ABOUT SAFCO

Saudi Arabian Fertilizer Company (SAFCO), Joint Stock company established on 7th September 1965.

SAFCO is the first petrochemical company in the Kingdom of Saudi Arabia. It started in Dammam producing Ammonia, Urea, Melamine & Sulphuric Acid and plant closed in 2008.

Current SAFCO manufacturing facilities are located in Jubail Industrial City. The year of commissioning and production capacities of its plants are;

<table>
<thead>
<tr>
<th>Plant</th>
<th>Year of Comm.</th>
<th>Name Plate Capacity (TPD)</th>
<th>Ammonia</th>
<th>Urea</th>
<th>CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFCO-2</td>
<td>1993</td>
<td></td>
<td>1500</td>
<td>1800</td>
<td>-</td>
</tr>
<tr>
<td>SAFCO-3</td>
<td>2000</td>
<td></td>
<td>1500</td>
<td>1800</td>
<td>-</td>
</tr>
<tr>
<td>SAFCO-4</td>
<td>2006</td>
<td></td>
<td>3300</td>
<td>3600</td>
<td>-</td>
</tr>
<tr>
<td>SAFCO-5</td>
<td>2015</td>
<td></td>
<td>-</td>
<td>3600</td>
<td>-</td>
</tr>
<tr>
<td>IBM AL- BAYTAR</td>
<td>1987-1991</td>
<td></td>
<td>1500</td>
<td>1500</td>
<td>3000</td>
</tr>
<tr>
<td>UFC 1 &amp; 2</td>
<td>2006-2015</td>
<td></td>
<td>180</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

TOTAL PRODUCTION PER YEAR
7 MILLION TONS
OF AGRICULTURAL NUTRIENT PRODUCTS

VISION & MISSION

Vision
To be a leading manufacturer of quality fertilizer products globally.

Mission
• To ensure that our facilities are operated safely and profitably in a manner that protects the environment, community and our assets.
• To supply outstanding quality products.
• To ensure that our human resources are competent, challenged in a positive work environment.
• To ensure customer satisfaction and stakeholder interest.

LIFE-SAVING RULES

Familiarize the ten Life-Saving Rules (LSR) and adhere to the safe work practices to avoid personal injuries.
<table>
<thead>
<tr>
<th>S. No</th>
<th>Name of EHSS Practices</th>
<th>Category</th>
<th>Page#</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SAFCO Company Profile</td>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Department EHSS KPI Procedure</td>
<td>Safety</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Effectiveness of EHSS Awareness Program Evaluation Form</td>
<td>Safety</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>EHSS Incident Including Near miss Analysis by team</td>
<td>Safety</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>EHSS Incident Investigation Type – Selection Guidelines by factors</td>
<td>Safety</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>Confined Space Simulator as physical training method</td>
<td>Safety</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>Effective management of turnaround EHSS KPI’s</td>
<td>Safety</td>
<td>24</td>
</tr>
<tr>
<td>8</td>
<td>Be Safe Work Safe Campaign</td>
<td>Safety</td>
<td>35</td>
</tr>
<tr>
<td>9</td>
<td>SELFI</td>
<td>Safety</td>
<td>39</td>
</tr>
<tr>
<td>10</td>
<td>Fire</td>
<td>Safety</td>
<td>43</td>
</tr>
<tr>
<td>11</td>
<td>LP Injection steam to Co2 compressor turbine in IBB plant</td>
<td>Environment</td>
<td>47</td>
</tr>
<tr>
<td>12</td>
<td>Key performance indicators for Sustainability Evaluation in Fertilizer Industry</td>
<td>Sustainability</td>
<td>49</td>
</tr>
<tr>
<td>13</td>
<td>Enhanced Audiogram Evaluation by SHEM-12.04 Hearing Conservation Program</td>
<td>Health</td>
<td>58</td>
</tr>
<tr>
<td>14</td>
<td>Heat Stress Monitoring</td>
<td>Health</td>
<td>61</td>
</tr>
<tr>
<td>15</td>
<td>Illumination Monitoring</td>
<td>Health</td>
<td>64</td>
</tr>
<tr>
<td>S. No</td>
<td>Name of EHSS Practices</td>
<td>Category</td>
<td>Page#</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>-------</td>
</tr>
<tr>
<td>16</td>
<td>Medical ID</td>
<td>Health</td>
<td>68</td>
</tr>
<tr>
<td>17</td>
<td>Random Health Assessment</td>
<td>Health</td>
<td>71</td>
</tr>
<tr>
<td>18</td>
<td>World Environment Day and Exhibition 2011</td>
<td>Environment</td>
<td>75</td>
</tr>
<tr>
<td>19</td>
<td>EHSS Communication</td>
<td>Safety</td>
<td>79</td>
</tr>
<tr>
<td>20</td>
<td>EHSS Incident Reminder Board at jobsite</td>
<td>Safety</td>
<td>92</td>
</tr>
<tr>
<td>21</td>
<td>Major Emergency Drill</td>
<td>Safety</td>
<td>94</td>
</tr>
<tr>
<td>22</td>
<td>Effective hazardous and nonhazardous waste management</td>
<td>Environment</td>
<td>99</td>
</tr>
<tr>
<td>23</td>
<td>Green House Gas (GHG) emission reduction from SAFCO complex</td>
<td>Sustainability</td>
<td>103</td>
</tr>
<tr>
<td>24</td>
<td>Environmental Monitoring of industrial waste water and emission from point sources</td>
<td>Environment</td>
<td>107</td>
</tr>
<tr>
<td>25</td>
<td>Urea Granulator Ammonia Abatement (UGAA) project</td>
<td>Environment</td>
<td>109</td>
</tr>
<tr>
<td>26</td>
<td>Environmental monitoring of ambient air quality</td>
<td>Environment</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>(Ammonia fence line monitoring)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Carcinogen Monitoring</td>
<td>Health</td>
<td>115</td>
</tr>
<tr>
<td>28</td>
<td>Stress Test</td>
<td>Health</td>
<td>117</td>
</tr>
<tr>
<td>29</td>
<td>Senior Management EHSS Walkthrough</td>
<td>Safety</td>
<td>120</td>
</tr>
</tbody>
</table>
LOST TIME INJURY: Employee

SELF1#2017-04-NT/SAIP

27/03/2017
**EHSS incident notification details**

<table>
<thead>
<tr>
<th>DATE</th>
<th>LOCATION</th>
<th>SEVERITY</th>
<th>CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 MARCH 2017</td>
<td>CARTAGENA – SABIC IP</td>
<td>B</td>
<td>LOST TIME INJURY EMPLOYEE</td>
</tr>
</tbody>
</table>

**INCIDENT DESCRIPTION**
On 11th March 2017, at 19:00 hrs. An employee sprained her ankle when she stepped on a trench in the floor. The operator received first aid in the site clinic and transferred to hospital for further treatment.

**REFERENCE INCIDENT SOURCE**
- SABIC EHSS INCIDENT NOTIFICATION / OTHER
- SAFCO EHSS Incident Notification

**PREVENTIVE ACTION / SAFE WORK PRACTICE**
The following proactive measures also be considered while walking on floor levels, nearby / crossing trench in SAFCO/IBB facility:

- Beware of slip hazard while walking on floor, nearby or across grating over trench.
- Use always pedestrian walkway while walking inside plant premises
- Never attempt to cross trench if you noticed without cover/ defective cover/platform with handrail/ damaged edge of trench path.
- Defective safety shoes shall not be worn.
- Recognize the hazards and require corrective action immediately when it is identified.
- Any changes/modification in facilities including trench and its connecting channels shall be in line with change management system.
- Hazard marking signs shall be painted both side of trench available in the facility for ease identification.
- Post/Keep Caution sign board if trench/its distribute channel not in visible.
- Report damaged trench, floor level, and walkways for immediate corrective action.
- Advise personnel if not following identified walkway/pedestrian cross while walking.
- Remember to walk on floor, step down and up slowly.
- Avoid distraction while walking or patrolling inside plant premises.

