>
<td>13</td>
<td>To engage with best affiliates Administrators to Train our team</td>
<td>AES</td>
<td>Completed</td>
</tr>
</tbody>
</table>
### ROLL-OUT PLAN OF SHEM LEARNING

<table>
<thead>
<tr>
<th>SN.</th>
<th>Action</th>
<th>Responsibility</th>
<th>Status/Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review the matrix with SHEM EA/ SEA &amp; EHSS improvement committee</td>
<td>EHSS Improvement Committee</td>
<td>Completed</td>
</tr>
<tr>
<td>2</td>
<td>Nominate focal points from each division to run engagement Sessions across the site</td>
<td>EHSS Improvement Committee</td>
<td>Completed</td>
</tr>
<tr>
<td>3</td>
<td>Review the new matrix with Senior Mangers &amp; technical Advancement committee.</td>
<td>BSM/ EHSS Improvement Committee</td>
<td>Completed</td>
</tr>
<tr>
<td>4</td>
<td>Modify the procedure on the feedback EHSS improvement committee &amp; SHEM EA or SEA &amp; Sponsor Approval</td>
<td>MUR</td>
<td>Completed</td>
</tr>
<tr>
<td>5</td>
<td>Finalize the operating rhythm for department SHEM Administrators</td>
<td>AMO/ SJD</td>
<td>Completed</td>
</tr>
<tr>
<td>6</td>
<td>Develop Training calendar</td>
<td>MUR / MIF</td>
<td>Completed</td>
</tr>
<tr>
<td>7</td>
<td>Prepare Engagement Sessions materials (Flyers, Booklet, Roll-ups)</td>
<td>MUR/SJD/FPs</td>
<td>Completed</td>
</tr>
</tbody>
</table>
YTD SEPTEMBER SHEM TRAINING STATUS

SHEM TRAINING STATISTICS

<table>
<thead>
<tr>
<th>No. of Sessions</th>
<th>Planned</th>
<th>Conducted</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL PARTICIPANTS (5833)</td>
<td>329</td>
<td>329</td>
</tr>
</tbody>
</table>

INSTRUCTORS

| No. of Instructors | 78      |

OVERALL ATTENDANCE VS. TARGET - YTD

<table>
<thead>
<tr>
<th>SF OPERATION</th>
<th>IBB OPERATION</th>
<th>MAINTENANCE</th>
<th>TECHNICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>Target</td>
<td>Attendance</td>
<td>Target</td>
</tr>
<tr>
<td>2244</td>
<td>2216</td>
<td>1139</td>
<td>1238</td>
</tr>
<tr>
<td>1139</td>
<td>954</td>
<td>1803</td>
<td>695</td>
</tr>
<tr>
<td>101%</td>
<td>119%</td>
<td>147%</td>
<td>73%</td>
</tr>
</tbody>
</table>

OVERALL COMPLIANCE% - YTD

<table>
<thead>
<tr>
<th>SF OPERATION</th>
<th>IBB OPERATION</th>
<th>MAINTENANCE</th>
<th>TECHNICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance%</td>
<td>Target</td>
<td>Attendance</td>
<td>Target</td>
</tr>
<tr>
<td>101%</td>
<td>2216</td>
<td>1139</td>
<td>1238</td>
</tr>
<tr>
<td>119%</td>
<td>954</td>
<td>1803</td>
<td>695</td>
</tr>
<tr>
<td>147%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>73%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

KNOWLEDGE MANAGEMENT (KM) PROGRAM

WHY KM?
KM program designed to identify, capture, transfer & retain critical knowledge within the organization to improve performance.

KM ENGAGEMENT
SWFD/CI is conducting KM Engagement Meetings with Senior Management, Leaders and employees to start KM Process.

KM CONCEPTS
SAFCO has developed a unique KM concept that aligned with SABIC Values and the model linked to success in planning.

KM CAFÉ
KM Café is a platform for identified experts to share knowledge, implemented ideas, best practices or success story.
CONDUCTED SHEMS & EHSS TRAINING PARTICIPATION COMPARISON

(Y2017) vs. (Y2016 & 2015)

180 sessions were conducted for Accelerated Development Program
143 sessions conducted for other SHEM Training Programs
The output of the Phase-1 was continued with the Phase 2 project with the following mandate:

- Reviewing/surveying the state of the art technologies in NOx control in industries with special emphasis in Fertilizer industries
- Summarize De-NOx technologies applicable to QAFCO
- Summarize De-NOx technologies using QAFCO product in the process
- Develop ideas for potential De-NOx Business Plan in QAFCO

The final report was presented to QAFCO management on 30.10.2006 with the following results:

- Considering Urea Solution as the De-NOx agent in QAFCO for the initial development stage
- QAFCO to install a De-NOx SCR (Selective Catalytic Reduction) reactor in QAFCO Power Station on a trial basis
- QAFCO to Develop De-NOx infrastructure in QAFCO
NOx Abatement Project

Requirement in Qatar
New Legislation on NOx emission:
125 mg/Nm³ (for existing equipment)
55 mg/Nm³ (for new equipment)
Which will be applicable in April 2007

Action taken by QAFCO in order to
anticipate the NOx emission from QAFCO
By evaluating all NOx emission source in
QAFCO

QAFCO Compliances with the new
Environmental Law

Plant Assessment, level
Of compliance and exemptions
and Decision for abatement program

- Summarize text of law/regulation relevant to NOx
  issue in QAFCO
- Assess/Survey the NOx levels in Company
  combustion systems and indicate non compliance
to the law
- Propose changes (hardware and or operation)
  that would lead to compliance

Develop De-NOx activities

Installation of De-NOx SCR
(Selective Catalytic Reduction)
reaction in QAFCO Power Station
in trial basis

Develop De-NOx infrastructure in
QAFCO (if the trial is successful)

Selling the idea to the Power Stations
and other relevant Industries in Qatar

Results

QAFCO INTERNAL USE
- Install the De-NOx infrastructure on Ammonia plants boilers.
- Significantly reduce emission of NOx from the combustion
  systems below the Legal Limit

EXTERNAL INDUSTRIES
- Send to M-Power Company to use it on their process to
  meet 9 ppm emission legal limit of NOx
QAFCO’S JOURNEY TOWARDS ISO 50001

QAFCO’s Certifications/Accreditations

- ISO 9001
- OHSAS 18001
- ISO 14001
- HACCP
- RC 14001
- IFA PRODUCT STEWARDSHIP
- ISO 17025
- ISO 17020

Timeline:
- 1996: ISO 14001
- 1997: OHSAS 18001
- 1999: ISO 14001
- 2009: RC 14001
- 2011: IFA PRODUCT STEWARDSHIP
- 2015: ISO 50001
Implementation

- In-depth Gap Analysis of Standard Requirements and available Information.
- Energy Review one of the major tasks in the Energy Planning Process that spanned a period of 6-8 months.
- Utilization of In-house resources and expertise.
- Energy Baselines, Significant Energy Users, Energy Performance Indicators, Energy Objectives identified, and Communicated
- Identifying Procurement needs and criterions for integration.
- Integration of energy related information into existing documentation
- Top Management Commitment and Involvement.
- Trainings across the organization.
- Audits and Certification.

Strengths

- Top Management support.
- Strong Team Commitment, Team Work
- Comprehensive training
- Utilization of Internal QAFCO resources and expertise
- Presence of Documentation System.

Challenges

- Date capture, verification and validation, at different levels.
- Establishing Energy Objectives, Energy Performance Indicators at Plant level.
- Integration into existing management system
- Establishing criteria for Procurement and Purchase criteria
- Communication and training
**1 Leadership and Workforce Involvement**

- Established Management Safety Walks which includes site visits by Chief Executive Officer and Management team members on a monthly basis to promote visible management leadership and promote overall accountability for HSE.
- Established and regular monitoring of key performance indicators (Total Recordable Injury Rate) and linked with Company performance and Employee Performance.
- Quarterly HSE Committee Meeting chaired by CEO to review HSE Performance and issues.
- Established “sharing & communicating” media such as tool box meeting/talks, supervisor’s safety talks, pre-shift meetings, shift logbooks, process safety lessons learned, process safety beacons.
- Various publications such as Lessons Learned, Safety Alerts are developed covering findings, recommendations and the lessons learned. These are shared/communicated to employees and contractor through company-wide announcement.
- Encouraging employees to report Near Miss/Unsafe Conditions/Unsafe Acts and findings, and lessons learned are shared with all employees to prevent reoccurrence.
- Team based safety walks are conducted to verify the implementation of safety program and findings are communicated to concerned management.
- The team based Incident Investigations are carried out to identify the root causes and recommendations to prevent recurrence of incidents.
- Appointed “OH&S Employees Representatives” for the matters related to “Occupational Health and Safety”.
- The important information on HSE are displayed on notice boards as well as communicated through e-mail to all employees.
- Conducting theme campaigns from time to time to address communication of important HSE information.
- Established Two-way communication protocol during shift changeover and performing any activity in the plant areas as part of effective communication.
- Safety moment on various HSE topics before any meeting.
- Communication of safety statistics on a daily basis via QAFCO email.
Contractor HSE

Performance Evaluation

During the execution of the shutdown, QAFCO has introduced an initiative to drive HSE improvement through a focused team effort which consists of:

- Surveillance & auditing of the shutdown contractors work and camp areas
- Strive for the improvement in labor management
- Onsite safety practices
- Highlighting on-going issues and immediate corrective actions
- This has positive impact on the overall QAFCO’s HSE and Shutdown objectives.

Contractor Camp / Accommodation
- Transportation arrangement for Labor and food
- Facilities on site / lay down area(s)
- Labor uniform / appearance
- Safety representative (No. of Representative and their qualification)
- Personal Protection Equipment (PPE) and its quality
- Safety arrangement, contractors safety procedure
- Accident record
- Manpower (Number)
- Frequency / severity rate of accident happened
- Communication Language of supervisors / foreman
- Unsafe condition, near miss reported to QAFCO Contact man
- Concern for hygiene
- Response to safety issues raised by QAFCO.
- Number of person crossing the live plant (more time, less rating)
LEADERSHIP AND WORKFORCE INVOLVEMENT

SHUTDOWN ACCIDENT STATISTICS
Contractor Personal Injuries in comparison to previous shutdowns

<table>
<thead>
<tr>
<th>Year</th>
<th>No of Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>8</td>
</tr>
<tr>
<td>2013</td>
<td>5</td>
</tr>
<tr>
<td>2014</td>
<td>4</td>
</tr>
<tr>
<td>2015</td>
<td>2</td>
</tr>
<tr>
<td>2016</td>
<td>2</td>
</tr>
<tr>
<td>2017</td>
<td>1</td>
</tr>
</tbody>
</table>
Report & track Near Miss, Unsafe Act or Unsafe Condition

Lifeco believes every accident is preventable and strives for zero accidents. And health and safety issues are matters for management as well as the workforce. Responsibility for these issues stretches from the boardroom to the factory floor. The important role that we play, to ensure that the Near Miss, Unsafe Act or Unsafe Condition reporting process is easy to understand and use, the near miss reporting as a leading indicator and report back to the organization on the positive steps taken to improve workplace safety.

The Best Activity(ies) adopted

Lifeco management team efforts to improve our safety culture. Safety is our responsibility and managing the risks is one of our top priorities, we use incident, Near Miss, Unsafe Act or Unsafe Condition reporting system and track the actions. Traction is the Lifeco Group incident reporting and action tracking system. It is a database, and it can be used by all business Units to:

- Report and record incidents (including security), near misses, and actions, audit findings and Safety Observation Conversations (SOCs).
- Assign actions from incidents, SOCs, near misses, and audits.
- Track actions associated with incident investigation, s, general HSE audits and other HSE activities.
- Share information across workgroups, sites, BUs, peer groups, regions, business Year Group.
- It is aligned with ‘Getting HSE Right’, including root cause analysis using the ‘Comprehensive List of Causes’ (CLC).

The Added Value of the Best Practice:

- Procedure enhancement:
  - Report, track, monitor, and improve all aspects of occupational health and safety program. Treat observations as an opportunity to learn. Make sure all lessons learned are shared, and that the organization is improving with each and every opportunity.

- More Assurance of Risk Control:
  - We traction the action of Near Miss, Unsafe Act or Unsafe Condition report to improve safety systems, hazard control, risk reduction, and lessons learned. All of these represent opportunity for training, feedback on performance and a commitment to continuous improvement.

- Communication, Leadership and Accountability:
  - Leadership will establish a reporting culture reinforcing that every opportunity to identify and control hazards, reduce risk and prevent harmful incidents must be acted on.
<table>
<thead>
<tr>
<th>#</th>
<th>YEAR</th>
<th>DATE</th>
<th>DEPARTMENT</th>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>ACTION</th>
<th>SEVERITY</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2017</td>
<td>2/1/2017</td>
<td>Technical</td>
<td>Projects</td>
<td>The main door of Radioactive source room is blocked by asbestos. Sheets placed in front of it. The door could not be used.</td>
<td>Cleared</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2017</td>
<td>2/3/2017</td>
<td>Ammonia</td>
<td>Amm1</td>
<td>Work without permit ‘restoration of water collecting pit’.</td>
<td>Cleared</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2017</td>
<td>10/1/2017</td>
<td>Urea plants</td>
<td>Amm, Storage</td>
<td>All the refrigeration of Ammonia storage are tripped.</td>
<td>in progress</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2017</td>
<td>15/1/2017</td>
<td>Ammonia</td>
<td>Amm2</td>
<td>Ammonia smell noticed at compressor house, north door.</td>
<td>Cleared</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2017</td>
<td>16/1/2017</td>
<td>Technical</td>
<td>Projects</td>
<td>Removing asbestos sheets without painting.</td>
<td>Cleared</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2017</td>
<td>23/1/2017</td>
<td>Urea plants</td>
<td>Urea plants</td>
<td>Urea2 reactor, cladding sheets are blown off and scattered in the area.</td>
<td>in progress</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2017</td>
<td>29/1/2017</td>
<td>Maintenance</td>
<td>Amm workshop</td>
<td>The workshop has no escape route in event of accident.</td>
<td>in progress</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>2017</td>
<td>1/2/2017</td>
<td>Ammonia</td>
<td>Amm2</td>
<td>Industrial waste accumulated next to the plant area.</td>
<td>Cleared</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2017</td>
<td>2/2/2017</td>
<td>Ammonia</td>
<td>Amm2</td>
<td>Oil spilled on the floor of Compressor house.</td>
<td>Cleared</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2017</td>
<td>3/2/2017</td>
<td>Maintenance</td>
<td>GMU</td>
<td>Abrasive Sandblasting operations.</td>
<td>in progress</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>2017</td>
<td>8/2/2017</td>
<td>Ammonia</td>
<td>Amm1</td>
<td>The forklift truck that used in Ammonia plants is unsafe and may cause accident.</td>
<td>Cleared</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>2017</td>
<td>25/1/2017</td>
<td>Technical</td>
<td>Projects</td>
<td>Aluminum sheet of Ferritt camp, Top roof fall off due to wind.</td>
<td>in progress</td>
<td>3</td>
<td>Planning to remove old roof &amp; install new roof (progress)</td>
</tr>
<tr>
<td>13</td>
<td>2017</td>
<td>9/2/2017</td>
<td>Technical</td>
<td>Material</td>
<td>Numbers of H2 and O2 cylinders are stored together, and could cause risk of fire or explosion.</td>
<td>Cleared</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>2017</td>
<td>9/2/2017</td>
<td>Maintenance</td>
<td>GMU</td>
<td>The contractor labors of scaffolding are using unsafe containers as a nest room.</td>
<td>Cleared</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Fig (1) Near Miss, Unsafe Act or Unsafe Condition** track database
**Fig (1) Near Miss, Unsafe Act or Unsafe Condition track database**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEARMISS NO</td>
<td>1</td>
</tr>
<tr>
<td>YEAR</td>
<td>2017</td>
</tr>
<tr>
<td>DATE</td>
<td>2/1/2017</td>
</tr>
<tr>
<td>DEPARTMENT</td>
<td>Technical</td>
</tr>
<tr>
<td>SECTION</td>
<td>Projects</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>The main door of Radioactive source room is blocked by Asbestos Sheets placed in</td>
</tr>
<tr>
<td>ACTION</td>
<td>Cleared</td>
</tr>
<tr>
<td>SEVERITY</td>
<td>3</td>
</tr>
<tr>
<td>INVOLVED SECTION</td>
<td>EPPM</td>
</tr>
<tr>
<td>REMARKS</td>
<td></td>
</tr>
<tr>
<td>FILE ATTACHED</td>
<td></td>
</tr>
</tbody>
</table>
Fig (3) Near miss reported by dept
The Common Practice Known

Emergency Response Procedure for Managing Chemicals Spillage

This practice mostly applies to any event that results in the uncontained spill of a hazardous substance within the Lifeco operation.