**SAFCO SHEM PROCEDURE REFERENCE**
- SHEM08.01 General EHSS Rules.
Department EHSS KPI Procedure
HSE Best Practice
The Common Practice Known

Unique innovative approach to improve and sustain EHSS performance by implementing Department EHSS KPI Procedure which was developed and implemented in line with recognized industry (SABIC), national and international metrics. EHSS KPI was developed and implemented for individual departments at SAFCO.

The purpose of this procedure is to quantitatively measure the EHSS Performance of each department as per the approved EHSS Key Performance Index. EHSS KPI was developed based on EHSS criteria and its applicability for a particular department. The departments are grouped based on similar functions like operations, maintenance, supporting departments. The criteria points are provided in excel sheet format for simple and easy computing up the relevant data against each criteria. Each department reviews EHSS KPI in their monthly department EHSS Meeting and submits the same to safety section, for record keeping and to track performance. EHSS KPI target is set as one of the annual EHSS goals every year. The departments are audited once in six month to verify and confirm for compliance of department KPI with the supporting documents. This EHSS KPI serves dual purpose as to measure the individual department EHSS performance and helps in close monitoring for taking corrective actions to achieve the target.

The best performed departments in their respective divisions / groups are recognized. To motivate and maintain healthy competitive environment among the employees, department which obtains the highest score (more than 90%) in the final audit are recognized.

To motivate and maintain healthy competitive environment among the employees, department which obtains the highest score (more than 90%) in the final audit are recognized. SAFCO has achieved continual improvement in EHSS performance after implementing this procedure and serves as best tool to monitor and enhance EHSS performance. Above mentioned divisions are audited once in six month to confirm the compliance, score achieved and to select the best performers.
The Best Activity(ies) adopted

The departments are engaged to comply with EHSS KPI criteria requirements to meet the target set as one of the EHSS goals for company.

The Added Value of the Best Practice:

Procedure enhancement:
EHSS KPI procedure is one of the tools to enhance Organization EHSS culture and intended to improve organization performance.

More Assurance of Risk Control:
The criteria is covering risk control programs like PHA, Mechanical Integrity.

Communication, Leadership and Accountability:
After conducting KPI compliance and verification audit, the departments are recognized for achieving high score by Senior Management Team.

Occupational Health Enhancement:
The criteria’s are included Hearing conservation Program and Compliance to SHEM 12 procedures.

Minimizing Environmental Impact:
The criteria is covering potable water consumption, waste management and regeneration and compliance to other Environment procedure requirements.

Improved HSE Control on Contractors (Service Providers):
The criteria is included to prevent contractor incidents, trainings to contractor’s employee and involvement and participation in awareness program.
### Effectiveness of EHSS Awareness Program Evaluation From

<table>
<thead>
<tr>
<th>S. NO</th>
<th>QUESTIONS</th>
<th>ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is programs identified the followint A. Objective; B. Subjects, C. Target People; D. Benefit to participants E. Procedure; F. Sharing learning from incidents and G. Conclusion of the Program.</td>
<td>NO</td>
</tr>
<tr>
<td>2</td>
<td>Is EHSS Awareness program covers any one of the topic (Environment, Health, Safety and Security) areas.</td>
<td>NA</td>
</tr>
<tr>
<td>3</td>
<td>Is EHSS Awareness program developed based on the activities, identified gaps from various EHSS Findings and previous year EHSS Incident Analysis common causes.</td>
<td>YES</td>
</tr>
<tr>
<td>4</td>
<td>Is awareness program schedule communicated through SAFCO General Announcement before 5 working days for conducting the program.</td>
<td>NA</td>
</tr>
<tr>
<td>5</td>
<td>Is program schedule &amp; its messages displayed at SAFCO/IBB Main Gates, LCD screens and scheduled location.</td>
<td>NO</td>
</tr>
<tr>
<td>6</td>
<td>Is program conducted any one of the creativity such as workshop, field demonstration, exhibitions, Open days, Seminars, and campaign including class room training.</td>
<td>NA</td>
</tr>
</tbody>
</table>

Select Answer - Yes or No or NA in «C» Column box to measure the «Effectiveness of EHSS Awareness Program» conducted in SAFCO/IBB

### Effectiveness of EHSS Awareness Program Evaluation From

<table>
<thead>
<tr>
<th>S. NO</th>
<th>QUESTIONS</th>
<th>ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Is program opened by any one of the Senior Management Team Member</td>
<td>YES</td>
</tr>
<tr>
<td>8</td>
<td>Is the program conducted in company level including IBB</td>
<td>NA</td>
</tr>
<tr>
<td>9</td>
<td>Is program organizer distributes the publication (leaflets, booklets, posters and banners) as part of program.</td>
<td>NO</td>
</tr>
<tr>
<td>10</td>
<td>Is awareness program materials (such as presentations, leaflets, banners, posters) used meeting SABIC Branding Standards and SAFCO reputation.</td>
<td>NA</td>
</tr>
<tr>
<td>11</td>
<td>Is participation of the Employees and Contractors encouraged in program.</td>
<td>YES</td>
</tr>
<tr>
<td>12</td>
<td>Is program maintenance specific procedure contents in leaflets, booklet and banner message</td>
<td>NA</td>
</tr>
<tr>
<td>13</td>
<td>Is recognition program conducted as part of this program for the participants.</td>
<td>NO</td>
</tr>
<tr>
<td>14</td>
<td>Is EHSS Awareness Sub-Committee members participated</td>
<td>NA</td>
</tr>
<tr>
<td>15</td>
<td>Is EHSS Awareness program meet the desired intention</td>
<td>YES</td>
</tr>
</tbody>
</table>

Effectiveness of EHSS Awareness Program is **Poor**

Department EHSS Coordinator is responsible To circulate this evaluation form to all participants after Conduction EHSs awareness program Copy of this evaluation form shall be submitted to EHSS Awareness Sub-Committee Chairman within a week.
EHSS Awareness programs are conducted yearly to enhance the employees and contractor knowledge in safe work practices and remind the lesson learning from incidents. However, the effectiveness of the programs is evaluated only based on feedback received during the session without having a solid mechanism to develop and enhance the future awareness programs conducted by various department and contractor management.

<table>
<thead>
<tr>
<th>Your Suggestions to this EHSS Awareness program organizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
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<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
</tbody>
</table>

Developed by: Safety Analyst; Reviewed by: Safety Manager; Approved by: EHSS Sr. Manager
The Best Activity(ies) adopted

- consist To encourage all department contribution towards improved manner, unique EHSS Awareness program Evaluation format is developed. This evaluation form is of many questions linked to points/score. Prior to start the any awareness program, hard and soft copies of EHSS Awareness Evaluation format is distributed to all participants to collect their feedback with score for each area/subject. This evaluation tool is helping to department sr. manager and awareness sub-committee to develop and conduct quality program which will improve the EHSS culture. The following best practices are adopted based on the EHSS Awareness evaluation tool.
  • This format is incorporated in SHEM00.07 Awards & Recognition Program procedure
  • As part of department EHSS KPI program, every department shall use this format for evaluating their programs and submit the documents to EHSS Awareness sub-committee for selection of Best EHSS Awareness program and one of the selection criteria of Best EHSS performer of the year.

The Added Value of the Best Practice:

Procedure enhancement:
This format and its requirement are included in SHEM00.07 Awards & Recognition Procedure.

More Assurance of Risk Control:
Employees and contractors are alerted from hazards through EHSS Awareness program when applying this format.

Communication, Leadership and Accountability:
Everyone is responsible to evaluate the awareness programs conducted by organization/department to exhibit their commitment to select good awareness programs in ever year.

Occupational Health Enhancement:
This format is help to identify and conduct quality of awareness program based on investigation report of occupational injury /illness to prevent reoccurrence of the incident.

Minimizing Environmental Impact:
The format is designed to focus on reducing the environment impact while conduct environment awareness programs based on previous year leak incident.

Improved HSE Control on Contractors (Service Providers):
All third parties are encouraged to conduct quality awareness programs with respect to their core business activities in site.