The Best Activity(ies) Adopted

Basic spillage treatment procedures are presented in this practice as a series of charts covering the class of substance. For each class, a procedure has been proposed for dealing with small and moderate-sized spillages. The scope of all procedures is to control the spreading of the spillage and to provide a safe disposal of the materials.

The Added Value of the Best Practice:

Procedure enhancement

It will also explain the procedures and precautions necessary to minimize or eliminate the risk of injury when moving drums and containers of hazardous materials. In the event of a leak or a spill, this practice will explain methods and materials used to contain or control a leak or spill.

Minimizing of Environmental impact

This procedure outlines the steps to manage a chemical spill in order to minimize the potential for injury and damage to the environment.

Communication, Leadership and Accountability

Every facility managers and the Supervisors should ensure that an adequate number of persons are trained in chemical spill response for their specific area.
### Acids
These are generally in liquids and corrosive chemicals. Some has oxidizing properties.

<table>
<thead>
<tr>
<th>First action</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruct others to keep at a safe distance, well away from the spillage area. For nitric and hydrochloric acids, open windows and close laboratory doors on way out. Aim to ventilate the area, but isolate the material. Organic acids Also May be flammable liquids. Taking into account all immediate Circumstances Whether decides to: Contain the spillage, or Evacuate the area and get help. Call 21111.</td>
<td></td>
</tr>
<tr>
<td>For small spills, standard kits May be Appropriate spillage. Larger spills of concentrated acids, for example 36% or 70% Hydrochloric acid Nitric acid, evolve significant Amounts of irritating and harmful fumes. THEREFORE, Evacuate the area, ventilating if safe to do so. If respiratory equipment is required, before proceeding. Neutralization of concentrated acids produces heat Note. Consider further chemical reactions before attempting neutralization. Use the correct PPE (see below), the spillage will need to be contained using any available Appropriate medium, e.g. Such as absorbent granules Unsafe ™, Amphomag ™, PIG®socks, PIG®mats and PIG®Haz - mat pulp and, Where Necessary, a drain cover to stop the materials going into the drains. If using loose spill materials / granules They Should be Carefully distributed over the Entire Control spill area, working from the outside and circling to the center. This you reduce the chance of splash or spreading of the spilled chemical. Apply an ‘Appropriate’ amount to Ensure The entire spill is absorbed. Once the absorbent has contained the spill, it can be swept up and Placed into a suitable container for disposal as hazardous waste. If any residue is left, This can be washed down. The washings will need to be retained and disposed of as hazardous waste.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Small or large spills</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear Appropriate PPE: such as safety glasses or goggles, laboratory coat or protective acid-proof overalls, gauntlets or nitrile gloves, suitable footwear, e.g. non - slip safety boots.</td>
<td></td>
</tr>
</tbody>
</table>
### CAUSTIC ALKALI AND AMMONIA

The majority of chemicals in this group are solutions and are corrosive. Ammonium hydroxide and ammonia will evolve irritant fumes.

<table>
<thead>
<tr>
<th>First action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruct others to keep at a safe distance, well away from the spillage area.</td>
</tr>
<tr>
<td>Open windows and close laboratory doors on way out. Aim to ventilate the area, but isolate the material.</td>
</tr>
<tr>
<td>Taking into account all immediate Circumstances Whether decides to:</td>
</tr>
<tr>
<td>Contain the spillage, or</td>
</tr>
<tr>
<td>B. Evacuate the area and get help. Call 21111.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Small or large spills</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong></td>
</tr>
<tr>
<td>Spills such as concentrated ammonium hydroxide produce irritating fumes. Ensure adequate ventilation before proceeding.</td>
</tr>
<tr>
<td>If respiratory equipment is required, consult the HSEQ before proceeding.</td>
</tr>
<tr>
<td>Use correct PPE (see below) ,</td>
</tr>
<tr>
<td>The spillage will need to be contained using any available appropriate medium, e.g. absorbent</td>
</tr>
<tr>
<td>If using loose spill control materials/granules they should be carefully distributed over the entire spill area,</td>
</tr>
<tr>
<td>Once the absorbent has contained the spill, it can be swept up and placed into a suitable container.</td>
</tr>
<tr>
<td>NEUTRALISATION of concentrated alkali produces heat .</td>
</tr>
<tr>
<td>1. Attempt to neutralize with 6M hydrochloric acid,</td>
</tr>
<tr>
<td>2. Apply plenty of dry sand to the spillage and mix.</td>
</tr>
<tr>
<td>3. Test the litmus paper (blue &amp; red)</td>
</tr>
<tr>
<td>Transfer the sand into polythene buckets</td>
</tr>
<tr>
<td>Carefully add large volume of water. The salt formed will dissolve in the water.</td>
</tr>
<tr>
<td>Dilute greatly with running water until the operation complete</td>
</tr>
<tr>
<td>Dispose the sand as normal refuse</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear Appropriate PPE: such as safety glasses or goggles, protective laboratory coat or alkali-proof overall, nitrile gloves or gauntlets, suitable footwear, e.g. non-slip safety boots.</td>
</tr>
</tbody>
</table>
### SOLVENTS / ORGANIC LIQUIDS

<table>
<thead>
<tr>
<th>Alcohols, hydrocarbons, ketones and esters - The liquid members of this group are mainly highly flammable, flammable and / or harmful. Halogenated Solvents - The majority of these chemicals are toxic liquids, irritant, lachrymatory, and insoluble in water. They are suspected cancer-promoting agents.</th>
</tr>
</thead>
</table>

#### First action

- Instruct others to keep at a safe distance, well away from the spillage area.
- If possible, eliminate all sources of ignition immediately and instruct others to keep at a safe distance, well away from the spillage area remembering that given time, solvent vapors can travel significant distances.
- If safe to do so, open all windows and switch those fume cupboards.
- Taking into account all immediate circumstances whether decides to:
  - A. Contain the spillage, or
  - B. Evacuate the area and get help. Call 21111.

#### Small spills

- Absorb on paper and allow to evaporate. Once evaporated, place into a suitable container for disposal as hazardous waste. If any residue is left, this can be washed down.
- Gas test must be done before entering, use the correct PPE.
- Contain the spillage by using any available appropriate medium, such as absorbent or sand, sand bag.
- Protect any sensitive area around the spill by sand bag or absorbent.
- Use specific pump to suck up the spillage onto the truck or drums.
- Where necessary, a drain cover to stop the materials going into the drains.
- Once the absorbent or sand bag has contained the spill, it can be swept up and placed into a suitable container for disposal as hazardous waste.

#### Large spills

- Gas test must be done before entering, use the correct PPE.
- Contain the spillage by using any available appropriate medium, such as absorbent or sand, sand bag.
- Protect any sensitive area around the spill by sand bag or absorbent.
- Use specific pump to suck up the spillage onto the truck or drums.
- Where necessary, a drain cover to stop the materials going into the drains.
- Once the absorbent or sand bag has contained the spill, it can be swept up and placed into a suitable container for disposal as hazardous waste.

#### PPE

- Safety glasses or goggles, laboratory coat or protective overalls, gauntlets or nitrile gloves, suitable footwear, e.g. non-slip safety boots.
The objectives of site control are to minimize potential contamination of workers, protect the environment and the public from the site's hazards, and to prevent site vandalism. The magnitude of control necessary depends on site characteristics, site size, and the adjacent community. The appropriate sequence for implementing these measures should be determined on a site-specific basis.

1. Work Zones
Depending on the work being conducted, up to three zones may need to be established.
0.1. These zones are:
0.1.1. Hot Zone, or Exclusion Zone;
The Hot Zone, or Exclusion Zone, is the area of the work site where chemical hazards exist.
0.1.2. Warm Zone, or Contamination Reduction Zone
Is the area where decontamination occurs as workers leave the Hot Zone.
0.1.3. Cold Zone, or Support Zone.
The Cold Zone, or Support Zone, is the area of the work site where support functions are conducted.

The Added Value of the Best Practice:

**Minimizing of Environmental impact**
The objectives of Site Control are to minimize potential contamination of workers, protect the environment and the public from the site's hazards, and prevent vandalism of the site.

**Procedure enhancement**
For this reason, a Site Control Plan must be developed. Depending on the work being conducted, up to three zones may need to be established as part of this plan.

**Communication, Leadership and Accountability**
Anyone who works on the site should understand how the Site Control Plan affects them. This can be accomplished through regular briefings or tailgate safety meetings conducted at the site.
THE COMMON PRACTICE KNOWN

4- Radiation Protection Management

This Practice applies to LIFECO employees, contractors and/or visitors that could potentially be exposed to radiation.

It is also to apply to all areas in the LIFECO where radiation machines and radioactive materials are used, installed, removed or stored.

The Best Activity(ies) adopted

The purpose of this practice is to ensure the safety of those individuals working on or in the vicinity of radioactive materials and radiation machines located throughout the LIFECO by maintaining radiation exposures As Low As Reasonably Achievable (ALARA).

The use of radioactive materials and radiation machines is very controlled to ensure that workers and personnel in the area are not exposed to any unnecessary radiation, and also all use of radioactive materials by LIFECO employees and Material License are in compliance with the regulation of Atomic Energy Agency, as well as our Radiation Protection Supervisor (RPS) is certificated by PCN level 1, level 2 certification of competence for industrial radiography.

The management of disused radioactive sealed sources imposes to respect the national and international agreed regulations regarding their transportation, conditioning, storage and disposal, taking into account both for maintaining the humans health and environment exposure under the specified limits, during the transport, conditioning and specific additional operations and also for reducing the impact on the environment.

The Added Value of the Best Practice:

More Assurance of Risk Control

This procedure applies to Safety, Operations, Maintenance, Purchasing, and Warehouse personnel that may become involved with the nuclear gauges that are used at the facilities.

LIFECO Radiation Management Plan is include a description of the operations to which it applies, and the measures that are intended to be taken to control the exposure of employees and contractor to radiation including:

- Demonstrated access to appropriate professional expertise in radiation protection;
- a plan for monitoring radiation exposure and for assessing the doses received by exposed employees;
- the provision of appropriate equipment, staffing, facilities and operational procedures;
- details of induction and training courses;
- record keeping and reporting;
- a plan for dealing with incidents, accidents and emergencies involving exposure to radiation; and

Procedure enhancement

The objective of this practice is to provide a regulatory framework to manage the protection of workers, members of the public and the environment from harmful effects of radiation exposures arising from radiation exposures and from the waste resulting from these activities.
The Common Practice Known
A Job Safety Analysis (JSA) are required for everyday activities at Lifeco. Where high level of risk is identified and Lifeco has solid experience on (JSA), and Due to repeated process of tool (JSA), we developed draft an exhaustive list of the different tasks that we performed throughout the day by the professional worker. We have placed task in alphabetical order and in a table format, listing each in a step-by-step sequence followed by the potential hazard and a recommended action or procedure.
Involves employees and gives them a way to participate in safety decisions, which usually leads to better compliance.

The Added Value of the Best Practice:

More Assurance of Risk Control
Conduct a pre-job inspection to ensure that all hazard mitigation plans identified during the JSA process have actually been implemented
Involving the right people in the JSA process. The purpose of the

THE BEST ACTIVITY(IES) ADOPTED

5- A Job Safety Analysis (JSA)
A Job Safety Analysis (JSA) is a systematic analysis of a job, which identifies the hazards and mitigating controls for each step of a job, and ensures that the responsible parties understand their roles.

JSA is to make sure that the employees who will be conducting a task understand the hazards and how to mitigate them, so the entire crew involved in the task should participate in the JSA process

Communication, Leadership and Accountability:
Management commitment is key to an effective JSA process.
Management can show this commitment by:
- Observing and participating in JSA meetings during site safety visits
- Conducting audits of the JSA process during site safety visits
- Holding employees and supervisors accountable for JSAs
THE BEST ACTIVITY(IES) ADOPTED

6- UNIQUE SAFETY MANUAL WITH CONTINUED IMPROVEMENT

Up times last covered safety manual with its unique HSEMS acronym -since then, lifeco operations has seen a significant reduction in number of high-potential incident related to HSEMS failure.

at the same time, HSE team began working on further establishing what HSEMS means for our operation:
the identification of hazard and mitigation of risk associated with just about everything we do in operation and also updating our HSEMS is the a top priority today by developed workshop.

The Best Activity(ies) adopted

LIFECO Health, Safety, Environment & Quality Department (HSEQ DPT) is responsible for reviewing and updating this (HSEMS) document.
This management system is issued as a controlled document and no unauthorized copies shall be made.
Lifeco (HSEMS) document and its associated procedures is used by all employees and contractors as a guide to the safe management of work activities. It does not provide all the technical information for each specific topic; however it does provide a framework to ensure the correct approach is taken by competent persons.

Lifeco (HSEMS) document is give guidance to employees and other interested parties on where to source additional information for each topic.
The philosophy of the HSEMS is that competent people following defined safe systems of work and using well-designed equipment that is adequately maintained will achieve a safe place of work. This is supported by a positive health and safety culture driven by effective management.

The Added Value of the Best Practice:

Procedure enhancement:
This document and its associated procedures should be used by all employees and contractors as a guide to the safe management of work activities. It does not provide all the technical information for each specific topic; however it does provide a framework to ensure the correct approach is taken by competent persons.

More Assurance of Risk Control:
HSEMS document sets out the requirements that LIFECO expects employees and others to follow. It is important that Site Management ensure that All significant workplace risks are identified and suitable controls implemented to reduce the risk to as low as reasonably practicable. The risk assessment is regularly reviewed and the findings communicated to those persons who are involved in the task.
The management team has regularly monitor the workplace to ensure control measures are being complied with operations.
Communication, Leadership and Accountability

Leaders are commitment to effective and regular communication to reduce the potential for failures in the workplace. Effective communication is a key part of the foundations of the Lifeco HSEMS. Site Management have the responsibility for ensuring the competence of all their employees and contractors. Management must keep accurate written records demonstrating the above process has taken place.

Occupational Health Enhancement

The HSEMS is covered and explained the principle of Occupational Health (OH) staff owes two duties of care:

one to their patients or clients and another to LIFECO as their employer, by prevention of injury and Ill Health & Management of Injury and Illness & Health Promotion and Wellness and Health Support.

Minimizing Environmental Impact:

The HSEMS is controlled emission or waste which impact the environment by include set of prevention procedures such as waste management and monitoring plans

Pictures
1.0 H&S Policy
2.0 Distribution
3.0 Amendments and Authorisation
4.0 Introduction
5.0 HSE Procedures
   5.1 Risk Management
   5.2 Occupational health
   5.3 Management of change
   5.4 Documentation
   5.5 Use of mobile phones
   5.6 Communication
   5.7 Ethical standards & behaviour
   5.8 Extreme weather conditions
   5.9 Publicity
   5.10 Abrasive cleaning
   5.11 General safety rules
   5.12 Competency and training needs analysis
   5.13 Managing visitors
   5.14 HSE improvement plans
   5.15 Monitoring performance
   5.16 Emergency and crisis management
   5.17 Safety during start-up and shut-down of plant and equipment
   5.18 Accident, Incident & near miss reporting and Investigation
   5.19 Annual HSE reports

5.44 Battery charging of mobile work equipment
5.45 Ladders and portable access
5.46 Pressure systems
5.47 Compressed gas cylinders
5.48 Use of lifting equipment
5.49 Use of mobile work equipment
5.50 Lone workers
5.51 Manual handling
5.52 Traffic management and driving safety
5.53 Smoking policy
5.54 Permits to work
5.55 Drugs and alcohol policy
5.56 Compressed air safety
5.57 Machinery safety
5.58 Ionising radiation safety
5.59 Non-ionising radiation
5.60 Housekeeping
5.61 Electrical safety
5.62 Hand tools
5.63 Work at height
5.64 Stacking and storing equipment and materials
5.65 Painting Hazards
5.66 Pipeline colour coding
5.67 Waste management
The Best Activity(ies) adopted
Lifeco has introduced a system for assessing any significant change in operations, in particular:
- Modifications to plant facilities and equipment.
- Changes to the organisation.
- Changes to critical information and procedures.
- Changes to IT systems and software.
- Change to policy.
The MOC assessment process will identify the route for implementation and management of change once the risks associated with the change have been identified.

The Added Value of the Best Practice:

Procedure enhancement:
It is the intention of this process to highlight changes that affect the original ‘design intent’ of the facility which includes plant and equipment, organisational structures, operating procedures and supporting documentation. This is with the intention of maintaining an audit trial from the original design through to the current status. The application of this process provides this audit trail.

More Assurance of Risk Control:
Risk Assessment Review
MOC tools ensure and control that every change developed to the facilities, processes or equipment considers the possible Health and Safety risks associated.

Communication, Leadership and Accountability
The Facilitator will meet with the management team and brief them on the output of the assessment. At this session management should make a check on the quality of the assessment and documentation. The implementation route should also be discussed at the meetings.

Any person from Lifeco can request or promote a change of the facilities, processes or equipment.

In case a contractor identifies a change opportunity, it should be communicated to Lifeco in order to follow the management of change process described in this procedure.

The change promoter explains the change initiative to the Supervisor affected.
Fig(1) MOC process diagram
1. As per GPIC permit to work system, Permit to work is required for any job inside or outside process area.

2. Special procedure to work during night (Such as lifting activities)

3. Special authorization for critical activities such as online sealing or hot tapping.

4. All people (Employee, contractor, vendor, supplier, consultant...etc.) must be aware of the risk related to any work activities they are involve in through risk acknowledgement form.

5. Type of risk assessment (Generic/Specific) must be written in all the permits.

6. Special procedure developed related to work that need removal of grating/platform (Opening).

7. Special PTW procedure for high during high wind and for night activities.

8. Special procedure developed related to radiation activities.

9. Stringent procedure related to override of trip logic system.

10. Each permit will have a Job Hazardous Identification Card (JHIC), the card is signed to confirm that the people working under a PTW made aware of the immediate hazards in the vicinity.

11. Regular permit to work audit on daily basis by safety department and monthly by plants superintendent.

12. Specific checklists for rack out of circuit breakers and Isolation, Deisolation of Earth switches.

13. Diving plan must be attached to any diving permit for any work include diving activities.

14. Rescue plan must be developed for any confined space activities or work at height.

15. Color coded Lock Out/Tag out system for Circuit breakers with distinctive color locks for Operation, Mechanical and Electrical.

16. Zero PTW violation is one of the main objectives on corporate Key Performance Indicator.

17. International/Industry Published Standards & Good Practice Sharing.
1. Blind list register with relevant drawings for all confined space entry of equipment.
2. Keeping updated record for all plant related documents i.e. reports, presentations, training manuals, various assignments in one site for reference.
3. Display MSDS of all chemicals/oils in the plant.
4. Report all HSE incidents and process incidents in Lotus notes for avoiding recurrences and improvement.
5. Restriction of work under direct sun during peak summer conditions.
6. Any excavation/drilling authorized only after issuance of Excavation certificates from Technical departments (Maintenance, Operation and Technical Services) attached with relevant drawings showing underground services/cables…etc.
7. Operation Incident databank to capture all operation incidents to maintain the experience and analyze the root cause of each case. Take corrective measure to avoid similar incidents in future.
8. Training plan for all the staff to attend course, seminar, conformance, workshop…etc. related to HSE.
10. Involvement of area operators in any Hazop study, review of document and procedure.
11. Log book (Register) for plant visitor (Restriction entry to plant area).
12. Use of English language as standard for all communications.
13. Display of chemical signboard on the site, with first aid action.
14. Regular communication test with fire and safety.
15. Establish of radio audit system in all sections.
16. Ensure full compliance of legislation (Local, regional and international).
17. Environmental awareness lectures for school and universities students.
18. Conducting regular first aid and CPR (Cardiopulmonary Resuscitation). Training by GPIC medical staff to all employees.
19. Weekly audit/check of safety equipment in the plants.
20. Routine daily and weekly emergency siren check.
21. Remote access to the critical valves such as (Ammonia service, natural gas, steam, carbamate).
22. Using special fitting and connection for nitrogen hoses.
23. Check of plants’ safety cabinet.
24. Restrict use of unsafe equipment in the process area and control rooms.
25. Pre loading meeting with ship mater.
26. Chair & lock arrangement for PSVs with isolation valves.
27. Use of Ultra Nox Burner for Boilers Burners.
The Best Activity(ies) adopted

1. Conduct mock drill and safety talk as per issued schedule.
2. Month shift talk for each shift group in all plants.
3. Checking lead wire seal and tagging monthly for pressure safety valves.
4. Checking of gas leaks from all flanges, unions and glands as per list monthly.
5. Regular housekeeping in each area to keep plant/equipment neat and clean condition.
6. Schedule review of staff competency
7. Regular audit and refresher course to ensure compliance with Process Safety Management (PMS) system (OSHA 1910.119)
8. Develop of checklist for all startup and shutdown activities.
9. File note system for any change required on Safety of the plant/ trip system with due authorization from higher management.
10. Develop of trip mitigation plan in all plants
11. Participate of plant operator (auxiliary firemen) on the weekly training with fire and safety staff.
12. Weekly update and audit of each plant safety equipment list.
13. Develop of contingency plan for various emergency scenarios.
14. DCS alarm management system (List and Priority every shift).
15. Regular medical checkup for all the employee.
16. Compliance with quality, environment and occupational health standard (ISO 9001, ISO 14001 and OSHAS 18001)
17. Develop of Enterprise risk management system as per ISO31000.
18. Annual Safety evening for employee and their family.
19. Check of gland leak of isolation valves of Natural gas services in Ammonia, Methanol and Utilities plants.
20. Routine check of tanks deluge system.
21. Using of Tannoy system, radios, telephones as a mean of communication.
22. Conducting RBI “Risk based inspection” to ensure safety and integrity of the equipment and associated piping.
23. Establishing turnaround 10 years rolling plan to ensure proper planning.
24. Use of Evaporation bond to disposal.
25. Emission control through on line monitoring system.
26. Start-up check list, for safe and smooth start up.
27. Mobile air quality monitoring unit monitors ambient air quality...
The Added Value of the Best

PROCEDURE ENHANCEMENT:

- Establish of communication protocol system that manages all communications inside and outside GPIC.
- Leadership commitment and involvement in all strategic aspect and close follow up to ensure achievement of the corporate objectives.
- Accountability culture is clear and well known for all the employees.

Occupational Health Enhancement:

- Medical center facilities equipment with latest facilities.
- Ensure employee food safety as per food safety management system ISO 22000
- Comply with laws, regulations and industrial standards, and strive for HSE excellence

MORE ASSURANCE OF RISK CONTROL:

- All work activities are covered by risk assessment management system both generic and specific. Everyone is supported and authorized to STOP WORK if they feel any unsafe condition at work.

Communication, Leadership and Accountability:

- Minimizing Environmental Impact:
  - Full compliance with ISO 14001 Standard and other legislation.
  - Endeavor to use clean and harmless materials and energy, and protect environment and natural resources.

- Improved HSE Control on Contractors (Service Providers):
  - Manage contractors and share information and experience to achieve Win-Win cooperation.

- Economical and Social Impact
  - Operate the business in a cost effective manner considering the society as Social responsibility standard RC 14001
1. Shift talk and Mock Drills
2. Operation Lessons Learned Database
### SUPPORTIVE DOCUMENTS AND / OR PHOTOS

3. Example - Daily permit statistics of one plant.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Job Title</th>
<th>Permit</th>
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</thead>
<tbody>
<tr>
<td>Sea Water-31</td>
<td>1. Provide mechanical assistance for U-3401 replacement</td>
<td>Cold</td>
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<tr>
<td></td>
<td>2. Cable continuity checking for U-3401/02/03 as per M-5617 @ field</td>
<td>Electrical</td>
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<tr>
<td></td>
<td>3. Excavation to replace control cables of MP-3301/A/B</td>
<td>Hot</td>
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<td></td>
<td>4. Drilling job for U-3401/02/03 instrument job</td>
<td>Hot</td>
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<td></td>
<td>5. Civil activities for U-3401/02/03 as per M-5617</td>
<td>Hot</td>
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<tr>
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<td>6. Fabrication activities for U-3401/02/03 as per M-5617</td>
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<td>7. Instrument cable laying for U-3401/02/03</td>
<td>Instrument</td>
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<tr>
<td>ECD - 61</td>
<td>8. Routine calibration of FSXL-31033A (LP washing line for N-3101A)</td>
<td>Instrument</td>
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<td>9. Fabrication activities for U-3401/02/03 as per M-5617</td>
<td>Vehicle Entry</td>
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<td>10. Civil activities for U-3401/02/03 as per M-5617</td>
<td>Vehicle Entry</td>
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<td>Desal - 41</td>
<td>11. Cable continuity checking for U-3401/02/03 as per M-5617 @ SS#2</td>
<td>Electrical</td>
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<td>Demin - 42</td>
<td>12. Provide scaffolding support for JB near MP-4108A/B</td>
<td>Cold</td>
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<td>13. Replace old control cable of MP-4108A/B one by one</td>
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<td>14. Concrete breaking for MP-4106A/B control cable replacement</td>
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<td>15. Concrete breaking from JB to cable rack near MP-4108A/B</td>
<td>Hot</td>
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<tr>
<td>Boiler - 53</td>
<td>16. Erect scaffolding for 4&quot; new condensate line as per M-6033</td>
<td>Cold</td>
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<td></td>
<td>17. Scaffolding assistance for safe access to MP-4202A/B LCS</td>
<td>Cold</td>
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<td>18. Civil jobs for foundation of new pumps &amp; blowers of T-4208</td>
<td>Hot</td>
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<td>19. Fabrication assistance for 4&quot; new condensate line as per M-6633</td>
<td>Hot</td>
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<td>20. Attend STU-42 (MT-5301 LH line) due to passing</td>
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<td>21. Dismantle SC 5206 for inspection</td>
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<td>22. Inspection of SC-5206</td>
<td>Hot</td>
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### SUPPORTIVE DOCUMENTS AND / OR PHOTOS

#### 4. GPIC management system standard

## MANAGEMENT SYSTEMS STANDARDS

<table>
<thead>
<tr>
<th>Title</th>
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<tbody>
<tr>
<td>Information security management systems — Requirements</td>
<td>ISO 27001:2013</td>
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<tr>
<td>Conformity assessment — Requirements for the operation of various types of bodies performing inspection</td>
<td>ISO 17020:2012</td>
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<td>Energy management systems — Requirements with guidance for use</td>
<td>ISO 50001:2011</td>
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<td>ISO 14001:2004</td>
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<td>ISO 14001:2015</td>
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<td>Food Safety Management System</td>
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<td>General requirements for the competence of testing and calibration laboratories</td>
<td>ISO 17025:2005</td>
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<td>Integrated Management Systems</td>
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<td>Quality Management Systems</td>
<td>ISO 9001-2008</td>
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<td>Responsible Care</td>
<td>RC 14001-2008</td>
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<td>Responsible Care Management System</td>
<td>RC 14001:2013</td>
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<td>Risk Management - Principles and Guidelines</td>
<td>ISO 31000:2009</td>
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</table>
5. GPIC management system standards (Other Requirement).

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<thead>
<tr>
<th>Ref No/Title</th>
<th>Standard Ref / Rev. No</th>
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<th>Updated On</th>
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<tr>
<td>1910 - Occupational Safety and Health Standards</td>
<td>OSHA 1910.119</td>
<td>Process Safety Management of Highly Hazardous Chemicals</td>
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## SUPPORTIVE DOCUMENTS AND / OR PHOTOS


### MAINTENANCE WALKABOUT ACTIONS

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<th>Dept/Section</th>
<th>Audit No.</th>
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</table>
8. GPIC Incident management system (GIMS).

The GPIC Incident Management System (GIMS) has been designed specifically for GPIC “in house” using the creativity of the Information Technology & Knowledge Department and expertise from the SHE Department. The project is now being launched and with the help of all employees the benefits of the system will come to fruition.

The GIMS has been designed to collect information primarily from Accidents and Near Misses however it incorporates a new dimension. It also provides the media to analyse Errors and Violations not only within Accidents and Near Misses but direct errors or violations outside of the normal incidents. It will also record “recommendations for good work” i.e. identifying and rewarding of good work and exemplary performance. In doing so this provides a balanced view of the company’s cultural performance negative and positive.

The high standards achieved by our company in business sustainability and safety excellence is through each employee’s hard work and devotion in following the rules, regulations and procedures set by GPIC Management. To maintain and further enhance these high standards, GPIC demands the best from everyone. Therefore we need to analyse when things go wrong as in the case of an accident determine the root cause and carryout the “Corrective Actions” to prevent the event happening again. More importantly is to review the “Near Missed”, this allows us to be proactive and make sure the lessons learnt prevent a possible accident.

Accidents and Near Misses are the results of Errors and Violations however errors and violations occur in other events. The GIMS provides a tool to look at all the errors and violations occurring in the workplace. This would give us the opportunity to access the state of the culture at GPIC, whilst giving us an indication of where we can improve and set performance targets. We want everyone to understand that on occasions a slip from standards that may appear superficially as minor, may have more implications and may dilute the intent of such standards. In order to ensure compliance to the rules and maintain high standards and in keeping with our “Just Culture”. The Management with the support of the Labour Union have introduced the GIMS.

I request your co-operation and sincere support in this initiative to maintain our high standards. GPIC relies on you not to make errors or violate the rules, but most importantly requires you to report errors and violations. Turning a ‘Blind Eye’ to a violation, is as bad as committing the violation yourself. To reduce errors we need to provide help and support to correct. It is important to make yourself aware of the contents of GIMS user manual and SOP Accidents and Near Miss Reporting SHE-SA-F-13.

- Ammonia Bulk Storage (13)
- Ammonia maintenance cabin (1)
- Ammonia Plant Operation (7)
- Ammonia Plant (55)
- Ammonia (336)
- Bagging area used by materials section (1)
- Canteen (74)
- CDR Offices (10)
- Chemical Warehouse (124)
- Club (17)
- Contractors’ Dining Facilities (20)
- Contractors Cabin (4)
- Contractors Cabins (19)
- Desal #1 Shutdown Activities (6)
- Document Store (4)
- Documentation Storage (31)
- Documents Store (3)
- ETS Building (307)
- External Assess-SHEW 01 (9)
SUPPORTIVE DOCUMENTS AND / OR PHOTOS

10. File Note System.
11. Knowledge Capture and Sharing.
 SUPPORTIVE DOCUMENTS AND / OR PHOTOS

12. Chemical Signboard display in the field.

HAMMUS AL-KUBERTIK
SULPHURIC ACID (H₂SO₄)

A. HAZARDS
1. DUE TO ITS CORROSIVE, OXIDISING AND SUPHONATING PROPERTIES, SULPHURIC ACID PRODUCES RAPID DESTRUCTION OF TISSUES AND SEVERE BURNS ON CONTACT WITH BODILY TISSUES OF ANY KIND.
2. THE ACID ITSELF IS NOT FLAMMABLE, BUT IN ITS HIGHER CONCENTRATIONS MAY CAUSE IGNITION BY CONTACT WITH COMBUSTIBLE LIQUIDS AND SOLIDS.
3. A HIGHLY FLAMMABLE AND EXPLOSIVE GAS, HYDROGEN IS GENERATED BY THE ACTION OF THE ACID ON MOST METALS.

B. FIRST AID
1. SKIN CONTACT: WASH THE CONTACT AREA WITH PLENTY OF CLEAN WATER.
2. EYE CONTACT: WASH PROMPTLY AND THOROUGHLY WITH WATER FOR A MINIMUM OF 15 MINUTES.
3. REFER TO GPIC MEDICAL CENTRE IN ALL CASES.