Economical and Social Impact
To improve the off the job awareness programs quality and shows that our commitment in neighboring community.
EHSS Incident Including near Miss Analysis by Team
# Environment, Health, Safety & Security Central Committee (EHSSCC) Annual Day Minutes of Meeting

**Date:** 18th March-15  
**Time:** 08:00 am – 12:00 pm  
**Meeting No:** 02/2015

## Attendees:
SAFCO Senior Management, Managers, sub-committee members and Employees.

## Invitees:
SABIC Fertilizers Manufacturing Unit (FMU), Sr. Engineer – SBU Contractor Managements and their representatives.

Pictures attached for attendance purpose. [LINK](#)

## EHSS Annual Day Agenda:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Time</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quran Recitation</td>
<td>08:00 – 08:05</td>
<td>Audio</td>
</tr>
<tr>
<td>Welcome</td>
<td>08:05 – 08:10</td>
<td>ISED Sr. Manager</td>
</tr>
<tr>
<td>Management Speech</td>
<td>08:10 – 08:20</td>
<td>President</td>
</tr>
<tr>
<td>Last EHSSCC meeting critique</td>
<td>08:20 – 08:22</td>
<td>Adnan M. Al-Shammarri</td>
</tr>
<tr>
<td>Previous meeting(s) action items</td>
<td>08:22 – 08:25</td>
<td>Ali</td>
</tr>
<tr>
<td>2014 EHSS Awareness Programs</td>
<td>08:25 – 08:55</td>
<td>Ayman F. Al Zahri</td>
</tr>
<tr>
<td>Review of 2014 EHSS Performance</td>
<td>08:55 – 09:10</td>
<td>Adnan M. Al-Shammarri</td>
</tr>
<tr>
<td>2015 EHSS Goals, Action &amp; Challenges</td>
<td>09:10 – 09:20</td>
<td>Adnan M. Al-Shammarri</td>
</tr>
<tr>
<td><strong>Break</strong></td>
<td><strong>09:20 – 09:30</strong></td>
<td></td>
</tr>
<tr>
<td>Review of 2014 EHSS Incidents Analysis</td>
<td>09:30 – 10:00</td>
<td>Adnan M. Al-Shammarri</td>
</tr>
<tr>
<td>Recycling Industrial wastewater at Hadeed &amp; Recognition</td>
<td>10:00 – 10:20</td>
<td>Sr. Engineer, SBU Programming</td>
</tr>
<tr>
<td>Contractor Management EHSS Performance</td>
<td>10:20 – 10:30</td>
<td>Nasher A Al Yami</td>
</tr>
<tr>
<td>EHSS Recognitions</td>
<td>10:30 – 11:30</td>
<td>SMT</td>
</tr>
</tbody>
</table>
The Best Activity(ies) adopted
As part of SAFCO EHSS initiatives, it was recommended to form the dedicative team with different disciplines from various department for reviewing, analyzing and recommending long term preventive action based on common causes identified rather than root causes from all EHSS incident investigated, near miss and EHSS observation (unsafe condition and Unsafe act).
The comprehensive EHSS incident and Near miss Analysis review workshop is scheduled every year 1st week of February. All EHSS incident including near miss and EHSS observation data is uploaded shared folder for team review and analysis. After completing root analysis, common causes identified and action plan to be generated by team for preventing re occurrence of similar incident in consecutive years in SAF-CO/IBB. This recommended action plan is reviewed with EHSS top level committee members (having all Department Sr. Manager & Sub Committees) during EHSS Annual Day. After concurrence with target date and responsible person, action plan is distributed for implementation. The following best practices are adopted based on the team analysis for measuring the effectiveness of this program.

- Team charted and led by GM Maintenance and incorporated in SHEM10 EHSS Incident Reporting, Classification, Investigation & Analysis Procedure
- Action items are accounted in respective department EHSS KPI program under overall EHSS Recommendation Implementation Rate for monitoring and closing as per original target date.
- Overall analysis outcomes are shared in monthly department EHSS meeting with all workforce.

The Common Practice Known
After completing investigation, recommendations are implemented by respective personnel who has assigned by investigation leader as corrective and preventive action.
The Added Value of the Best Practice:

Procedure enhancement:
This team analysis requirement is incorporated in SHEM10l SHEM10 EHSS Incident Reporting, Classification, Investigation and Analysis Procedure

More Assurance of Risk Control:
Employees and contractors are well aware of job-associated hazards, recommended action for common causes, risks and importance of safe work practices while sharing lesson-learning points from team analysis.

Communication, Leadership and Accountability:
The comprehensive team analysis is sharing in EHSS Annual day, Department monthly EHSS Meeting and Contractor Management Meeting to alert the severity of the incident and their responsibilities to comply the SHEMS procedure requirements as addressed in SHEM00.00 Leadership & Commitment.

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

Minimizing Environmental Impact:
Major environment incidents lesson-learning points are shared to minimize/avoid environment impact and highlight environment control measures against spill/release of hazardous and non hazardous chemical in line with SAFCO environment standard to avoid similar incident

Improved HSE Control on Contractors (Service Providers):
All third parties are well known while sharing specific action plan related EHSS incidents, near miss and EHSS observation based on common causes to improve their EHSS performance as part of SHEM05 and help to achieve annual EHSS goals.

Economical and Social Impact
Operation control measure and procedure requirements are underlined while sharing lesson learning points related to root cause of the incident to prevent economical losses and community impact.
EHSS Incident Investigation Type - Selection Guidelines by Factors
## Investigation Type Selection Guidelines Factors - (For Class C, D & E Incidents)

<table>
<thead>
<tr>
<th>S. NO</th>
<th>FACTORS STATEMENT</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is this incident potential for Class A or Class B?</td>
<td>NO</td>
</tr>
<tr>
<td>2</td>
<td>Any similar incident occurred in SACO/IBB or SABIC?</td>
<td>NO</td>
</tr>
<tr>
<td>3</td>
<td>Any incident in same functional location, equipment, vessel, process system and plant in past 3 months</td>
<td>YES</td>
</tr>
<tr>
<td>4</td>
<td>Is this incident considered as high learning value incident (HLVI)?</td>
<td>YES</td>
</tr>
<tr>
<td>5</td>
<td>Is this incident reported to any external parties (Royal commission, SABIC EHSS Regional &amp; Other institution)</td>
<td>NO</td>
</tr>
<tr>
<td>6</td>
<td>Is this incident involved by short term/long term contractor employee?</td>
<td>NO</td>
</tr>
<tr>
<td>7</td>
<td>Is injured person referred to hospital / health institution?</td>
<td>NO</td>
</tr>
<tr>
<td>8</td>
<td>Is this incident cause plant shut down/ emergency shut down?</td>
<td>NO</td>
</tr>
<tr>
<td>9</td>
<td>Is emergency fire fighting equipment utilization &gt; 60 ponds fire extinguisher dry chemical powder / water applied to extinguish fire by ERT team</td>
<td>NO</td>
</tr>
<tr>
<td>10</td>
<td>Is SAFER risk assessment conducted for event</td>
<td>NO</td>
</tr>
<tr>
<td>11</td>
<td>Is this event impact to neighbouring community?</td>
<td>YES</td>
</tr>
<tr>
<td>12</td>
<td>Is any clamp and sealant injection provided in system before one month</td>
<td>YES</td>
</tr>
<tr>
<td>13</td>
<td>Is more two ERT members attempted to extinguish fire</td>
<td>YES</td>
</tr>
<tr>
<td>14</td>
<td>Is incident estimated initial direct cost more than 35000SAR</td>
<td>NO</td>
</tr>
<tr>
<td>15</td>
<td>Is release of materials (Hazardous &gt; 75 kg in a day; Non Hazardous &gt; 10.000 Kg in a day)</td>
<td>NO</td>
</tr>
</tbody>
</table>

Is Team Investigation Required?... **NO**
The Common Practice Known

The concerned department manager/supervisor (area owner) decides the requirement of team or single person investigation for all EHSS incident based on his best judgement and experiences after occurrence of incident. To improve the quality of incident investigation, all historical EHSS incident data and severity determination guidelines are reviewed to form factor statement. These factors are prepared in excel formulated sheet as a question form for selecting and identifying the team and single person investigation type for all EHSS incident by concerned department. This format is developed more stringent than standard procedure requirement. The following best practices are adopted based on the EHSS incident Investigation type selection guidelines.