C. PRECAUTIONS
1. AVOID EYE CONTACT - USE SAFETY GOGGLES OR FACE SHIELD.
2. AVOID SKIN CONTACT - USE RUBBER GLOVES, ACID SUIT AND RUBBER BOOTS.
3. FULL PROTECTIVE EQUIPMENT MUST BE WORN WHILE WORKING ON ACID PUMPS, LINES, TANKERS AND DRUMS.
4. AVOID BREATHING MIST - USE SELF-CONTAINED BREATHING APPARATUS.
5. SPILLS - COLLECT IF POSSIBLE AND NEUTRALISE WITH CAUSTIC SODA.
### SUPPORTIVE DOCUMENTS AND / OR PHOTOS

14. Example of routine activities checklist

<table>
<thead>
<tr>
<th>Time</th>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>08</td>
<td>08</td>
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<td>08</td>
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<td>Shift</td>
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<tr>
<td>Cross check laboratory results of previous day.</td>
<td></td>
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<tr>
<td>Cross check analysis schedule, log daily laboratory analysis and report any deviations</td>
<td></td>
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</tr>
<tr>
<td>Traveling Band Screens N-3101 A/B/C &amp; N-3101 E/F</td>
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<tr>
<td>Operate the lagrange system to steam heater for two hrs if Dessel #1 TBT is &lt; 105 deg C</td>
<td></td>
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<tr>
<td>Check for any gases/oil from PCW pumps</td>
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</tr>
<tr>
<td>Draining of gasoline NG letdown isolation valves in 52 area</td>
<td></td>
<td></td>
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<tr>
<td>Remove moisture from starting air vessel of MU-3301 A/B</td>
<td></td>
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<tr>
<td>Change over to stand by pumps - UP-4107 A/B</td>
<td></td>
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<tr>
<td>Start MD-4101 for 1 hr, Full load test</td>
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<tr>
<td>Test P-3103 A/B/C</td>
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<tr>
<td>Start MD-5012 for 10 min, Fill log sheets</td>
<td></td>
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<tr>
<td>Afternoon Shift</td>
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<tr>
<td>Cross check analysis schedule, log daily laboratory analysis and report any deviations</td>
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<tr>
<td>Clean bearing cooling water strainers of sea water pumps P-3101 A/B/C/D/F/G/H</td>
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<tr>
<td>Traveling Band Screens N-3101 A/B/C &amp; N-3101 E/F and 5m³ Alpha water to T-3481</td>
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<tr>
<td>Operate the lagrange system to steam heater for two hrs if Dessel #1 TBT is &lt; 105 deg C</td>
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<tr>
<td>Check for any gases/oil from PCW pumps</td>
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<tr>
<td>Draining of gasoline NG letdown isolation valves in 52 area</td>
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<tr>
<td>MD-6101/MD-8102 general checking including diesel level</td>
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<tr>
<td>Remove moisture from starting air vessel of and MU-3301 A/B</td>
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<tr>
<td>Change over to stand by pumps - UP-4106 A/B</td>
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<tr>
<td>Check MD-3401 diesel level</td>
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<tr>
<td>Night Shift</td>
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<tr>
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<tr>
<td>Daily production calculation</td>
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<tr>
<td>Check physical stock of inventory of chemicals, update chemical consumption log book</td>
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<td></td>
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<tr>
<td>Equipments running hours log sheet</td>
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<td></td>
</tr>
<tr>
<td>Filling of emergency showers and eye wash stations at all areas</td>
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<tr>
<td>Traveling Band Screens N-3101 A/B/C &amp; N-3101 E/F</td>
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</tr>
<tr>
<td>Operation of sand scrapers H3101 A/B/D one complete cycle with different set of pumps for A &amp; B</td>
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<tr>
<td>Operate the lagrange system to steam heater for two hrs if Dessel #1 TBT is &lt; 105 deg C</td>
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<tr>
<td>Remove moisture from starting air vessel of MD-3301 A/B</td>
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</tr>
<tr>
<td>General</td>
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</tr>
<tr>
<td>1. F-3401 A/B when possible unit stopped, the filter which was in service to be back washed. As per SOP-DTL-34-05</td>
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<tr>
<td>2. During regeneration of any demin line, “A” set of pumps for line A and “B” set of pumps for line B to be run</td>
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</tr>
</tbody>
</table>
15. Safety Mock drills and Mutual Aid.

SUPPORTIVE DOCUMENTS AND / OR PHOTOS
17. Testing of Deluge system.
18. Pressure Safety Valve Seal system.
SUPPORTIVE DOCUMENTS AND / OR PHOTOS

19. Regular check of Safety Equipment in the field.
SUPPORTIVE DOCUMENTS AND / OR PHOTOS

21. GPIC Environmental Projects.
22. Emission control through on line monitoring system.

23. Ultra-low NOx Burner for Boilers.
24. Use of Recycling System.

25. Mobile air quality monitoring unit monitors ambient air quality
26. GPIC Evaporation pond #1

27. Risk Base Inspection (RBI)
28. Example of some Risk Base Inspection (RBI)
29. Routine inspection and housekeeping for oil sheds.

30. GPIC ERM System
### 31. Process Plant Visitor Log Book

<table>
<thead>
<tr>
<th>No.</th>
<th>Date</th>
<th>Name</th>
<th>Department</th>
<th>Time In</th>
<th>Time Out</th>
<th>Purpose of Visit</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/1/2023</td>
<td>John Smith</td>
<td>Engineering</td>
<td>08:00</td>
<td>16:00</td>
<td>Inspection</td>
<td>Signature</td>
</tr>
<tr>
<td>2</td>
<td>2/2/2023</td>
<td>Jane Doe</td>
<td>Sales</td>
<td>09:00</td>
<td>17:00</td>
<td>Meeting</td>
<td>Signature</td>
</tr>
<tr>
<td>3</td>
<td>3/3/2023</td>
<td>Mike Johnson</td>
<td>Maintenance</td>
<td>10:00</td>
<td>18:00</td>
<td>Maintenance</td>
<td>Signature</td>
</tr>
<tr>
<td>4</td>
<td>4/4/2023</td>
<td>Emily Miller</td>
<td>Accounting</td>
<td>11:00</td>
<td>19:00</td>
<td>Audit</td>
<td>Signature</td>
</tr>
<tr>
<td>5</td>
<td>5/5/2023</td>
<td>David Brown</td>
<td>HR</td>
<td>12:00</td>
<td>20:00</td>
<td>Interview</td>
<td>Signature</td>
</tr>
</tbody>
</table>
SUPPORTIVE DOCUMENTS AND / OR PHOTOS

32. Example of Checklist used for handling chemical.

33. Example of Checklist Pressure Safety Valves
SUPPORTIVE DOCUMENTS AND / OR PHOTOS

34. Example of Checklist for firefighting system.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Check Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Check physically the external condition of the unit i.e. there are no leaks in fuel, lube oil, or water systems.</td>
<td>Yes</td>
</tr>
<tr>
<td>2.</td>
<td>Check there is no standing alarm on local control panel and starting air compressor is on auto.</td>
<td>Yes</td>
</tr>
<tr>
<td>3.</td>
<td>Check all pressure indicators are in service.</td>
<td>Yes</td>
</tr>
<tr>
<td>4.</td>
<td>Check air pressure in air bottle DU-3301 A/B/C/D is normal; 24-29 bar and all the instruments are in service.</td>
<td>Yes</td>
</tr>
<tr>
<td>5.</td>
<td>Check and drain the moisture from DU-3301 A-D (air vessels).</td>
<td>Yes</td>
</tr>
<tr>
<td>6.</td>
<td>Check cooling water system is normal; HT Water Tank is full.</td>
<td>Yes</td>
</tr>
<tr>
<td>7.</td>
<td>Check open circuit (L.T.) cooling water isolating valves are open.</td>
<td>Yes</td>
</tr>
<tr>
<td>8.</td>
<td>Check lube oil level in sump is normal; at least 60% approximately.</td>
<td>Yes</td>
</tr>
<tr>
<td>9.</td>
<td>Check governor oil level is normal.</td>
<td>Yes</td>
</tr>
<tr>
<td>10.</td>
<td>Check pre-fabrication pump is running (lube oil pressure 1.0 bar).</td>
<td>Yes</td>
</tr>
<tr>
<td>11.</td>
<td>Check the level in fuel tank is more than 70% in D-3301 A/B.</td>
<td>Yes</td>
</tr>
<tr>
<td>12.</td>
<td>Check battery charging voltages / current are normal (25 volts / 5 Amps) approximately.</td>
<td>Yes</td>
</tr>
<tr>
<td>13.</td>
<td>Check Auxiliary circuit voltages / current are normal (450 volts / 5 Amps) approximately.</td>
<td>Yes</td>
</tr>
<tr>
<td>14.</td>
<td>Check all auxiliaries are on auto mode on panel.</td>
<td>Yes</td>
</tr>
<tr>
<td>15.</td>
<td>Check local selector switch is on &quot;AUTO&quot; position.</td>
<td>Yes</td>
</tr>
<tr>
<td>16.</td>
<td>Check physically the external condition of the pump.</td>
<td>Yes</td>
</tr>
<tr>
<td>17.</td>
<td>Check suction and discharge valves of Fire Fighting pumps are in open position.</td>
<td>Yes</td>
</tr>
<tr>
<td>18.</td>
<td>Check all pressure indicators are in service.</td>
<td>Yes</td>
</tr>
<tr>
<td>19.</td>
<td>Check for bearing housing oil level is normal.</td>
<td>Yes</td>
</tr>
<tr>
<td>20.</td>
<td>Check pump gland leakage is within allowable limits</td>
<td>Yes</td>
</tr>
<tr>
<td>21.</td>
<td>Check local selector switch is on &quot;AUTO&quot; position.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: During routine testing of Fire Water pumps ensure the discharge is recycled to pump suction.

---

SUPPORTIVE DOCUMENTS AND / OR PHOTOS

35. Example of Checklist for Safety House Keeping

---

Gulf Petrochemical Industries Co.
Quality Management System
Plants Operation Department

Title: SAFETY HOUSEKEEPING CHECKLIST

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description</th>
<th>Observation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>PLANT / UNIT:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Safety Equipment Cabinet</td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Operator Cabin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bearing oil cups / oil sight glasses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tidiness / Cleanliness of the unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Any tripping hazards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Paint condition of equipment / structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Skip conditions</td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>General Housekeeping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Identification of leaks (Steam, Gas, water etc...)</td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td>Storm water channels cleanliness</td>
<td></td>
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</tr>
<tr>
<td>11</td>
<td>Condition of landscaped area</td>
<td></td>
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<tr>
<td>12</td>
<td>Area tidiness at the P/TW areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Condition of pumps/equipment/structure foundations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>General insulation condition</td>
<td></td>
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<tr>
<td>15</td>
<td>Sign boards (chemical / safety) clarity and consistancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Lube, Oil shed condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Instrument/electrical cable are properly secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Equipment identification mark are ok</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Gearing condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Steam hoses are properly kept</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Valves key are on its stand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date: 30/11/2013

Auditor: ___________________________  Superintendent: ___________________________  Shift Supervisor: ___________________________
### Pre Start-up Safety Review Checklist

**Gulf Petrochemical Industries Co.**
**Plants Operation Department**

**SUPPORTIVE DOCUMENTS AND / OR PHOTOS**

36. Example of Pre Startup Safety Review (Operation, Page 1/6)

**Plant**: __________________________

**Unit / Equipment**: __________________________

**RFC No.**: __________________________

**Description**: __________________________

**Capex No.**: __________________________

**Capex No.**: __________________________

**Checklist to be filled by Plants Operations**

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Items</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
<th>Corrective Action Description</th>
<th>Action By</th>
<th>Due Date</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Availability of SOP for the system as per PSM element ‘Operating Procedures’</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Training conducted and operational staff are clear about operational procedures.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>PHA done for the system.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>PHA recommendations are resolved.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Field check done no change made in the system after PHA study.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SUPPORTIVE DOCUMENTS AND / OR PHOTOS

37. GPIC RPE & Glove Protection Device Chart

#### GPIC RPE & GLOVE PROTECTION ADVICE CHART

<table>
<thead>
<tr>
<th>Types of Respiratory Protection Equipment (RPE)</th>
<th>Filter Mask</th>
<th>Half or Full Face Mask</th>
<th>Filter Mask</th>
<th>Full Face Mask Filter Cartridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection from</td>
<td>Solid Particles (Not to be used for gases or vapours)</td>
<td>Solid Particles, Fumes and vapours (not gases)</td>
<td>Gases, Fumes, Vapours and Solid Particles</td>
<td>Ammonia Only</td>
</tr>
<tr>
<td>Type</td>
<td>P1 standard paper filter mask</td>
<td>3M 8835 (P3)</td>
<td>3M 2091 (P3/100)</td>
<td>3M 8514 (N-95)</td>
</tr>
<tr>
<td>Use</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>Non Hazardous Dust and Fibres</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hazardous Dust and Fibres</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Catalyst &amp; Insulation Work</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Welding fumes</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DP &amp; MPI Testing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Painting (not suitable for 2 pack paint)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Ammonia</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Other Hazardous chemicals on site including Urea Formaldehyde, mercury etc.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Supportive Documents and/or Photos

38. Safety Checklist for Removal of floor, manhole grating and guardrail

---

**General Management Safety Health & Environment Removal of Floor & Manhole Gratings and Guardrails Checklist**

<table>
<thead>
<tr>
<th>Item</th>
<th>Action Required</th>
<th>YES</th>
<th>NO</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Risk Assessment available?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>The job has been discussed with those concerned carrying out the work and others who may be affected close by?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>A fixed barrier has been put in place?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>People required to work near the unguarded edge provided with Fall arrest equipment? (Mandatory)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Warning Signs have been erected?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>The removed gratings or guardrails are stored safely</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Housekeeping satisfactory no trip or slip hazards?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Checked surrounding gratings to ensure they are fixed and not liable to slip?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Description of the Work & Location:**

**Date:** [Blank]  
**Maintenance Supervisor name:** [Blank]  
**Badge number:** [Blank]  
**PTW No:** [Blank]

---

**The work requires removal of:**  
- Floor Grating  
- Manhole Grating  
- Guardrails

---

FR: SHE-SAF-02 (Issue 9)  
1/09/2010
39. Examples of GPIC Permit to work (1/2)
SUPPORTIVE DOCUMENTS AND / OR PHOTOS

40. Examples of GPIC Permit to work (2/2)
The best Activities Adopted

AFC has adopted numerous international standards (ISO 9001:2008, ISO 14001:2004, OSHAS18001:2007). The company has adopted the excellence stewardship with high score of application that made it the first company to achieve the principles of protect & sustain in Egypt. Protect & sustain is a management system for the product life. IFA Specify 12 principles for approval of protect & sustain for the product. SGS is the external party that made self assessment. In the beginning, AFC decided to obtain the first level of certificate which is named “Product Stewardship” with 60% as a minimum score for the self assessment, but after the first assessment, SGS found that AFC gained 66.9% and realized that we can be more efficient, thus it suggested to register to the second level of certificate which is “Product Stewardship excellence” with 80% as a minimum score for the self assessment, so SGS specified some requirements to reach more than 80%, it made assessment again and after completion the requirement, AFC scored 92.9%.

The Added Value of The Best Practice

Procedure enhancement:
More assurance Of Risk Control
Occupational Health Enhancement:
Improved HSE Control on Contractors (Service Providers)
Economical and Social Impact
ABU QIR CO.

P&S; Story Of Success

**Definition:**

It is an integrated product system via its whole life cycle from the raw materials going through manufacturing processes finished by the final product end user; through applying of multiple specifications:

- ISO 9001 (QUALITY).
- ISO 14001 (ENVIRONMENT).
- OSHAS 18001 (OCCUPATIONAL HEALTH AND SAFETY).
- ISO 28000 (SUPPLY CHAIN SECURITY).
- SA 8000 (SOCIAL ACCOUNTABILITY).

IFA has determined a group of principles for applying specifications items and gave a model of self-assessment for applying those principles, the final product of this assessment will lead to obtaining:

- (IFA product steward certificate) for 3 years with mid-term review after 18 months, (score 60%)
- (IFA product steward excellence certificate) for 3 years with mid-term review after 18 months, (score 80%).

A team work committee has been formed to co-operate with quality department for achieving this mission. AFC was in urgent need to consult one of the IFA Recommended donors as a consultant. This mission is achieved through four stages proceeded by an important stage (Preparatory Stage):

- Seminar by SGS team.
- Seminar by DNV-GL team.
- Search & registration from IFA website.

### BENEFITS OF P & S STEWARDSHIP:

- Safe Working Conditions.
- Safe communities.
- Protect environment.
- Good reputation.
- Less risk for investors.
- Less insurance payment.
- More profitability.

Establishment for GAP Analysis.
- P & S Committee.
- P & S working team.
- Six key areas are being examined:
  - Area 1: Management system.
  - Area 2: Product development and planning.
  - Area 3: Sourcing and contractor management.
  - Area 4: Manufacturing.
  - Area 5: Supply chain to customer.
  - Area 6: Marketing, sales and application.
ABU QIR CO.

1st Stage: Gap Analysis and auditing by recommended 3rd party

**Purpose**

Realizing from deviation from P&S Specifications and requirements (IFA SHE 12 principles) Corresponding to IFA for achieving 60% from compatibility with requirements by self-assessment for achieving the first certificate Product Stewardship.

**Implementation steps:**

- Continuous and various meetings have been held for 10 days with the related departments and activities to determine the points of incompatibility with preparing a daily report for this points of deviation with the authority of active corrective actions with direct communication with different activities for obtaining the highest compatibility with IFA requirements of P&S according to what available at this time.
- Modification of models and procedures belong to OHSAS 18001, ISO 9001 and ISO 14001.
- In a parallel Manner a daily updating was done for the self-assessment via the team work and SGS team according to every modification and for every implemented corrective action with gathering of evidences for all points included in the self-assessment.

**Protect and Sustain evaluation checklist**

<table>
<thead>
<tr>
<th>Evaluation area</th>
<th>Total No. of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Management systems</td>
<td>23 questions</td>
</tr>
<tr>
<td>2. Product development and planning</td>
<td>8 questions</td>
</tr>
<tr>
<td>3. Sourcing and contractor management</td>
<td>14 questions</td>
</tr>
<tr>
<td>4. Manufacturing</td>
<td>24 questions</td>
</tr>
<tr>
<td>5. Supply chain to the customer</td>
<td>33 questions</td>
</tr>
<tr>
<td>6. Marketing &amp; sales and application</td>
<td>11 questions</td>
</tr>
</tbody>
</table>

**New procedures created for different activities:**

- Medical Sector: Infection Control Plan.
2nd Stage: IFA and P&S Awareness

Purpose

A Great training program has implemented for different activities and for auditing team upon IFA and P & S requirements and the new Requirements of ISO 28000 and SA 8000 in addition to ISO 9001:2015 and ISO 14001:2015

Implementation

This Stage has been terminated by implementing a specialized training for all sections representatives and internal auditing team on coordination with all sections and training center.

In Parallel manner in every day training, activities of completion of corrective actions and updating of the self-assessment Via AFC P & S’s team.

Results:

By the end of this Stage the self-assessment was completed the company succeed to achieve 92.9% on the self-assessment scale exceeding the target (60%) and then the company becomes qualified to obtain the 2nd certificate by exceeding 80% of self-assessment which is product steward excellence certificate.

3rd stage: Preparing for External site Audit

- AFC Checklist and self-assessment were sent to SGS one of IFA recommended 3rd parties for revision and then sending it to external auditor for extra check and to determine the date of the site audit (the duration: 3/3/2017 to 7/3/2017)

- In Parallel manner AFC P & S’s team will complete gathering Evidences for achieving all missions and P & S’s requirements and be ready for the site audit.

- This stage requires from all AFC activities to get ready and complete coordination for external audit until ending without any negative observations or obstacles as we hoped.

4th and last Stage: External site Audit

- AFC plant sites undergone a complete survey accompanied to the self-assessment and after ending it the external site audit occurred and we have succeeded in achieving IFA product steward excellence with a grade of 85% for 3 years (we will undergo an external site audit after 18 months).
ABU QIR CO.
Supportive Documents
and/ or Photos

Product Steward Excellence Certificate
The Best Practice in H.S.E

The Added Value of The Best Practice

- More Assurance of Risk Control:
- Occupational health Enhancement:
- Minimizing Environmental impact:
- Economical Impact:

The Added Value of The Best Practice

- More Assurance of Risk Control:
- Occupational health Enhancement:
- Minimizing Environmental impact:
- Economical Impact:

The Common Practice Known

The control stations in the compressor house were adjacent to each machine allowing exposure to high levels of noise (from 92 to 96 dB). Noise prevention measures were one of two ways, either separate or combined; to regulate periods of direct exposure to machines, as well as personal protective equipments such as ear plugs or muffs.

The best Activities Adopted

A separate control room was constructed and all control stations were transferred into it with a revamp of the operating system to prevent the direct and continual exposure to the high levels of machine noise. The levels of noise in the mentioned room are around 70 dB beside complete monitoring of machines conditions.

Specify:

- Protection of employees from exposure to high levels of noise.
- Lower usage of personal protective equipments (saving PPE cost)
- Process safety high ranking
- Decrease consumption rate of PPE
- Decreasing the chances of human errors
Conversion features

- Keeping pace with the transition to electronic control where it is now becoming difficult to get:
- 1- part for the hydraulic system. Obtain the accuracy and ability to control more in the speed of the turbine
- 2. Heating the turbine with high accuracy according to the curved curve provided by the supplier but in the hydraulic system no matter how technical accuracy cannot be aligned with the heating curve with the same precision
- The reliability of the automatic protection system gives more safety to the machine and the factory
- The addition of some TRIP ACTION by the electronic control system did not exist before as in SYN.GAS COMPRESSOR and CO2 compressors will be evident in the attached file.
- Over speed trip has been depended on mechanical over speed trip but now a new system has been created prevents the turbine from reaching over speed which known as over speed preventive, in case of reaching over speed the system creates two protection systems.
- Ability to connect DCS
- the new system become diagnostic system while the old one was blind
- Changing protection system for lube oil from the mechanical system to the electronic system

Supportive Documents and/ or Photos

Compressor house

<table>
<thead>
<tr>
<th>Location</th>
<th>New Control Room</th>
<th>Old Stations Beside Machines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AMMONIA</td>
</tr>
<tr>
<td>Upper floor</td>
<td>72</td>
<td>92</td>
</tr>
</tbody>
</table>

Attachments:

- Scientific Article of the transformation of control system in the steam turbines in AFC 1 from hydraulic control to the electronic system
Photocopies for the compressor house and the old stations.
Double Door

The new control room and the new operating system
ABU QIR CO.
Changing Activator in Benfield Solution Batch in CO2 Removal Unit from DEA to ACT-1

The Common Practice Known
The activator used in Solution Batch of CO2 removal unit was di-ethanol amine (DEA) which is having the following problems:

- Corrosion problems.
- Foaming and carry over.
- Hydrogen slip with carbon dioxide.
- High consumption of chemicals allowing longer exposure to chemical hazards.

The best Activities Adopted
The activator in solution batch in CO2 Removal Unit is changed from DEA to another chemical with a commercial name “ACT-1”.

Historical Review
The Hot Potassium Carbonate Process (HPC) originated from research work done by the US Bureau of Mines (USBM), between 1940 and 1960. The original justification was to determine how to convert coal to gaseous and/or liquid fuels.

Since the technology was developed by the U.S. Government, the basic process remained the property of the U.S. Government. Several U.S. citizens further developed the technology and started businesses to assist the industry to use this technology. A partnership was formed by Benson, Field and Epes, who were former employees of USBM, to help design some 150 units for use in treating town gas produced from coal at locations throughout Europe, mostly in the United Kingdom before the advent of North Sea gas. Eventually this partnership found patentable improvements to the technology and started designing and licensing their improved versions. This became known as the Benfield™ Process.

The improvements and process developments included addition of small amounts of amines/other proprietary additives to the HPC solution to increase the rate of reaction with CO2, and using corrosion inhibitors to permit the use of carbon steel for the majority of the process unit.

With the growing global economy, the demand for many products that are created by utilizing the HPC Process has increased motivating many HPC Process owners to increase capacity and improve process efficiency. During recent years, multiple process improvements developed have been introduced to the market in order to modernize existing HPC Processes by reducing operating costs or increasing unit capacity. These improvements include a new chemical activator to improve HPC solution performance, and the reduction of energy required to remove CO2 from the feed gas.
ABU QIR CO.

Benfield ACT-1TM Activator

The first available unit upgrade is addition of much more advanced chemical activator to the HPC Process. Almost all HPC Process uses a chemical solution based on 30% potassium carbonate (K2CO3) dissolved in water, some kind of a chemical activator, and a corrosion inhibitor. The activator is a low-concentration additive designed to improve the rate of CO2 absorption. For many years, diethanolamine (DEA) has been the standard activator and it is still used today at many operating plants around the world.

Unfortunately, like most other organic chemicals, DEA is subject to degradation. Some of the reasons DEA tends to degrade are listed below:

- DEA will break down from overheating (thermal degradation).
- DEA reacts with oxygen from air contact or from overuse of re-oxidation agents such as potassium nitrite (KNO2), used to regenerate the corrosion inhibitor (vanadium).
- By absorbing CO2, a secondary amine activator such as DEA forms a carbamate chemical that normally is easily regenerated. However, because further reactions can occur, some by-products are formed that are not regenerable, and thus a degradation compound is formed. Typically, these compounds are high molecular weight, polymer-type chemicals.
Evidence of extensive DEA degradation can be visually seen. The potassium carbonate solution samples appear black and opaque similar in appearance to liquid coal. Such DEA degradation will cause interference with analytical procedures such as carbonate titrations and vanadium valence determinations. Foaming upsets are also frequent due to degradation products and constant addition of antifoam may be required. Often there is also a rapid reduction of valence state of the vanadium corrosion inhibitor from the active V+5 to passive V+4.

An alternative to DEA has been found which has been commercialized as Benfield ACT-1TM activator. This activator, is also an amine but with a more stable molecular form that is considerably more resistant to degradation.

To measure the improved performance of the ACT-1 activator, side-by-side accelerated laboratory degradation tests were performed to compare a potassium carbonate solution with DEA and with ACT-1 activator. The first test was to heat samples of both solutions to 167°F (75°C) and expose them to oxygen by continuously injecting air. The DEA was 15% degraded within 45 days, but the ACT-1 activator was still 100% available. Please refer to Table 1 for laboratory data summary.

**Table 1:** Effects of Oxygen on HPC Process Activators  
(Lab Test Conditions: CO2 saturated, constant air injection, at 75°C)

In another test, both solutions were heated to 121°C to 132°C (250°F to 270°F) and saturated with CO2 at autoclave pressures of 9 to 14 bar (135 to 200 psi). After 15 days, only 25% of the DEA remained; 100% of the ACT-1 activator remained and was reactive after another 50 days. Please refer to Table 2 for laboratory data summary.

**Table 2:** Effects of Temperature and CO2 on HPC Process Activators  
(Lab Test Conditions: 121-132°C and continuous exposure to CO2 at 9-14 bar)

**Note:** MMEA is 2-methyl-methanolamine.  
The ACT-1 activator is currently in use in many units worldwide, including ammonia plants. It has been used in new units where no DEA was present and in existing units that had used DEA for more than 20 years and later converted to ACT-1 activator. Concentrations most effectively used in plant solutions are 0.3 to 1.0 weight % ACT-1 activator compared to about 3 weight % for DEA.

The ACT-1 activator benefits are fully achievable in new green-field units and in units fully converted from DEA to ACT-1 activator.

Further Benfield Process performance improvements with ACT-1 activator are observed through a considerably lower antifoam consumption, a much reduced consumption of re-oxidizing agent, and the resulting improved process operation (less foaming upsets). This makes ACT-1 activator very attractive for new and existing HPC units.

In summary, the most important benefits of the ACT-1 activator when comparing to HPC solutions activated with DEA are:

- Potential for feed gas capacity increases of 5-15% resulting from less CO2 slip to the downstream units.
- Potential reduction in regeneration duty by up to 15%
- Potential reduced solution circulation rates by up to 15%
- More improved operational stability with less foaming upsets.
Decreasing exposure time for chemicals
Decreasing chemical handling
Lowering CO$_2$ in product gas.
Higher safety performance.
Lowering solution circulation.
Reducing of the consumption of activator, antifoam and other chemicals enabling lower exposure to chemical hazards.
Reducing or eliminating of the reduction of V$^{+5}$ to V$^{+4}$, lowering the corrosion ability.
No tendency to form foam.
Increasing the CO$_2$ absorption.
Decrease H2 slip
Decreasing espouser rate for chemicals

The company is interested in the plurality of safety signs to cover all aspects (educational, guidance, precautionary, mandatory) are spread throughout the company.
The Common Practice Known

Signs were limited to safety instructions only such as precautionary and mandatory signs. They also were limited for some places in the company. Educational & guidance signs such as signs of NFPA diamond and heights of pipes racks crossing the roads are blinded.

The best Activities Adopted

A wide range of signs were created including several types of information; educational, guidance, precautionary, mandatory and traffic routes. Also, a special and specific panel and drawings were created showing all the heights of pipe & cable racks crossing the roads throughout the plants.

All of these aspects of best practice safety signage serve these several goals; to better protect people from harm by visually reinforcing safety training and better communicating safety to guests, subcontractors, and temporary workers, the new sign formats are aimed at helping to achieve fewer workplace accidents and injuries.

To better protect your company from litigation: The new sign formats represent the “state of the art” for visual safety communication technology. Properly using them will provide your company with a better defense in court should an accident occur and a lawsuit arise.

Hazard signs are an important part of workplace safety. They warn employees of potential dangers and remind them to use safety equipment in the area.

Safety signs give a specific message to those who may be exposed to hazards in the workplace. The message may be to prevent accidents, signify health hazards, indicate the location of safety and fire protection equipment, or for giving guidance and instruction in an emergency.

Research indicates that not all safety signs are well understood. It is therefore important that employers explain to their employees what action they will be taking to meet the requirements of these regulations and ensure that employees are aware of and understand the meaning of safety signs and signals either seen or heard during their work. Although most safety signs are self-explanatory, employees (particularly new ones) may be unfamiliar with the meaning of some of the less commonly used signs. It is therefore important that the meaning of any unfamiliar sign is clearly explained, and that employees are aware of the consequences of not following the warning or instruction given by the sign (NFPA diamond).

All safety signs must be properly maintained so that they are capable of performing the function for which they are intended. This can range from the routine cleaning of signboards to regular checks of illuminated signs and testing of acoustic signals to see that they work properly.

The Added Value of The Best Practice

Procedure Enhancement:
More Assurance of Risk Control:
Communication, Leadership and Accountability:
Occupational Health Enhancement:
Minimizing Environmental Impact:
Improved HSE control on Contractors (service Providers):
  ■ Increasing awareness of occupational safety and health regulations and environmental protection.
  ■ Decreasing of LTIs
  ■ Decreasing of accidents and incidents occurring rate.
عنصر التعرض للصودا الكاوية أو حامض الكبريتيك يتم اتباع الآتي:

- في حالة تعرض العين يتم غسلها بمحمية وفيرة من الماء لمدة 15 دقيقة.
- في حالة إصابة الجلد يتم غسله بالماء الجاري لمدة 15 دقيقة.
- يتم إزالة الملابس الملوثة فوراً ويتبع إرشادات الطبيب.
- في حالة الإستنشاق يتم نقل المصاب لمكان جيد التهوية ويتبع إرشادات الطبيب.
- في حالة البلع لا يستخدم المصاب على الأرجح ويتبع إرشادات الطبيب.
191

السلامتكم

- تذكر تليفون الطوارئ 2400 2040.
- عند سماع سريعة الإنذار المنقطعة يتم التحرك عمودياً على إتجاه الريح.
- في حالة الطوارئ يتم التحرك إلى أقرب مكان تجمع للطوارئ.
- أقرب نقطة انتظار تجمع هي (أمان مبنى إنتاج II).
- يمنع منعاًً باتاً التواجد بالمنطقة الصناعية بدون إرتداء مهام الوقاية الشخصية (خوذة. ملابس العمل. جواشتي. حذاء الأمان).

THE BEST PRACTICE IN H.S.E | 191
تعليمات السلامة بالخط البحري لتصدير الأمونيا

- في حالة سوء الأداء من خلال عمليات التخزين، فإن خطط التخزين أو اتخاذ الإجراءات المطلوبة لمنع التخزين أو التخلص من الأمونيا، ضربًا:  
  1. تتسبب حرائق أو انفجارات في اتهامات:
  2. الهيدروكربونات، والثروات البحرية، والأنبوبات، والإمدادات، والأشكال، والمواد، والصواريخ.
  3. يمنع نقل الأدوات أو الأشياء المشابهة.
  4. يمنع نقل المواد التي تسبب تفاعلات، وتصاعد غازات تؤدي إلى الحرائق أو الانفجارات.
  5. الانفجارات (النكس، الكروم، الكهرباء).
  6. مصادر الرياح، والمصادر، المصدر، المصدر، المصدر.
  7. يجب الانتباه إلى أي أعمدة، أو الأشياء، أو الأماكن، التي تتجاوز الرياح، أو أي مصدر حراري، أو أي مصدر، أو أي مصدر، للاستخدام.
  8. على الأقل، (الإلكتريك، الالات، منظمة للأنفجار).