- EHSS incident Investigation type selection guidelines format is incorporated in SHEM10 EHSS Incident Reporting, Classification, Investigation & Analysis Procedure.
- EHSS incident Investigation methodology training materials are updated and training is conducted to all concerned.

The Added Value of the Best Practice:

Procedure enhancement:
This format is incorporated in SHEM10 EHSS Incident Reporting, Classification, Investigation and Analysis Procedure.

More Assurance of Risk Control:
Specify: Employees and contractors are award of job-associated hazards, recommendation action for risks and importance of safe work practices while sharing lesson-learning points as a proactive manner.

Communication, Leadership and Accountability:
All type of EHSS incidents from internal and external are communicated to all level of worker remind their responsibility through email announcement, LCD screen monthly department EHSS Meeting, and weekly EHSS Tool box talk while executing the jobs.

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

Minimizing Environmental Impact:
Major environment incidents lesson-learning points are shared to minimize/avoid environment impact and highlight environment control measures against spill/release of hazardous and non hazardous chemical in line with SAFCO environment standard in case of similar incident occurred.
Improved HSE Control on Contractors (Service Providers):
All third parties are well known while sharing lesson learning points in contractor EHSS Monthly and weekly FSR meeting to follow safe work practices in case of similar incidents occurred.

Economical and Social Impact
Specify: Operation control measure and procedure requirements are underlined while sharing lesson learning points related to root cause of the incident to prevent economical losses and community impact.
Confined space simulator as physical training method
The Common Practice Known
Confined space training using simulator is designed for personnel exercise who are responsible for safe working practices and who are required to identify confined spaces. The aim of this training is to provide the candidate with an awareness of the current legislation, safe work practice in confined space, hazards relating to confined spaces operations and handling emergency situations when working in confined space.

The Best Activity(ies) adopted
Physical training in confined space using simulator will be followed by theoretical class. The objective of the practical training using simulator is to offer a structured familiarization spectacle to practical job tasks in confined space and give the candidates the ability to apply their skills and knowledge in practice. Another aim is to combine theory with practice and give the candidates a realistic view on the demands and practices of the field.

Confined space simulator is designed as a pilot model similar to a chemical storage tank with capacity for 4 to 5 persons to work inside with man hole for entry and exit. Specific activity for each employee to be carried out in the confined space will be identified. NFPA label is there in the simulator for hazard communication. Communication system, lighting and emergency alarm system are provided which can be operated from outside panel. And also a facility to watch the confined space inside activity by video is available.

Practical training in confined space will be demonstrated by assuming a real work situation in confined space. The candidate who has completed 4 hours theoretical training in confined space safety will be given practical training in confined space by using the simulator. Each individual will have his own role play.
From the training group, one person will be assigned as permit issuer, another as work permit acceptor and another as stand by man. Two or three persons will be assigned as workers. Work permit procedure will be followed for issuing and accepting the permit. While the persons are inside, one of the emergency scenarios will be demonstrated and the actions of people will be watched by using video monitor. The emergency scenario will be surprise and it will not be informed to them in prior. The trainer will explain their actions and correct if there is any deviations.

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

**Procedure enhancement:**
Confined space training procedure has been revised to give practical oriented training followed by theoretical class

**More Assurance of Risk Control:**
The candidates are trained in handling emergency situation in confined space, identification of risks in confined space and safe work practices in confined space. So the risk control mechanism is well assured because of this physical training.

**Communication, Leadership and Accountability:**
Candidates are trained in communication system, leadership and accountability with respect to confined space activity. Based on the type of confined space, different mode of communication system such as radio, video or telephone system will be adopted. Emergency alarm system, reporting of emergency, rescue of people are also part the training. Responsibility and accountability of work permit issuer, work permit acceptor, gas tester, confined space entrants and manhole watch are well demonstrated in the training.

**Occupational Health Enhancement:**
The following areas are well explained during the training to enhance occupational health

- Identification of Hazards in confined space such as oxygen deficiency, toxic gases and flammable gases
- Importance of gas test
- Entrants are insisted to carry pocket size gas meter
- Importance of ventilation in confined space
- Occupational health effects (acute and chronic effects)
- Symptoms to recognize the hazards in confined space
- Use of Personal protective equipments
Minimizing Environmental Impact:
Preparation of equipment including Isolation of confined space is a part of Safe work practice. While preparing the equipment for maintenance, draining of chemicals, venting of gases will be done in a safe manner without affecting the environment. During the confined space training, all these aspect are discussed.

Improved HSE Control on Contractors (Service Providers):
All required employees including contractors are trained in confined space activities. Only the trained and authorised employees can accept the work permit and work as manhole watch for confined space job.

Economical and Social Impact
• Employees get the practical experience in confined space safety and are familiarized with safe work practice to be followed during such kind of works
• Employees are trained with the hazards and requirements of ‘safe confined space entry’.
• Since different emergency scenarios such as gas leak, fire, lighting failure etc. are demonstrated in the training, employees can handle the similar or other situation if it arises during real work in the plant.
• Employee’s confident level of working in confined space will be improved after attending this practical training
• Incidents related to confined space will be minimized
Effective Management of Turnaround EHSS KPIs
## ENVIRONMENT, HEALTH, SAFETY AND SECURITY (EHSS)
### EFFECTIVE MANAGEMENT OF TURNAROUND KPI TEMPLATE

#### COMPANY NAME
- **SAFCO**

#### YEAR OF TURNAROUND
- **2015**

<table>
<thead>
<tr>
<th>PHASE</th>
<th>S. NO</th>
<th>AREA</th>
<th>FORMULAE</th>
<th>TARGET</th>
<th>RESPONSIBLE</th>
<th>Supporting documents &amp; its Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRE TURNAROUND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td><strong>TA EHSS Goals</strong></td>
<td></td>
<td><strong>TA EHSS Goals</strong> = Number of employees attended in TA EHSS Goals awareness Number of employees &amp; contractor involved in TA</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
<td>* Number of manpower involved in every turnaround shall be indicated in Turnaround Organization chart - Senior TA Planning Engineer. * EHSS Goals Awareness schedule - Safety Manager.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Lesson Learning</strong></td>
<td></td>
<td><strong>Lesson Learning</strong> = Number of Lesson learning session conducted Number of Lesson learning session planned (TA Incidents)</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
<td>* Number of lesson learning session shall be mentioned in Turnaround milestone chart - Senior TA Planning Engineer. * Number actual session conducted shall be mentioned in department EHSS Coordinator MOM - Safety Analyst.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Formation of EHSS Coordinators</strong></td>
<td></td>
<td><strong>Formation of EHSS Coordinators</strong> = Number of EHSS Coordinator selected Number of Coordinator's required. Each department shall nominate one employee from his department.</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
<td>* Formation from department who will be engaged in turnaround for department EHSS Coordinator - Safety Analyst. * Minutes of Meeting for Department EHSS Coordinator monthly meeting - Safety Analyst.</td>
</tr>
<tr>
<td>4</td>
<td><strong>Completion of Pre TA activities</strong></td>
<td></td>
<td>* Announcement of TA EHSS Theme * Layout finalization Including traffic plan * Pre TA awareness programs &amp; its Materials * Inspection of plant safety &amp; Fire equipment's readiness * Blind list (Color Coding) &amp; PSV * Availability of all EHSS devices and documents * Rescue plan * Rigging plan</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
<td>* Announcement of TA theme communication - Safety Analyst. * Final traffic plan as per milestone chart - Security Manager. * Pre TA awareness programs &amp; its Materials - Safety Manager.</td>
</tr>
<tr>
<td>5</td>
<td><strong>EHSS Training</strong></td>
<td></td>
<td><strong>EHSS Training</strong> =</td>
<td>90%</td>
<td>Turnaround EHSS Leader</td>
<td>* All required EHSS training programs identified by safety trainer for safe execution of turnaround. * TA EHSS Training plan - Safety Trainer. * Attendance sheet for all conducted training.</td>
</tr>
</tbody>
</table>
6 Critical high risk jobs

- Number of EHSS Training conducted
- Number of EHSS Training scheduled

This criteria is part of work permit procedure requirements to identify and categorize all jobs for preparing Job Safety Analysis (JSA) for safe execution. The TA Cell leader shall list out the jobs based on turnaround job notification, identify critical activities for JSA preparation involving subject matter expert from Operations, maintenance, technical, EHSS and contractors.