- في حالة توقف الخطوط مع الخلايا، أو الخطوط، أو الخطوط، أو الخطوط، أو الخطوط:
  1. ينتج عن الضغط في الخلايا، عند الضغط، عند الضغط، عند الضغط، عند الضغط، عند الضغط.
  2. خطة التثبيت، خطة الفائدة، عند ضعف الضغط، عند ضعف الضغط، عند ضعف الضغط.
  3. يجب أن يتم العمل على أحدث الكشوف، على إمدادات الرياح، بصفة مستمرة، مع توفير كلما كان الأموات، مع أحدث الأعمدة.

- في حالة تفتح خطوات الصرف، أو إخراج، أو إدخال، أو إدخال، يجب استخدام مساحات ومعدات السلامة، ثم اتبع الآتي:
  1. تأكد من عدم الربط، حقول الخلايا، حقول الخلايا، حقول الخلايا.
  2. قم بتفريق الأمونيا من المضادات، إلى المنطقة الداخلية، إلى المنطقة الداخلية.
  3. حتى تأكد من عدم وجود أمونيا داخل المضادات، إذا الخلايا، إذا الخلايا، إذا الخلايا، إذا الخلايا.
  4. حتى يتم إيقاف جميع الأعمال، إجراء إجراءات، للتأخير، للتأخير، للتأخير.
  5. يتسبب تأثير، على الطاقة، على الطاقة، على الطاقة.

- تذكر تذكيرًا، على الطاقة، على الطاقة، على الطاقة.
تعليمات لسائقى سيارات اللحى

- عدم التدخين نهائياً داخل الموقع.
- السرعة لا تزيد عن 25 كم/ساعة داخل المصانع.
- يتم تسليم (المواقد - الولاعات) لسائقي سيارات اللحى فقط عند القسم الأمن.
- السير بالجانب الأيمن للطريق وتهدئة السرعة عند المحطات والتقاطعات.
- توافر جهاز إطفاء بالسيارة.
- عند سماح سريعة الإنذار المتقطعة يراعى سرعة الوقوف على الجانب الأيمن لإفراز الطريقة لسيارات الإطفاء والطوارئ.
Educational Signs

NFPA diamond

اطارات الخطرة للكيميائيات

الخطر على الصحة

- 4: كاذبة
- 3: خطرة جداً
- 2: خطرة
- 1: خطرة غير محددة
- 0: غير خطرة

النشاط الكيميائي

- 4: قد تتفجر تلقائياً
- 3: قابلة للإنفجار
- 2: غيرة مستقرة
- 1: مستقرة في الظروف الطبيعية
- 0: مستقرة

. OXI  مكسدة
. ACID  حمضيّة
. ALK  مكسيّة
. COR  كاولية
. W  تتفاعل مع الماء
. 0  مشعة
كيفية استخدام طفاية الحريق

1. انزع تيلة الأمان
2. تأكد أن مؤشر الضغط بالمغلفة الخضراء
3. ضغط على ذراع التشغيل
4. وجه القاذف إلى قاعدة اللهب
5. كافح اللهب من أسفل إلى أعلى
6. تذكر تليفون الطوارئ

تعليمات التخزين وال≌ التداول للإسطوانات الغازية

أولاً: تعليمات التخزين:
1. يتم تخزين وتوصيف الإسطوانات وفق الكود العالمي للأمان.
2. يراعى الفصل بين الإسطوانات الباردة والإسطوانات المثلثة.
3. يراعى الفصل بين الإسطوانات غير المتوقفة مع بعضها على سبيل المثال (الأكمام والأستيلين).
4. تخزين الإسطوانات في الوضع الأرENTITY ويتسبب لها بإرسال سلسلة لمنع تشغيلها.
5. ضغط إنذار التآكل من أن إرسال الغاز معزول على الإسطوانة.
6. لا يتم قبول أي إسطوانة في حالة عدم التآكل من نوع الغاز المذكور.
7. يجب أن يتمكن الغاز بسعة جيدة ولا يوجد به مخالب إلا عند التزوير.
8. يجب وجود ورقة MSDS لكل سلالة مخزنة داخل الغاز.
9. يجب قص الإسطوانات وعمل أقليدات للضغط بصفة دورية وهي فترة زمنية محددة للتأكد من سلامتها وسلامتها وسلامتها استبدال النقاط منها مع التآكل من شهدة الصلاحية.
10. التآكل من وجود الكاب على الإسطوانة للحفاظ على البين.

ثانياً: تعليمات التداول للإسطوانات الغازية المحمولة

1. يجب عدم دورة الإسطوانات أثناء التنقل.
2. يجب استخدام وسائل نقل متخصصة للتداول الإسطوانات (كرالك أو شعابا).
3. يجب استبدال مساحة الوقاية اللازمة عند تشغيل الإسطوانات (حفرة الوجه وقفة الإسطوانات).
4. لا يلزم التخلص مع الإسطوانات إلا عن طريق أفراد يتم تدريموهم على التداول الأمان والتصغير في حالة الطوارئ.

لاستلام...

- تذكر تليفون‌الطلاء‌ ٢٤٠٠ ٧٠٤٠ ٤٤٠٠.
- عند الحاجة فوراً تلميع لتقوم بالتحرك عمودياً على إتجاه الدراج.
- في حالة الطوارئ تلميع تتجرك إلى أقرب مكان تجمع للطوارئ.
One way of doing this is to have regular meetings throughout, make sure keep a check on how the work is going against what we have agreed. Investigating if things go wrong, eg near misses, accidents, ill health and what went wrong and what can we do to prevent reoccurrence.

After the completion of the work, the work shall be received by a committee represented by one of the Occupational Safety and Health Officers and one of the environmental protection officials to ensure that the site is free of any hazards that may affect the workers as well as any environmental impacts.

Assess management of the health and safety performance of contractors by check list.

The best Activities Adopted

Our company and the contractors communicate with each other throughout the process. Make sure that the contractors and their employees have information on:

- Health and safety risks they may face.
- Measures in place to deal with those risks.
- Our emergency procedures.

The Added Value of The Best Practice

- Procedure enhancement
- More Assurance of Risk Control
- Communication Leader Ship and Accountability
- Occupational Health Enhancement
- Minimizing Environmental Impact
- Improved HSE Control on Contractors (Service Providers)
- Economic and Social Impact

Specify:

- Controlling work injuries
- Quick achievement of work
- Application of HSE standards
- Minimizing Environmental Impact
- Increased safety awareness
دليل السلامة للمقاولين الخارجيين

OH & S Instructions
For External Contractors
مقدمة:
شركة أبو قير للأسمدة والصناعات الكيمياوية تضع في أولوياتها توفير ظروف عمل آمنة وصحية لكل العاملين داخل الشركة.

سياسة الشركة:

مقدم:
شركة أبو قير للأسمدة والصناعات الكيمياوية تضع في أولوياتها توفير ظروف عمل آمنة وصحية لكل العاملين داخل الشركة.

هذه القواعد التعليمات تم وضعها طبقًا للقوانين المحلية وأسس السلامة العامة.
معلومات عامة

شركة أبو قير للأسمنت والصناعات الكيماوية مقسمة إلى:

1. مناطق محظورة "مناطق صناعية": (مصانع أبو قير A، B، C)
- السماد المخلوط - السماد السائل - المرافق - تداول الأسمادة - المشاريع الجديدة (لا يتم العمل لأي من المشاريع بالمناطق المحظورة إلا بعد استخراج تصريح العمل المناسب وتحت إشراف الجهة الطالبة ووجود مسئول عن الوحدة الإنتاجية محل العمل.

2. مناطق خارج المناطق المحظورة "مناطق إدارية": (المباني الإدارية - المحازن - التشويق - الحركة والأوناش - العبادة)

تعليمات دخول وخروج المهام والمواد إلى الشركة

- يجب رفعة الورقة الداخلية والداخلة من وإلى الشركة بواسطة مسئولي الأمن الميداني.
- السائق يجب أن يكون معه رخصة قيادة سارية.
- السرعة القصوى 25 كم/س.
- استخدام تصريح دخول مركبة مع ضرورة اتباع قائد أي مركبة لكافة اشتراعات السلامة عند دخول الورقة.
- يمنع دخول أي مواد قابلة للاشتعال بالمركبات الزائرة.
- الإشارة إلى الأماكن المحددة من شركة أبو قير للأسمنت والصناعات الكيماوية.

التعليمات النقل من وإلى الشركة

كل المركبات يجب رفاعة بواسطة الأمن الميداني.
السائق يجب أن يكون معه رخصة قيادة سارية.
السرعة القصوى 25 كم/س.
استخدام تصريح دخول مركبة مع ضرورة اتباع قائد أي مركبة لكافة اشتراعات السلامة عند دخول الورقة.
يمنع دخول أي مواد قابلة للاشتعال بالمركبات الزائرة.
الإشارة إلى الأماكن المحددة من شركة أبو قير للأسمنت والصناعات الكيماوية.
المتطلبات العامة التي يجب أخذها في الاعتبار من المقاول (تدرج بالمناقشة)

- مستوى سلامة: يجب على المقاول تكليف أحد أطرافه بمتابعة تنفيذ تعليمات واشتراطات السلامة بالموقع للعاملين طرفه.
- مهام الوقاية: يجب على المقاول توفير كافة مهام الوقاية اللازمة للأعمال المخاطرة. فرد إطفاء: يجب على المقاول توفير فرد إطفاء أثناء العمل.
- الإسعافات الأولية: تتواجد بالشركة عيادة مجهزة تجهيز كامل من حيث الأدوية والمواد الطبية اللازمة للإسعافات الأولية.
- توجد ممرض وطبيب طالب 24 ساعة بالعيادة.
- تقدم العيادة الطبية بالشركة كافة الإسعافات الأولية لأي مصاب طرف المقاول على أن ينقل إلى مستشفى خارجي في حالات الاحتجاج بمعرفة المقاول.
- توجد بالشركة سيارة إسعاف كاملة التجهيزات ويمكن استخدامها عند الحاجة.

المبادرات التدريبية لرفع مستوى الوعي بالسلامة والصحة المهنية وحماية البيئة

تقوم الشركة بعمل دورات تدريبية سريعة لمدة 3 ساعات للعاملين الجدد التابعين للمقاول ويجب عليهم بنجاح الاختبار المعد لهم أولاً كي يسمح لهم بالعمل داخل مواقع الشركة.

ما يجب اتباعه عند حدوث حادث

- يتم التصرف بأن يتم كسر زجاجة أقرب ذكر انذار بالشركة ويحرص ذلك على أي مقالب.
- او اتصل بقطاع السلامة على (2400 أو 7040).

المواقع:
- أبوقيرة 2: (الأمنية: 2500 - الحامض: 2510).
- المقاول: 2830 - المرافق: 2850.

السلاطنة:
- اتصل بالأمن الميداني على (2440 - 2450).
- اتصل بالعيادة على (2440 - 2450).

التطوارئ

سوف يتم الإعلان قبل عمل تجارب الطوارئ عن أماكن التجمع واللاصل من الوضعية الطارئ ويتواجد الإعلان الداخلي عنها وقت حدوث الطوارئ بحيث يتم التجمع في المناطق المثبت بها اللوحة التي تشير إلى ذلك.
تعليمات السلامة والأمن العامة في المناطق المحظورة

- يجب ارتداء الملابس المناسبة للعمل (قطنية).
- علق كارت الزيارة.
- لا يسمح بالتصوير الفوتوغرافي.
- الشجار واللعب بالأسلحة والمواد اللمتنة محظورة بشدة وغير مسموح بها.
- ممنوع الدخول للأفراد تحت تأثير مخدر أو كحوليات.
- على كل الأفراد اتباع تعليمات السلامة والأمن وعلامات المرور طوال الوقت.
- انتظار المركبات يجب أن يستغرق لمسافة لا تقل عن 5 متر عن أي حنفية حريق.
- التدخين ممنوع إلا في الأماكن المخصصة.

تعليمات السلامة والأمن العامة المناطق المحظورة

- يجب ارتداء خوذة وحذاء السلامة ونظارة السلامة و يتم استخدامهم طوال الوقت.
- يجب ارتداء مهات الوقاية الشخصية الخاصة بكل عمل على حدة وفقا للموضح بتصاريح العمل.
- ملابس مناسبة يجب أن يتم ارتدائها (قطنية).
- علق كارت التعريف أو الزيارة طوال الوقت.
- التدخين والشجار والولعات والكبريت والتدخين والسجائر والألعاب والسباقات وال솅ورة والمنظمات المحظورة للموقع.
- التصوير الفوتوغرافي ومصادر اللهب محظورة.

- ممنوع تناول الطعام والمشروبات داخل الوحدات.
- ممنوع اللعب أو الشجار.
- ممنوع دخول افراد تحت تأثير المخدر أو الخمور.
- ممنوع استخدام الهواتف الجوالة.

عند سماع إنذارات الطوارئ الصوتية، توقف العمل واتخاذ اللازم.

لا تتم أي أعمال بدون إصدار تصريح العمل المناسب والموثوق بصورة جميع بنوده، وتصريح العمل هو تلك الوثيقة القيادة، والأدلة، وثوابت الشركة والضرورية والتي تصف أي عملية وهو الضمان القانوني الوحيد الذي يضمن حق العمل في حالة تعرضه لأي إصابة وهو الوسيلة الوحيدة العرف بها لإبلاغ السلامة بمتلازمة العمل واتخاذ اللازم نحو تأمين العملية، ويجب عدم صدور تصريح لأي عملية تقع مستلزماته أساسا على المنفذ (المقاول في حالة العمليات المحدودة إلى المقاولين) ثم الجهة التي تم إصدارها هذا العمل، وعليه فإنه باكتشاف هذا الخلل في عمليات الوقاية لجهاز السلامة فإنه يفرض القانون بالعمل والعجزة الطالبة للمساهمة والخطيئة ويتخذ بناء على العملية المنفذة التدقيق الدقيق للعملية والإدارة الطالبة و الادارة المنفذة وقت بدء التنفيذ وقت انتهاء التنفيذ.

الوسائل التي اتخذت من الإدارة الطالبة للسيطرة، من أي خطأ قد يواجه المنفذ مع الاحترام على سلامة المعدات وثوابت حالة الصيانة واستقرارها سواء في العيارات المخططة أو التوقيفات المفاجئة،. الوسائل التي أتخذت من إدارة السلامة للحفاظ على سلامة القائمين بالعمل وكذا الحفاظ على سلامة المعدات وثوابت حالة الصيانة واستقرارها.

- حالة الصحة والسلامة العامة في المناطق خارج المناطق المحظورة.
- عند ممارسة أي عمل، يجب ارتداء الملابس المناسبة للعمل (قطنية).

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أوقائع أو الأبراج والخطوط الكبيرة
- الفلايات
- الأفران
- الحفر الأرضية ذات عمق أكثر من 4 أقدام (120 سم)
- تصريح خلقي اوعية: يستخدم لفلق أي وعاء مفتوح ويكوق عليه من الانتاج والصيانة والتقييم الهندسي والأمن الصناعي.
- تصريح حضر: وهو الحضر في الأرض لعمق أكثر من 15 سم
- تصريح دخول/ تشغيل مرتكبات: مثل دخول ونش شوكة أو سيارة أو ونش أو ماكينة لحام ديزل.
- تصريح إنشاء سقالة وتصريف استخدام سقالة: وهو تصريح لبناء واستخدام سقالات بكافة أنواعها
- تصريح عزل وتصريف كهرباء: تصريح يستخرج لعزل أو توصيل الكهرباء عن المعدات.
- تصريح تصوير إشعاعي: يستخرج عند استخدام مواد مشعة لتصوير اللحامات وخلافه.
- تصريح شحن نترات ساخنة.

خطوات اصدار تصريح عمل
- اطلب تصريح عمل اولا من منسول السماد(المستند عن العملية"مندوب الجهة المنتذة") قبل العمل بوقت كافه يجب أن يحتوي تصريح العمل على وصف مفصل للعمل المطلوب - مكان العمل بالضبط- الزمن المطلوب للعمل وعدد العمال والمعدات والأدوات المستخدمة
- من الأفضل أن يكون هناك لوحات توضيحية
- مسؤولية تجهيز تصريح العمل وتقديمه للممقاول تقع على مائق

وهو موضح في بعض الأوقائع والأنشطة الشخصية التي تتعين على القائم بالأعمال استخدامها.
- تصريح العمل يوضح بما بين العمل في موقع العملية من ضغط وحرارة ونسبة أكسجين وخلو موقع العمل من مسببات الإصابة الميكانيكية والكهربائية والكيميائية والطبية وسببات الاحتياجات والممارسات. 
- أنواع تنصير العمل

- تصريح العمل البارد: للعمليات التي لا ينتج عنها لهب او شرر مثل أعمال الفحص والتركيب بأدوات لانتجش شرر أو أصال طلبات وخلافه.
- تصريح عمل ساخن: للأعمال التي ينتج عنها لهب أو شرر مثل
- العمل بمعدات غير مضادة للانفجار.
- اللحام والتجليخ، القطع
- الحرق بواسطة لهب
- التصوير باستخدام فلاش وخلافه
- أعمال الرشمة.
- دخول الأوعية: وهو الدخول إلى أوعية أو أماكن مقفلة مثل
- الخزائن.

سواء في العمارات المخطط أو التوقفات المفاجئة ووضع به أيضا الأزهارات المتخصصة من إدارة السلامة لتقييم المخاطر من قياسات وإجراءات وقائية وتفتيشية على تطبيق المواصفات.
ينبغي عدم استخدام السقالات غير السليمة والغير آمنة.

**فحص ودراسة الحوادث وتحليلها**

ينبغي على مدير الموقع التابع للمقاول أو مسئول السلامة الخاص به إبلاغ قطاع السلامة بشركة بو كير للأسماحة في الحال كما يجب استكمال نموذج تقرير الإصابة بشركة بو كير للأسماحة خلال 24 ساعة من وقوعها.

وينبغي عمل نموذج تقرير الإصابة عند حدوث أي من الحالات الآتية:

- حوادث الجروح أو الشرب مما إصابته بسيطة
- حالات الوفاة داخل العمل
- الحوادث التي تنتج عنها تعطل العمل
- حوادث تصادم المركبات
- الحريق أو انفجار المواد الكيميائية
- أي تدهور أو توقف للمعدات المملوكة للشركة

**المراكب والمعدات المتحركة**

كل المركبات مثل (ونش شوكة – سيارات كبيرة – اوتومات ترسية بومة 000) يجب تشغيلها بواسطة سائق مرخص له بذلك.

ينبغي فحص المركبة بواسطة مختص من قطاعات الرفع والنقل قبل دخولها للشركة أو عملها بالموقع.

تتبع المراكب كافة مواصفات واحتياجات السلامة.

ينبغي ان تقوم المراكب بالانتظار في الأماكن المحددة لها وعدم الانتظار بجوار حشوات الحريق أو المباني أو معدات الإطفاء أو المركبات.

**مسؤول السماح**

- يجب اظهار التصريح لسنول السلامة عند طلبها.
- يجب وضع التصريح في مكان ظاهر بجوار مكان العمل ليسهل رؤيته.
- يجب ارتداء مكافحة للوقاية من حماية العين والوجه عند أيقاف العمل.

**مهمة الوقاية الشخصية**

- خذوة وحذاء سلامة ونظارة.
- الشتائم المحظورة.
- يجب ارتداء مكافحة خاصة لوقاية العين والوجه مثل واقية الوجه.
- جمع مركبات المناجم في مكان عام.
- يجب ارتداء مكافحة للسماد في حالة التعرض لضوء).

**السلاسلات**

- يجب استخدام حزام السلامة عند العمل.
- يجب استخدام حزام السلامة عند العمل.

**السلاسلات**

- يجب استخراج تصريح عمل قبل تركيب السقالة.
- يجب استخراج تصريح عمل قبل تركيب السقالة.

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- يجب استخراج تصريح عمل قبل تركيب السقالة.
- يجب استخراج تصريح عمل قبل تركيب السقالة.
التفتيش الدوري وكتابة التقارير

يتتم عمل تفتيش دوري على الوحدات الإنتاجية بواسطة مسند للسلامة وعمل تقارير عن ذلك وذلك لضمان العمل الآمن في مواقع العمل المختلفة.

الاتصالات والاجتماعات، يتم عمل اجتماعات دورية بين قطاع السلامة والسماد والمقال العام ومسند السلامة لديه وذلك لمناقشة الحوادث التي حدثت وسبباً وطرق تلافيها ومناقشة تقارير التفتيش على مواقع العمل الخاصة بالمقاول وإبلاغ المقال.

بما يستند من تعليمات.

المعدات الإنشائية

يجب على المقاول ارسال قائمة بالمعدات الإنشائية التي يستخدمها في أعماله للسماح لفحصها قبل الاستخدام وذلك يشمل كل المعدات الطوارئ، يتم العمل بها داخل الموقع بتصريح مسبق من إدارة الكهرباء وقطاع السلامة بالشركة.

ما يجب اتخاذه من إجراءات عند حدوث حالات الطوارئ:

- اختبارات الطوارئ: يتم إعلام المقاول عن مواعد اختبارات معدات الطوارئ وذلك للاستخدام الاختبارات اللازمة.

حالات الطوارئ الفعلية:

- أكسر زجاج الإنذار عن طريق العاملين بالشركة ويجعل قيام أي مقال بكسر زجاج الإنذار.

- اتصل تليفونياً بجهات الاختصاص على الأرقام بالبدن رقم.
شركة أبوقير للأسمدة والصناعات الكيماوية،
كبار شركات إنتاج وتسويق الأسمدة النيتروجينية والسائدة والمخلوطة في مصر؛ ويعتبر التزامها الكامل بالمطابقة مع نظم الإدارة المختلفة بالإضافة إلى مبادئ الحماية والاستدامة للاتحاد العالمي للأسمدة وترشيد الموارد الطبيعية داخل وخارج الشركة ضرورة أطلق عملها ولذلك يتعين على المقاولين والموردين الالتزام الكامل بتطبيق الضوابط التالية لمنع التلوث وتقليل الخطر:

- إتباع كل من تعليمات أثناء الشركة وتصاريح الدخول وتعليمات السلامة والصحة المهنية والبيئة ذات العلاقة.

- إلزام المقاول وقت التعاقد بتوفير مهام الوقاية للعاملين لديه، وفي حالة عدم توفيرها يتم استخدام مهام وقاية من الشركة عن طريق قطاع السلامة والصحة المهنية ويكون ذلك بالإيجار نظير مقابل مادي قاد تحت تنواع عليه خصما من مستحقاته.

- إناء المقاول بالتساوي إلى قطاعات السلامة والصحة المهنية وحماية البيئة قبل استلام الموقع للتفويض، بمحفظة مكاني من العمل المتعرض لها وحالات الطوارئ ومستفادة النموذج الخاص بكتاب القوى العاملة والالتزام بالبنود الموجدة بدليل السلمة الإعدادية بالمقاولين والمشرف كرسالة الشروط والتوقيع لدى قطاع السلمة وإن حالات وحالات مختلفة ذلك يتم خصم جزء من مستحقاته المالية.

- الحد الأدنى لملابس العمل في (الخوذة الوقائية - حذاء سلامة -)

غرامات مخالفة تعليمات السلامة على المقاولين:
- سوف يتم توقيع الغرامات على المخالفين:
  - التدخين في غير الأماكن مسموح بها:
    - غرامة 500 جنيه مصري.
  - الطرد من الشركة:
    - غرامة 100 جنيه مصري.
  - الإلغاء التعاقد:
    - غرامة 500 جنيه مصري.
  - دخول السيارات للمناطق المحظورة بدون تصريح:
    - غرامة 500 جنيه مصري.
  - السرية:
    - غرامة 100 جنيه مصري.
  - السرية الزائدة:
    - غرامة 100 جنيه مصري.
  - المنع من الدخول مرة أخرى:
    - غرامة 500 جنيه مصري.
  - مخالفات تعليمات السلامة ومهمات الوقاية:
    - غرامة 100 جنيه مصري.
  - الالتزام المقاول وقت التعاقد بتوفير مهمات الوقاية للعاملين لديه، وفي حالة عدم توفيرها يتم الإيجار نظير مقابل مادي قاد تحت تنواع عليه خصما من مستحقاته.
  - تحميل المقاول تكاليف الخسائر المالية والبشرية التي تسبب بها:
    - من حق الشركة مضاعفة أو فسخ العقد البرمجي بينها وبين المقاول في حالة تكرار المخالفة نفسها.
  - ضوابط التزام المقاولين والموردون تجاه البيئة والسلامة والصحة المهنية.
اتخاذ الإجراءات اللازمة التي تكفل حق الشركة والتي قد تأخذ إحدى أو كل الوجوه التالية حسب طبيعة المخالفة وهي:

■ إلغاء التعاقد.
■ الطالبة بالتعوض عن الأضرار الحادثة.
■ الإخلاء الفوري خارج أسوار الشركة أو توقيع غرامات على المقاول.
■ إعادة النظر في تقييم المقاول / مقدم الخدمة ببنية وسلامة وصحة مهنية.

لا يتم العمل بالمناطق المحظورة وهي جميع المناطق الصناعية إلا تحت إشراف الهيئة الطالبة وقائمة مستقلة من الموظفين ممن قایمون قبل مسؤولية مساعد العضد، وكذلك بالنسبة للعمل بالمناطق خارج المناطق المحظورة وهي جميع المناطق الإدارية كمخازن والمباني الإدارية.

■ عدم التوجول داخل الشركة إلا في مناطق العمل المصرح لها.

■ وتوصية كتابية من الجهة المختصة.

■ عدم تلوث الأرض بالزيوت والشحومات والوقود والعوادم والمواد الكيميائية.

■ مراقبة جودة وامن شحن المنتجات بسيارات الشحن بعد إتلاف البضائع أثناء الشحن والتفتيش والتقييم والتقويم.

■ التخلص الآمن من المخلفات الناتجة عن مخالفة، واتباع طرق تistique للتحويل.

■ رصد وتوفيرها مسئولية المقاول.

■ وتنظيم تدريبات ومواد الشركة.

■ تحديد العمل على المساحات الخضراء والمناطق المزروعة والأشجار.

■ عدم التعدي على المساحات الخضراء والمناطق المزروعة والأشجار.

■ اتباع تعليمات الزيادة في العمل الليالي واتخاذ نظارة واقية - ملابس Vest.

■ إعداد المواد الكيميائية والخطرة المطلوبة للمواصفات بموافقة كتانية من الشركة مع توفير تعليمات أمان هذه المواد.

■ عدم إتلاف تجهيزات ومواد الشركة.

■ الالتزام بالأنظمة ومناسبة معدات النقل وعدم استعمال آلة الترابية الالتزام بالسرعة القانونية للمعدات والسيارات داخل الشركة (25 كم/س) واتباع تعليمات المرور والإشارات بمناطق العمل.

■ إتباع طرق تشغيل وعمل قانونية وأمنة ومعنوية ومفهومة لدى القائمين بالتنفيذ.

■ مراقبة جودة وامن شحن المنتجات بسيارات الشحن بعد إتلاف البضائع أثناء الشحن والتفتيش والتقويم والتقييم.

■ وسوف تكون الشركة أي إهمال أو إخلال بهذه الضوابط باتخاذ الإجراءات اللازمة التي تكفل حق الشركة والتي قد تأخذ إحدى أو كل الوجوه التالية حسب طبيعة المخالفة وهـ:

■ إلغاء التعاقد.
■ الطالبة بالتعوض عن الأضرار الحادثة.
■ الإخلاء الفوري خارج أسوار الشركة أو توقيع غرامات على المقاول.
■ إعادة النظر في تقييم المقاول / مقدم الخدمة ببنية وسلامة وصحة مهنية.

■ عدم التدخين وشرب المشروبات وعدد إشغال أي نيران (لا يتقصى من قطاع السلاحية في حالة احتجاز العمل لذلـك مثل أعمال عزل أسطح المنازل) وعدم استخدام السحابات والآلات غير القانونية وغير الامنة.

■ مراقبة جودة وسلامة وقانونية التوصيات الكهربائية للمعدات والأنشطة والاستخدامات الأخرى واتخاذ مبادرات لحجز واتخاذ الإجراءات معايرة وطريقية.

■ عدم التدخين وشرب المشروبات وعدد إشغال أي نيران (لا يتقصى من قطاع السلاحية في حالة احتجاز العمل لذلـك مثل أعمال عزل أسطح المنازل) وعدم استخدام السحابات والآلات غير القانونية وغير الامنة.

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The company is interested in increasing awareness of occupational safety and health regulations and protecting the environment through the company’s training center, which provides more than one program for the instructions and standards of the application of safety and occupational hygiene and protection of the environment inside the company through the employees. This program is provided to new employees who are recently joined the company. Employees of all sectors of the company are also divided into groups that are provided with periodic and frequent programs to maintain and maintain the highest standards of safety.

Specific file was compiled for all the chemicals in the company explaining all the health and environmental hazards in addition to the risks of fire and Chemicals Handling. NFPA Diamonds have been displayed as a safety sign in different locations in the company.

Programs are presented as follows:
- Chemical hazards
- Physical hazards
- Confined space and working at heights.
- Environmental Protection program
- Safe work permit
- Hazard control and PPE
- Static and current electrical hazards
- Fire safety
- Safety Transportation And Handling
- Emergency Management Planning
- Hazard Area Classification
- Interacting with hazardous material
ABU QIR CO.

Improving safety preventive inspection

The Added Value of The Best Practice

More Assurance of Risk Control:
Occupational health Enhancement:
Minimizing Environmental impact:
Economic Impact:

Specify:
- Decreasing No of incidents & accidents all over the company.
- Lowering usage of paper documents
- Improving of communication skills
- Improving the rule of HSE team
- Speeding up the correction action plans.

THE COMMON PRACTICE KNOWN

The safety tour was taking place in the regular activity of HSE team in the HSE sectors every shift to identify any hazard or risk all over the company (site & administration buildings) without a planned strategy.
ABU QIR CO.
Issues of the new System
Conversion of the regular safety tour inspection to a specific check list form

**Conversion features**
- Increasing the communication skills between all departments
- Accelerate the operation of correction action plan to avoid any accidents
- Decreasing the accidents rates
- Increasing the performance of HSE
- Increasing the rule of each labor in the enhancement of HSE all over the company

**SUPPORTIVE DOCUMENTS AND/ OR PHOTOS**

### Roads inspection

<table>
<thead>
<tr>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>between Abwa air 162</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date:</th>
<th>Name:</th>
<th>Inspection items</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/9/2017</td>
<td></td>
<td>Lighting</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sewer opening</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Floor shape</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Un used Scaffold</td>
<td>Non</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cable tries</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Drains on the floor</td>
<td>Non</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Garbage</td>
<td>Non</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plants</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fire fighting boxes</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency boxes</td>
<td>good, missing one chemical hose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cross roads mirrors shape</td>
<td>needs cleaning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Instruction</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Platform shape</td>
<td>good</td>
</tr>
</tbody>
</table>
### Workshop inspection

<table>
<thead>
<tr>
<th>Workshop name: electricity</th>
<th>Workshop location: Abuair 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection list</td>
<td>Notes</td>
</tr>
<tr>
<td>Doors &amp; windows validity</td>
<td>good</td>
</tr>
<tr>
<td>Electrical junction</td>
<td>good</td>
</tr>
<tr>
<td>Passes and routes</td>
<td>clean</td>
</tr>
<tr>
<td>Tools validity</td>
<td>good</td>
</tr>
<tr>
<td>Lighting intensity</td>
<td>good</td>
</tr>
<tr>
<td>Suspended lift validity</td>
<td>good (inspect date valid)</td>
</tr>
<tr>
<td>Roof validity</td>
<td>good</td>
</tr>
<tr>
<td>Ventilation</td>
<td>good</td>
</tr>
<tr>
<td>Firefighting extinguisher</td>
<td>good</td>
</tr>
<tr>
<td>Emergency exits</td>
<td>clean</td>
</tr>
<tr>
<td>House keeping</td>
<td>Not good</td>
</tr>
<tr>
<td>Shelves validity</td>
<td>good</td>
</tr>
<tr>
<td>Transportation facilities</td>
<td>good</td>
</tr>
<tr>
<td>Accommodation validity</td>
<td>Not clean</td>
</tr>
<tr>
<td>Smoking area</td>
<td>clean</td>
</tr>
<tr>
<td>Nearest assembly point</td>
<td>clear</td>
</tr>
<tr>
<td>Storage divisions layout</td>
<td>clear</td>
</tr>
<tr>
<td>Flammable material existence</td>
<td>yes</td>
</tr>
<tr>
<td>Passes and routes</td>
<td>clear</td>
</tr>
<tr>
<td>Smoke detectors validity</td>
<td>good</td>
</tr>
</tbody>
</table>