No. of JSA prepared

This criteria is part of work permit and lifting equipment procedures requirements. All critical and non-critical lifting activities shall be identified by respective turnaround cell leader for preparing lifting and rigging plan for safe rigging and lifting.

7 Rigging Plan

- No. of Rigging plan prepared
- No. of Rigging plan required for the lifting

All contractor management shall submit their HSE site plan in line with SHMM procedures to Safety Engineer for review and approval through turnaround planning. This plan shall address company SHE policy, Management Systems, Safe work practices related core business activities and last three year HSE performance including recommendation status.

8 Contractor HSE Plan

- Number of contractor HSE plan evaluated
- Number of contractor HSE plan submitted & Feedback

To meet Third party EHSS Management procedure requirements, Contractor Management shall supply and assign the Field EHSS Representative - FS/PSR (3.20) as per Service Purchase Recurrence form-3. FS/PSR shall be interviewed by Safety Manager/Assigned safety staff based on their competency and experience.

9 Contractor FS/PSR

- Number of FS/PSR (SHMM & Contractor) selected
- Number of FS/PSR’s required (SHMM & Contractor)

All contractor vehicles operated inside the process area shall assign a dedicated flag man to avoid property damage and injury incident. It is ratio of number flag man assigned based on expected contractor vehicle entered inside the process area. The vehicle entry sticker shall support to identify the number of flag man requirements.

10 Traffic Management

- Traffic Management =

As part of turnaround EHSS plant, EHSS Behavior audit schedule shall prepared by involving SHMM Senior Management Team and Contractor Management representatives for conducting audit at execution site on daily basis. Turnaround Management Audit schedule shall be communicate all auditor in advance to achieve the KPI.

11 Management Commitment

- Number of management audit conducted
- Number of management audit scheduled

To meet Pressure Relief Devices Program procedure. The concerned operation plant manager shall identify PRDs for inspection, testing, and calibration based turnaround control & system manager feed back and PRO’S master data record for using turnaround opportunity for improving plant reliability.

12 PRD (includes PSV & RD)

- PRD (includes PSV & RD) =

Management EHSS Behavior Audit reports - Safety Analyst.

100% Turnaround EHSS Leader

- Master list of PRD - TA Control & System Senior Engineer.

100% Turnaround Execution Cell Leader - Static

- Work order closing form for re installing (For, back) calibrated PRD’s in line - Respectable cell leader.
# Environment, Health, Safety and Security (EHSS) Effective Management of Turnaround KPI Template

## Year of Turnaround

<table>
<thead>
<tr>
<th>SN</th>
<th>Description of the Input Data Entry Value</th>
<th>Date Entry Value</th>
<th>EHSS KPI</th>
<th>Actual Score</th>
<th>Target</th>
<th>% of Deviation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Number of employees attended in TA EHSS Goals awareness</td>
<td>1</td>
<td>TA EHSS Goals</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td>Contractor employees are not fully covered</td>
</tr>
<tr>
<td>1b</td>
<td>Number of employees &amp; contractor involved in TA</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a</td>
<td>Number of Lesson learning session conducted</td>
<td>1</td>
<td>Lesson Learning</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>2b</td>
<td>Number of Lesson learning session planned (TA Incidents)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td>Number of EHSS Coordinator selected</td>
<td>2</td>
<td>Formation of EHSS Coordinators</td>
<td>67%</td>
<td>100%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>3b</td>
<td>Number of Coordinator’s required</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a</td>
<td>Announcement of TA EHSS Theme</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4b</td>
<td>Layout finalization including traffic plan</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4c</td>
<td>Pre TA awareness programs &amp; Fire Materials</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4d</td>
<td>Inspection of plant safety &amp; Fire equipments readiness</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4e</td>
<td>Blind Isc (Color Coding) &amp; PSK</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4f</td>
<td>Availability of all EHSS devices and documents</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4g</td>
<td>Rescue plan</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4h</td>
<td>Rigging plan</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5a</td>
<td>Number of EHSS Training conducted</td>
<td>1</td>
<td>EHSS Training</td>
<td>50%</td>
<td>90%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>5b</td>
<td>Number of EHSS Training scheduled</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5c</td>
<td>Number of JSA prepared</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5d</td>
<td>Number of Critical High Risk Jobs Identified</td>
<td>2</td>
<td>Critical high risk jobs</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>7a</td>
<td>Number of Rigging plan prepared</td>
<td>1</td>
<td>Rigging Plan</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>7b</td>
<td>Number of Rigging plan required for the lifting</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8a</td>
<td>Number of contractor HSE Plan evaluated</td>
<td>3</td>
<td>Contractor HSE Plan</td>
<td>75%</td>
<td>100%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>8b</td>
<td>Number of contractor HSE plan submitted &amp; Feedback</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9a</td>
<td>Number of FSR’s (SAFCO &amp; Contractor) selected</td>
<td>3</td>
<td>Contractor FSRs</td>
<td>75%</td>
<td>100%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>9b</td>
<td>Number of FSR’s required (SAFCO &amp; Contractor)</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10a</td>
<td>Number of flag man assigned by contractors</td>
<td>3</td>
<td>Traffic Management</td>
<td>75%</td>
<td>100%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>10b</td>
<td>Number of flag man required from contractors</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30a</td>
<td>Number of flag items assigned by contractors</td>
<td>3</td>
<td>Traffic Management</td>
<td>75%</td>
<td>100%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>30b</td>
<td>Number of flag items required from contractors</td>
<td>4</td>
<td>Management Commitment</td>
<td>80%</td>
<td>100%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>31a</td>
<td>Number of management audit conducted</td>
<td>4</td>
<td>PROs (includes PSV &amp; RD)</td>
<td>80%</td>
<td>100%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>31b</td>
<td>Number of management audits scheduled</td>
<td>5</td>
<td>EMSS Critical Instruments</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>32a</td>
<td>Number of EMSS Critical Instruments calibrated</td>
<td>10</td>
<td>PHA</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>32b</td>
<td>Number of EMSS Critical Instruments planned for calibration</td>
<td>10</td>
<td>SAFER</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>34a</td>
<td>Number of PHA recommendations executed</td>
<td>10</td>
<td>Industrial Hygiene</td>
<td>50%</td>
<td>95%</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>34b</td>
<td>Number of PHA recommendations planned for execution</td>
<td>10</td>
<td>Compliance Audit Rate (WP, PPE &amp; HK)</td>
<td>90%</td>
<td>95%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>35a</td>
<td>Number of SAFER recommendations executed</td>
<td>10</td>
<td>Security</td>
<td>80%</td>
<td>100%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>35b</td>
<td>Number of SAFER recommendations planned for execution</td>
<td>10</td>
<td>EHSS Observation Reporting Rate</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>36a</td>
<td>Number of EHSS programs conducted</td>
<td>10</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>36b</td>
<td>Number of EHSS programs scheduled</td>
<td>10</td>
<td>EHSS Recognition Program</td>
<td>67%</td>
<td>100%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>37a</td>
<td>Number of tool box meetings conducted</td>
<td>1</td>
<td>EHSS Recognition Program</td>
<td>67%</td>
<td>100%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>37b</td>
<td>Number of tool box meetings scheduled</td>
<td>2</td>
<td>EHSS Recognition Program</td>
<td>67%</td>
<td>100%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>38a</td>
<td>Number of EMSS Observations conducted</td>
<td>1</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>38b</td>
<td>Number of EMSS Observations conducted</td>
<td>1</td>
<td>EHSS Recognition Program</td>
<td>67%</td>
<td>100%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>39a</td>
<td>Overall average compliance audit rate per day</td>
<td>1</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>40a</td>
<td>Zero security concerns/Observation</td>
<td>1</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>41a</td>
<td>Number of EHSS Observations reported</td>
<td>1</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>42a</td>
<td>Total manpower engaged in TA</td>
<td>2</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>42b</td>
<td>Number of EHSS Recognition program conducted</td>
<td>2</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>42b</td>
<td>Number of EHSS Recognition program conducted</td>
<td>2</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>44a</td>
<td>Number of EHSS Recognition program conducted</td>
<td>2</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>44b</td>
<td>Number of EHSS Recognition program conducted</td>
<td>2</td>
<td>EHSS Observation</td>
<td>50%</td>
<td>82%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>45a</td>
<td>Comparative Team Analysis for overall EMSS performance &amp; recommended actions</td>
<td>Yes</td>
<td>Team Analysis</td>
<td>100%</td>
<td>100%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