- **Date:** 6/1/2017

### Store inspection

<table>
<thead>
<tr>
<th>Store name: civil store</th>
<th>Store location: Abuair 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection list</td>
<td>Notes</td>
</tr>
<tr>
<td>Doors &amp; windows validity</td>
<td>good</td>
</tr>
<tr>
<td>Electrical junction</td>
<td>good</td>
</tr>
<tr>
<td>Passes and routes</td>
<td>clean</td>
</tr>
<tr>
<td>Storage material height</td>
<td>good</td>
</tr>
<tr>
<td>Lighting intensity</td>
<td>good</td>
</tr>
<tr>
<td>Suspended lift validity</td>
<td>Non</td>
</tr>
<tr>
<td>Roof validity</td>
<td>good</td>
</tr>
<tr>
<td>Ventilation</td>
<td>good</td>
</tr>
<tr>
<td>Firefighting extinguisher</td>
<td>good</td>
</tr>
<tr>
<td>Emergency exits</td>
<td>clean</td>
</tr>
<tr>
<td>House keeping</td>
<td>good</td>
</tr>
<tr>
<td>Shelves validity</td>
<td>good</td>
</tr>
<tr>
<td>Transportation facilities</td>
<td>good</td>
</tr>
<tr>
<td>Safe storage instruction</td>
<td>good</td>
</tr>
<tr>
<td>Computability</td>
<td>clean</td>
</tr>
<tr>
<td>Smoking area</td>
<td>clean</td>
</tr>
<tr>
<td>Nearest assembly point</td>
<td>clear</td>
</tr>
<tr>
<td>Storage divisions layout</td>
<td>good</td>
</tr>
<tr>
<td>Flammable material existence</td>
<td>yes</td>
</tr>
<tr>
<td>Passes and routes</td>
<td>clear</td>
</tr>
<tr>
<td>Smoke detectors validity</td>
<td>good</td>
</tr>
</tbody>
</table>

- **Date:** 5/19/2017
The Added Value of The Best Practice

Procedure Enhancement:

More Assurance of Risk Control:

Communication, Leadership and Accountability:

Improved HSE control on Contractors (service Providers):

Economic and social Impact:

Specify:

- Use investigation results to improve safety systems, hazard control, risk reduction, and lessons learned.
- Near miss reporting is vitally important to preventing serious, fatal and catastrophic incidents that are less frequent but far more harmful than other incidents.
- Collection sufficient data for statistical analysis, correlation studies, trending, and performance measurement

Best Activities Adopted

- Provide convenient opportunity for "employee participation," a basic component of a successful safety management system.
- Create an open culture whereby everyone shares and contributes in a responsible manner to their own safety and that of their fellow workers.
- Can be considered to be a leading indicator of performance used in balance with other leading and lagging measures of performance.
- Ensure that the near miss reporting process is easy to understand and use.
- Lower costs by lowering usage of paper
- Better targeting of resources
- More effective use of management time
- More efficient use of safety professional resources
- Faster visibility to higher risk activities
- Faster closure of corrective actions

ABU QIR CO.

Electronic near miss reporting

The common practice known

Near miss is an unplanned event that has the potential to cause, but does not actually result in human injury, environmental or equipment damage, or an interruption to normal operation.

Near miss is often an error with harm prevented by other considerations and circumstances.

The hand written form of near miss is used. The employee can report a near miss, and then he delivers it by hands to any safety responsible. At finish, it arrives to HSE manager. Workflow of near miss takes some time.

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**ABU QIR CO.**
Supportive Documents and / or Photos

*The old written document*
نظام الحدث الوشيك

شاشة تسجيل الدخول

- يقوم العامل بتسجيل الدخول على النظام من خلال اسم المستخدم وكلمة المرور الخاصة بخدمات العاملين.

شاشة تسجيل الحدث الوشيك و الاقتراحات

- تسجيل السنة ورقم الحدث تلقائي من خلال النظام.
- يحدد المستخدم موقع الحدث ووصف المشكلة.
<table>
<thead>
<tr>
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المسؤولية والأمان والصحة المهنية

- تعليم حدوث الجهاز من خلال العاملين.

- يقوم المسؤول بسلامة الصحة المهنية بالتأكيد من صححة الحدث وتحديد إذا كان صحيحًا أو غير صحيح.

- إذا تأكد من صحة الحدث يقوم بالضغط على زر action لوصف العمل الذي قام به.

حل المشكلة
<table>
<thead>
<tr>
<th>Chief Activity Incident</th>
<th>Notes</th>
<th>Action</th>
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<th>The Incident Manager</th>
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**Screen of Activity Chief**

After forming the Safety Responsible and the Vocational Health, to fulfill from the incident, an incident form for the Chief Activity Responsible and the Vocational Health, and protection will be sent to do what was formed to be responsible for the activity Chief of Treatment of the Problem (Incident Topic).
ABU QIR CO.

Ammonia Wet Scrubbing System to control ammonia emissions from vent stack of urea plant Abu Qir 1

Best Activities Adopted
The most common effective control device used to control ammonia emissions is the wet scrubber which plays the role of absorption. The success of the scrubber is dependent on the solubility of a gas in the scrubbing liquor. Since ammonia is highly soluble in water, the wet scrubber is effective in controlling ammonia emissions. Control efficiencies up to 99% have been demonstrated in most applications. Through absorption, gaseous material (ammonia) is collected through direct contact with a scrubbing liquid (water). A wet scrubber was installed in the vent stack of Abu Qir 1 and operated by introducing the scrubbing liquid (water) through spraying nozzle into industrial exhaust stream. Ammonia gas is collected in the water (scrubbing liquid) and the ammonia solution is collected in the collecting tank. Figure (1) shows the ammonia wet scrubbing system installed in the vent stack of Abu Qir 1.

Ammonia concentration in vent stack of urea plant Abu Qir 1 became high and near the law limit. The main local problem of ammonia released into air is the unpleasant odor, which is detectable even at low concentrations where its threshold of smell reach 4.7 ppm. At particularly high concentrations it can also harm vegetation.

The common practice known

Ammonia solution which was collected, concentrated and sold to other chemical plants to be used in De NOx System which is used for removing NOx gases from industrial exhaust streams and other chemical products.

The Added Value of The Best Practice
- Improving the environmental performance of Abu Qir Fertilizers Co. through Pollution Prevention.
- Cost saving
- Economic Value
- Social responsibility
- Compliance with local codes
Specify:
- Prevent ammonia pollution
- Prevent environmental penalties
- Increase the income by marketing ammonia water
- Prevent complains of neighboring

Issues of the new System
Ammonia Wet-Scrubbing System not only Prevent Pollution and Prevent complains of neighboring but also became a source of income

Supportive Documents and / or Photos
Figure (1) shows the ammonia wet scrubbing system installed in the vent stack of Abu Qir 1.
Best Activities Adopted

In Abu Qir Fertilizers Co. process for the removal of carbon dioxide from high-pressure gases use aqueous potassium carbonate systems promoted by Diethanol amine as activator (Benfield Solution) according to the following equation:

\[ \text{K}_2\text{CO}_3 + \text{CO}_2 \rightarrow \text{H}_2\text{O} + 2\text{KHCO}_3 \]

The above equation is a summation formula, which is valid for stoichiometric calculations only. The reaction actually takes place in several steps. During absorption, the reaction proceeds from left to right (Absorber), during regeneration from right to left (Desorber). The reaction equilibrium depends on the temperature and the pressure (5).

The stream from the CO2 scrubbing unit is contaminated with potassium carbonate. The modification of the CO2 scrubbing unit was proposed by installing an additional tower where the CO2 product was washed with process water to eliminate the potassium carbonate carry-over and the potassium carbonate was recycled to the desorber.

As illustrated here below, the proposed new section consisted of (Figure 2):

Figure (2) :Simplified flow sheet of Process Condensate Recovery Unit

The common practice known

In Abu Qir ammonia plant #1 there are two streams of process condensates- generated by the plant-contaminated with ammonia, methanol and carbon dioxide. Unfortunately, these process condensates could not be recycled to the steam system and represented a source of pollution for the environment.
- A stripping column where the process condensates are contacted with the L.P. steam in a countercurrent flow;
- A process condensates pre-heater where the column liquid feed is pre-heated at the expense of the column liquid product;
- A process condensates cooler where the process condensates are finally cooled with cooling water to a temperature suitable for the ion resins operation;
- A process condensates pump suitable to pump the column feed to the top of the stripper;

The purified water from the bottom of the stripping column was directed to a heat exchanger, exchanging heat with the process condensate feed, and on to the demineralization plant. The flow rate was controlled by the tower level controller, to maintain a level in the column.

Steam generator was applied to the system to allow heat exchanging between Low pressure contaminated Steam and demineralized water in order to generate clean steam.

**The Added Value of The Best Practice**

**The benefits achieved by the installation of the new process condensate recovery unit:**

- Reduction of the environmental pollution due to liquid effluents.
- Recovery of the process condensate as feed water for the steam system

**Specify:**

- Prevent pollution
- Water Conservation
- Economic Value
- Higher efficiency of the production process

**Issues of the new System**

The final product of the new stripping section is almost pure water that can be sent to the existing ion resins units and mixed with the boiler feed water directed to the steam system.
HSE AREA OF PRACTICE:

Modified Work Program for returned injured employees as Safety Proactive approach to safe and productive work environment.

THE COMMON PRACTICE KNOWN

Employee gets injured at work and receive a notice from a doctor that prevents him or her from coming back to work because they are not able to function at their assigned duties. Which can trigger the following:

- An obligation to report the matter to the authorities
- An obligation to pay the employee's medical expenses and salary
- **An obligation to pay compensation to the employee**
- An obligation to pay fines to the relevant ministry
- Less productive workforce.
- High costs due to overtime pay as other workers fill in.
- High absenteeism and days away from work.

The Best Activity(ies) adopted

**Modified Work Injury Policy:**

Arab Potash Company supports the concept of early intervention and modified work programs to keep employees actively working, or to return workers to their regular duties at the earliest possible time. Modified work is meaningful and productive, with a clear plan to rehabilitate the employee and safely return them to their pre-Injury job without risk of re-injury to self or others.

Goal of the Modified Work Program is the safe, rapid return of our injured employees to regular employment. We believe that our employees’ needs and the needs of Arab Potash Company are best served when our employees are able to maintain some form of medically appropriate employment from the time they are injured until the time they would be able to return to their regular employment.

Employers and employees benefit from encouraging employees who have been injured on the job to get well and return to work as soon as possible. An injured worker is less likely to return to work the longer he or she is on leave. Modified Work Programs can help facilitate an employee to be able to stay at work while recovering from his or her illness or injury.

The benefits of Modified Work Program for employers include:

- More productive workforce.
- Reduced the costs that caused by having to pay overtime.
- Reduces the administrative costs that is associated with filling the position with temporary help.
- Control the employee compensation claims.
- Reduced short-term disability.
- Reduction in the absenteeism and the employee’s days away from work.
How employees benefit from a Modified Work Program:

- Maintain their earnings from work.
- Maintain their skills and they would have the opportunity get more training in their area of work in different capacity and training in other positions in different department or training that would help them in their current position which will add their level of productivity and their level of contribution to the organization.
- They are more likely to return to their pre-injury jobs more quickly.
- Improve and or maintain employee mental aspect giving that even with injury he is still a productive individual and maintain his individual self-worth.

More Assurance of Risk Control:
Modified Work Program philosophy is to control and minimize the effects of disability on the work place. Employees are the company most valuable resource and any injury/illness can interrupt the work activities and keeps employees away from work.

Main goal of Modified Work Program is to ensure safe return of employees to provisional or regular employment. Research has shown that people recover more quickly if they remain active and return to their normal routine.

Employee access to modified duties, which are approved by employee physician. As participants in a Modified Work program, employees become involved in the decision-making process related to the design of the Modified Work employment. Employees also will maintain their earnings and benefits, such as sick leave, annual leave, etc.

Communication, Leadership and Accountability:
Modified Work Program enhance the level of the communication between all involved, it is critical to the success of the program and the employee rehabilitation. Maintaining good communication from the point of injury to the point of recovery is important.

Employee Department, Safety Department, HR and Medical department are committed to maintain communication with the employee in regards to the Modified Work Program in all of steps of the program. Accountability falls on all who is involved to communicate and organize a successful program.

Occupational Health Enhancement:
The Modified Work Program is designed to reduce the negative impact of job-related injuries and illnesses. Studies have shown that injured workers recover faster when they have the opportunity to participate in Modified Work Program. Studies
also indicate such a program can have a positive impact on employee morale for both the injured worker and their co-workers and decrease employee turnover.

**Improved HSE Control on Contractors (Service Providers):**

At any time there are contractors who work together with APC departments; Modified Work Program change their view to accept the human meaning of safety and care of employees and encourage them enhance safety precautions in their workplaces.

**Economical and Social Impact:**

The benefits of Modified Work Program for employers include; More productive workforce, Reduce the costs that caused by having to pay overtime, Reduce the administrative costs that is associated with filling the position with temporary help, Control the employee compensation claims, Reduce short-term disability, Reduce the absenteeism and the employee’s days away from work.

Employees benefit from a Modified Work Program, so they maintain their earnings from work. Maintain their skills and get more training in their work in different capacity and training in other positions in different department or training that would help them in their current position which will improve productivity and contribution to the APC.

Employees are more likely to return to their pre-injury jobs more quickly by the support of families that see their members return to work with welcome by APC. Improve and or maintain employee mental aspect giving that even with injury he is still a productive individual and maintain his individual self-worth. Employees also will maintain their earnings and benefits, such as sick leave, annual leave, etc.

**Supportive Documents**

![Work Restrictions Form](image)
Modified Duty Progress Report Form

<table>
<thead>
<tr>
<th>Employee Name:</th>
<th>ظروف المتابعة التي تأتي مع هذه الصعوبات أو الملاحظات الإضافية:</th>
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<tbody>
<tr>
<td>Evaluator:</td>
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<tr>
<td>Position:</td>
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<tr>
<td>Job Title / Directorate:</td>
<td>ب) ما هي الترتيبات التي بذلت لمعالجة هذه الصعوبات أو الملاحظات الإضافية:</td>
</tr>
</tbody>
</table>

Please note observations related to job duties as indicated in modified work plan.

A) Overall ability to perform the job duties. Outline any difficulties regarding the performance of the specific tasks.

B) What arrangements have been made on the job to address these difficulties or concerns?

Additional Comments:

---

Is further medical evaluation necessary?

- Yes 
- No

Have you discussed this report with the employee?

- Yes 
- No

Evaluator Signature: 

Superintendent Signature: 

Director Signature: 

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ARAB POTASH COMPANY

Modified Work Injuries

Arab Potash

ARAB POTASH COMPANY

Modified Work Evaluation - Return to Work Authorization

Patient Name: 

Date: 

Physician: 

Work related injury/illness:

- Yes
- No

Work Restrictions:

- Work
- Home
- Leisure
- Others

Activity / أنشطة

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<th>Activity</th>
<th>ابداً</th>
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<th>طبيعي</th>
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<td>Lift and Carry:</td>
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<td>Neck extension or hyperflexion</td>
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<td>Driving</td>
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<td>Stairs Climbing</td>
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<td>Exposure to water</td>
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<tr>
<td>Work in confined spaces</td>
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<td>Others</td>
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ARAB POTASH COMPANY

Modified Work Injuries

Arab Potash

ARAB POTASH COMPANY

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<tr>
<td>المحتوى بالإنجليزية</td>
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<tr>
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<td>Company Name: Arab Potash</td>
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<th>In my opinion, these restrictions or limitations are temporary for a period of:</th>
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<th>توقيع الطبيب</th>
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<th>I the undersigned hereunder recognize:</th>
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The validity of the medical report issued by the treating physician that indicating my ability to work and the accurate constraints mentioned above, and realize the applicability and availability adjustments to work at the company according to the developed program, and I will observe all the above constraints and cooperation with my supervisor while applying modified work otherwise I will take full resulting responsibility.

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| Date: / / |

| التاريخ: / / |

**THE BEST PRACTICE IN H.S.E** 227
Thank You ..