* The verification audit shall be conducted by Team charted by company President.
* Any discrepancy observed (in records/information) during self-assessment will lead to ZERO points in that criteria.
* The Criteria Responsible person to enter the values in cells highlighted by Yellow color.
* If target is not achieved, justification for the deviation shall be mentioned in Remarks cell by criteria responsible person.

Developed by: Safety Analyst; Reviewed by: Safety Manager & EHSS Sr. Manager; Approved by SAFCO/IBB President.

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<table>
<thead>
<tr>
<th>PHASE</th>
<th>S. NO</th>
<th>AREA</th>
<th>FORMULAE</th>
<th>TARGET</th>
<th>RESPONSIBLE</th>
<th>Supporting documents &amp; Its Owner</th>
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<tr>
<td><strong>EHSS Critical Instruments</strong></td>
<td>13</td>
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<tr>
<td>Number of EHSS Critical Instruments calibrated</td>
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<td>Number of EHSS Critical Instruments Planned for calibration</td>
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<tr>
<td>The concerned plant manager shall initiate the PHA recommendation if planned during turnaround to meet Process Safety Risk Assessment procedure requirements. This criteria is ratio of Number of PHA recommendations executed as per planned</td>
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<td><strong>PHA</strong></td>
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<td>PHA =</td>
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<td>Number of PHA recommendations executed</td>
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<tr>
<td>Number of PHA recommendations planned for execution</td>
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<tr>
<td>The concerned plant manager shall initiate the mitigation action for identified risk if planned during turnaround to meet SABIC Assurance programs FOR EHSS RISK (SAFER) procedure requirements. This criteria is ratio of Number of PHA recommendations executed as per planned</td>
<td></td>
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<tr>
<td>Number SAFER recommendations executed</td>
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<tr>
<td>Number of SAFER recommendations planned for execution</td>
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<tr>
<td>All industrial hygiene programs shall be identified as per Health and Industrial Hygiene procedure. The comprehensive EH program plan shall be developed by company EH doctor</td>
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<td><strong>Industrial Hygiene</strong></td>
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<td>Industrial hygiene =</td>
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<tr>
<td>Number EH program conducted</td>
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<tr>
<td>Number of EH programs scheduled</td>
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<tr>
<td>All contractor engaged in turnaround activities shall responsible to conduct tool box prior to work assignment on daily basis during turnaround execution. The topic shall cover safe work practices, weather condition and personal EHSS behaviors.</td>
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<tr>
<td><strong>Tool Box Meeting</strong></td>
<td>17</td>
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<tr>
<td>Tool Box Meeting =</td>
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<tr>
<td>Number of Tool Box meetings conducted</td>
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<tr>
<td>Number of Tool box meeting scheduled</td>
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<tr>
<td>All FSUs (SAFCO &amp; Contractor) shall participate in daily EHSS Representative meeting to discuss with major concern and execution progress prior cascading and highlighting with Execution Meeting. The intent of this meeting to share major activities, daily lesson learning from field activities among the representative by EHSS Team leader.</td>
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<tr>
<td><strong>Daily EHSS Rep Meeting</strong></td>
<td>18</td>
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<tr>
<td>Daily EHSS Rep Meeting =</td>
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<tr>
<td>Number of EHSS Representative meetings conducted</td>
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<tr>
<td>Number of EHSS Representatives meeting scheduled</td>
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<tr>
<td>Compliance Audit Rate (WP, PPE &amp; HK)</td>
<td>95%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>Overall average compliance audit rate per day</td>
<td>95%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>Security Manager shall issue violation ticket as per SHE008.01 General EHSS Rules as cause of any traffic/security violation observed</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
<td></td>
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<tr>
<td>Zero security concerns/Observation</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>All employees and contractors shall report unsafe act, unsafe condition and near misses in eSHEM Incident Management Reporting to meet EHSS Incident, Classification, Investigation and Analysis Procedure requirements. Number of approved EHSS observation reported by total manpower engaged in TA</td>
<td>82%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
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<tr>
<td>EHSS Observation Reporting Rate</td>
<td>82%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
<td></td>
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<tr>
<td>Number of EHSS Observation reported</td>
<td>82%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
<td></td>
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<tr>
<td>Total manpower engaged in TA</td>
<td>82%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>It is the ratio of total waste recycled through various methods during turnaround to the total quantity of waste generated.</td>
<td>90%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
<td></td>
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<tr>
<td>Waste Recycling</td>
<td>90%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>Waste recycled</td>
<td>90%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
<td></td>
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<tr>
<td>Waste generated</td>
<td>90%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
<td></td>
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<tr>
<td>EHSS Recognition Program</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
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<tr>
<td>Number of EHSS Recognition program conducted</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
<td></td>
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<tr>
<td>Number of EHSS Recognition program planned</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>Prior to plant startup, PSER shall be conducted for job executed during turnaround related to MOCs and projects. The concerned plan manager shall initiate PSER to meet Fire Start up EHSS Review Procedure requirements.</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>PSER</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>Number of PSER conducted</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>Number of PSER identified as per MOCs and Projects</td>
<td>100%</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>Team (Leader-GMM, Execution Sr. Manager, Plant Operations Sr. Manager and Subject matter experts from each cell team) shall be charted to analyze all EHSS performance, incidents and criticals to develop action plan for next turnaround. Comparative Team Analysis for overall EHSS performance &amp; recommended actions</td>
<td>(Y-100%)</td>
<td>Turnaround EHSS Leader</td>
<td></td>
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<tr>
<td>Team charting as per guidelines by GMM</td>
<td>(N-0%)</td>
<td>Turnaround EHSS Leader</td>
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<tr>
<td>Comprehensive analysis report including recommendation, lesson learning and critiques - GMM</td>
<td>(N-0%)</td>
<td>Turnaround EHSS Leader</td>
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</tbody>
</table>
The Common Practice Known
Turnaround activities are monitored, executed and taken corrective action based on SHEM05 Third party EHSS Management of Turnaround EHSS Plan.

The Best Activity(ies) adopted
To effectively manage and improve the turnaround EHSS activities and its performance during every phases of the turnaround, EHSS KPIs are developed to monitor, control, and to effectively achieve turnaround EHSS goals and previous performance. This is a unique KPIs developed based on specific turnaround plan and each phase preparation activities. It is helping to achieve the organization annual EHSS goals and turnaround EHSS goals with Safe execution and yield planned turnaround production. Dedicated audit team is charted to assess these KPIs and its documents during the verification audit which led by GM Maintenance. The outcomes of the verification audit is incorporated in turnaround EHSS Critiques to improve the subsequent turnaround EHSS performance and bridge the KPIs gaps.

The Added Value of the Best Practice:
Procedure enhancement:
Effective management of turnaround EHSS KPIs are incorporated in SHEM05 Third Party EHSS Management Turnaround Plan Procedure.

More Assurance of Risk Control:
Each phase of the turnaround activities and hazards associated those activities are mitigated and helping to immediate corrective action

Communication, Leadership and Accountability:
All turnaround workforce is committed to implement the turnaround plan and achieve the turnaround EHSS KPIs for safe execution.

Occupational Health Enhancement:
These KPIs are designed to control and minimize the health issues to avoid occupation injury incident

Minimizing Environmental Impact:
Environment compliance audit is one of KPI criteria to achieve the Zero environment incident during execution and start up the plan.

Improved HSE Control on Contractors (Service Providers):
All third parties are linked with these KPIs to effectively manage contractor-involved activities since pre turn-around phase.

Economical and Social Impact
Economical and social impact is reduced in every turnaround by criteria's, which are included in pre TA and during TA phase activities.
Be Safe Work Safe Campaign
Part 2: <To be completed by applicant>

1. Applicant Company Info
Company Name: Saudi Arabian Fertilizers Company
Country: Kingdom of Saudi Arabia
Establishment Date: 1964  Number of plants: 07
Production capacity: Urea Granular - 3.9 Million MT/Y, Compound Fertilizer- 1.05 Million MT/Y
Activity/Product: ✔ Phosphate  ✔ Nitrogen  ✔ Potash
Number of Manpower: Employees: 1184
Permanent Contractors: -816

2. Name of Applicant
Name: - Ahmed M. Al-Jabr
Cell Phone: +966 (5) 0582 7607  Work Phone:+966 (13) 3402222
Email Address: JabrAM@safco.sabic.com or president@safco.sabic.com

3. HSE Area of Practice. (ex.: PTW, Lifting, Working at height, ....etc.)
Be Safe Work Safe - Sharing Lesson Learning Campaign

Definition of HSE Best Practice
Is a method or technique that has consistently show results superior to those of other means and that is used in the benchmark. Or a program, activity, or strategy that has been show to work effectively and produce successful out-comes & supported to some degree by subjective or objective data resources.

Objective of this Exercise
In order to share the best practices in HSE among all AFA members to promote & enhance HSE performance within the AFA companies.
The Common Practice Known

All incident investigation reports are shared to employees and contractor during weekly and monthly meeting.

The Best Activity(ies) adopted

“Be Safe Work Safe” – Sharing Lesson Campaign is organized to share all major incident occurred in SABIC Affiliates. Two weeks campaign was conducted to deliver and share key learning points, root causes & its action by Senior Management Team. The campaign was intended to enhance the level of employees and contractor awareness on job-associated hazards, process safety requirements, and safe work practices. It has been dedicated especially for working in process area and non-process area in a safe manner in order to protect workers from work related injuries, company assets, environment, and reputation to enhance the process safety culture.

The Added Value of the Best Practice:

<please tick as applicable>

6.1 Procedure enhancement: ✓
Specify: This campaign is to highlight key learning points as part of SAFCO SHEM10 EHSS Incident Reporting, Classification, Investigation and Analysis Procedure.
6.2 More Assurance of Risk Control: ✓
Specify: 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.

6.3 Communication, Leadership and Accountability: ✓
Specify: Senior Management Team Member is responsible to share all key learning points from incident in each session as per schedule.

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

6.5 Minimizing Environmental Impact: ✓
Specify: NA

6.6 Improved HSE Control on Contractors (Service Providers): ✓
Specify: All third parties and their management representatives are well known about incident key learning points to achieve Zero incidence rate.

6.7 Economical and Social Impact ✓
Specify: Help to alert the workforce through this massive campaign and carry out job safely to reach their home.
Part 2: <To be completed by applicant>

1. Applicant Company Info
Company Name: Saudi Arabian Fertilizers Company
Country: Kingdom of Saudi Arabia
Establishment Date: 1964  Number of plants: 07
Production capacity: Urea Granular - 3.9 Million MT/Y, Compound Fertilizer- 1.05 Million MT/Y
Activity/Product: ✔ Phosphate  ✔ Nitrogen  ✔ Potash
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Name:- Ahmed M. Al-Jabr
Cell Phone: +966 (5) 0582 7607  Work Phone:+966 (13) 3402222
Email Address: JabrAM@safco.sabic.com or president@safco.sabic.com

3. HSE Area of Practice. (ex.: PTW, Lifting, Working at height,.........etc.)
Sharing EHSS Lesson Learning From Incident (SELF!)
The Common Practice Known

All EHSS Incident notification is shared to all employees after receiving from concerned department, SABIC Affiliates and External institutions.

Investigation reports from SABIC Affiliate, External Institutions, and any department after completing investigation, Summary of EHSS Incidents, recommendation and lesson learning proactive actions (points) related root causes are shared to all employees through email and displayed at LCD screen provided in control rooms and maintenance building.

The Best Activity(ies) adopted

“SELFI” is a SAFCO procedure addressed unique mechanism to improve sharing lesson learning among SAFCO employees and contractors. 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 (SELFI) based on EHSS Incident Information. It is a unique program in industry. Below mentioned workflow is working based on EHSS Incident Information received from SAFCO, SABIC Affiliates and External institutions.

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

Benefits of the SELFI:

- 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.
SELFI Organization:

The Added Value of the Best Practice:  
<paste as applicable>

6.1 Procedure enhancement: ✔
Specify: 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.

6.2 More Assurance of Risk Control: ✔
Specify: 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.

6.3 Communication, Leadership and Accountability : ✔
Specify: Sr. Manager is responsibility to share all SELFI during monthly department EHSS Meeting to avoid similar incident.

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

6.5 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 non hazardous chemical in line with SAFCO environment standard in case of similar incident occurred.

6.6 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.

6.7 Economical and Social Impact ✔
Specify: Help to alert the workforce by SELFI Program and carry out job safely to reach their home.
Fire
**Definition of HSE Best Practice**

Is a method or technique that has consistently show results superior to those of other means and that is used in the benchmark. Or a program, activity, or strategy that has been show to work effectively and produce successful out-comes & supported to some degree by subjective or objective data resources.

**Objective of this Exercise**

In order to share the best practices in HSE among all AFA members to promote & enhance HSE performance within the AFA companies.

---

**Part 2: <To be completed by applicant>**

1. **Applicant Company Info**
   
   Company Name: Saudi Arabian Fertilizers Company  
   Country: Kingdom of Saudi Arabia  
   Establishment Date: 1964  
   Number of plants: 07  
   Production capacity: Urea Granular - 3.9 Million MT/Y,  
   Compound Fertilizer - 1.05 Million MT/Y  
   Activity/Product: ☑ Phosphate  ☑ Nitrogen  ☑ Potash  
   Number of Manpower: Employees: 1184  
   Permanent Contractors: -816

2. **Name of Applicant**
   
   Name:- Ahmed M. Al-Jabr  
   Cell Phone: +966 (5) 0582 7607  
   Work Phone:+966 (13) 3402222  
   Email Address: JabrAM@safco.sabic.com or president@safco.sabic.com

3. **HSE Area of Practice. (ex.: PTW, Lifting, Working at height,........etc.)**

   Safety
The Common Practice Known

Cyber Attack Drill

The Best Activity(ies) adopted

SAFCO initiated a Cyber-Attack drill in collaboration with SABIC Global IT and Global IT Security, testing the response and the effectiveness when handling similar situations. The drill was designed to have an impact on SAFCO-4 operation, while EHSS, Operations, Specialty Maintenance and Process Engineering Departments have exerted their optimum support to implement the recovery procedures timely and safely. 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 that could be utilized as a base for SAFCO and other SABIC affiliates.
The Added Value of the Best Practice:

<please tick as applicable>

6.1 Procedure enhancement: ✓
Specify: ..............................................................................................
..............................................................................................

6.2 More Assurance of Risk Control: ✓
Specify: ..............................................................................................
..............................................................................................

6.3 Communication, Leadership and Accountability: ✓
Specify: ..............................................................................................
..............................................................................................

6.4 Occupational Health Enhancement: ✓
Specify: ..............................................................................................
..............................................................................................

6.5 Minimizing Environmental Impact: ✓
Specify: ..............................................................................................
..............................................................................................

6.6 Improved HSE Control on Contractors (Service Providers): ✓
Specify: ..............................................................................................
..............................................................................................

6.7 Economical and Social Impact: ✓
LP re-injection steam to CO2 Compressor Turbine in IBB Plant
The Best Activity(ies) adopted

LP Steam was being vented through the control valve PV-8005 at all times due to non-availability of new LP Steam users in the IBB Plant. The valve capacity is 19 MT/h.

As a sustainability measure, efforts were made to line up the LP Re-injection Steam to CO2 Compressor Turbine on sustainable basis and succeeded.

After overhauling CO2 Compressor Turbine in Jan/Feb 2015, the Re-injection steam was being fed to the Turbine @ 7.0 MT/h since 23rd February 2015.

The Added Value of the Best Practice:

Minimizing Environmental Impact:
By reinjecting LP steam, steam loses will be saved which will ultimately save energy & fuel. By saving fuel, CO2 venting to atmosphere will also be saved.

Economical and Social Impact
The estimated annual financial savings for Re-injection Steam of @7.3 MT/h feeding to the Turbine are 1.55 MSR.
Key Performance Indicators for Sustainability Evaluation in Fertilizer Industry
The fertilizer industry is regarded as one of the most important and strategic industry in petro-chemical sector. Our planet now supports more than 7.2 billion people. To nourish them, more food is being produced than would ever have been thought possible 40 years ago. This is with thanks, to a large extent, to the increased use of fertilizers, which help to protect crops and to increase yields wherever they are used.

This best practice provided a set of basic key performance indicators (KPIs) for sustainability designed for fertilizer industry. Daily Sustainability KPI reporting aims at reporting the operational effectiveness on a daily basis based on the parameters which tracks the areas of deviation from the optimum levels and enables Operation personnel to correct and achieve the best operational efficiencies. In writing this paper, we have reached a number of conclusions about key performance indicators and methodologies like identification and reporting of Key performance indicators can play a vital role in fertilizer industry. Reporting on KPIs can be performance based (quantitative) or based on management policies and business processes (qualitative). Certain key issues are common to many industry sectors, while others are unique to a particular sector and can be implemented in other SABIC plants.

The Common Practice Known

Many companies are known to be using wrong measures, many of which are incorrectly termed Key performance indicators (KPIs). Very few organizations really monitor their true KPIs and even handful of them are aware of Sustainability KPIs. The reason for this is that a very few organizations have integrated Sustainability into the strategic planning process and explored what a Sustainability KPI actually is. There are three types of performance measures (See Fig 1:Three types of Performance Measures)
Countless performance measures used by organizations are thus an inappropriate mix of these three types. An onion analogy can be used to describe the relationship of these three measures. The outer skin describes the overall condition of the onion, the amount of sun, water, and nutrients it has received; how it has been handled from harvest to supermarket shelf. However, as we peel the layers off the onion, we find more information. The layers represent the various performance indicators, and the core, the key performance indicators [3, 4].

The Best Activity(ies) adopted

Significance of Key Performance Indicators (KPI)

KPIs represent a set of measures on those aspects of organizational performance that are the most critical for the current and future success of the organization with respect to Sustainability [5, 6]. Moreover, it is quite noticeable that almost all the SABIC affiliates have KPIs for other business related perspectives like Production targets, fuel consumption, Natural gas usage etc. However, to formulate the Sustainability KPIs an individual has to dig down the risks associated about Sustainability and the impact it will have on GHG, Energy, Water and Material Loss.
Why use Sustainability KPIs?
Sustainability KPIs provide businesses with a tool for real time measurement of the key Sustainability indicators. These indicators are quantifiable metrics that reflect the sustainability performance of a business in the context of achieving its wider goals and objectives. For example, poor management of energy, water or material loss can affect current performance; failure to plan for a future in which sustainability factors are likely to be significant may risk the long term value and future of a business.

How to define Sustainability terms?

**Sustainability Issues:** An environmental, social or governance issue that can impact or be impacted by a company.

**Material Issues:** A Sustainability issue that is of concern to external stakeholders of the business and can potentially impact its performance. Typically, Material issues are specific to a company and its stakeholders.

**KPIs:** Measurable and verifiable indicators that reflect performance on Sustainability Issues. KPIs may be either Qualitative or Quantitative.

**Boundary Limits:** The input and output flow diagram that clearly define the flow of raw material and consumption of other resources.

**STUDY DETAILS**

**Background**
Over the past few years, starting from 2010 onwards SAFCO (SF) has put in place the data collection and management systems for Sustainability, that have enabled us to establish targets for intensity reductions in our green House Gas (GHG) emissions, energy use, waste use, and material loss. At SAFCO, we regularly review the progress of each of our plants (SF-2, SF-3, SF-4, SF-5 & IBB) against these four Sustainability intensities. We also assess the company wide pipeline of potential sustainability impact reduction projects.

![Fig 2.1: Sustainability in SAFCO](image)
Our target year for achieving the sustainability targets is 2025 and we are measuring improvements against the 2010 base year. We agreed with SABIC on this time horizon for performance improvements in order to allow ourselves the time to focus our efforts on new technologies, major transformational changes, sustainability culture, and breakthrough opportunities that will have a significant material impact. Sustainability targets are also aligned and oiled well with our 2025 Strategy.

Rationale for Doing Research Work on the Topic

During this phase of deploying the Sustainability Management systems we observed the disconnect between the plant Manufacturing teams and the Sustainability team. The actions coined by Sustainability team are of higher order and the terms used are difficult for the shop floor employees to conceptualize. The Sustainability team also seems to be working in silos, therefore we felt the need to break these silos and align with manufacturing team and give them the ownership on Sustainability.

To bridge the gap and bring sustainability actions to the shop floor level we translated the Sustainability Footprints (GHG, Energy, Water and Material Loss) into easy metrics in which the components/indicators used can be monitored everyday by the manufacturing team, and they can take corrective action as well. Framing these Sustainability Performance indicators has acted as a game changer as each manufacturing teams are now aware of the issues that impact their Sustainability performance on day-to-day basis.

E.g we identified major potential areas for energy improvements by doing the brainstorming and primary data collection. In this paper, we are highlighting the methodology adopted for selecting the Energy KPIs and for rest of the Intensities we have just shown the snapshot. The process adopted for selecting the KPIs is same for all the Sustainability Footprints[7, 8].

RESEARCH METHODOLOGY

Research methodology is an amalgamation of research approach and research paradigm that describes or illustrates the strategy that could be adapted by the researchers and scholars while conducting research [6]. The research approaches also are of two types- quantitative as well as qualitative [6]. This paper utilizes quantitative research to find the association of a dependent variable like risks associated in the practice of Fertilizer Industry with another independent variable like the concept of Sustainability.
Fig 3.1: Identifying Key Performance Measures through block diagram for Ammonia Plant

Research Approach for Energy KPIs

1. Develop the equipment performance-monitoring template for significant consumers. Site should track key energy drivers on daily basis along with overall energy performance of the equipment to identify the poor efficiency causes pertaining to specific unit.

2. Develop Green Operation Parameters for significant energy consumer. Monitor the equipment over all energy performance on daily basis & energy KPIs.

RESULTS

For SAFCO, we did a series of brainstorming sessions with concerned plant process engineer to bring clarification about the inputs for Sustainability calculations.

Macro level overview of Sustainability Inputs should be used as a first level of reference in finalizing the KPIs for the plant.
Table 4.1: Macro Level view of Sustainability Inputs

<table>
<thead>
<tr>
<th>S. NO</th>
<th>Inputs</th>
<th>Sustainability Calculations</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fuel to Utility boilers</td>
<td>YES</td>
<td>Energy &amp; GHG</td>
</tr>
<tr>
<td>2</td>
<td>Fuel to Reformer</td>
<td>YES</td>
<td>Energy &amp; GHG</td>
</tr>
<tr>
<td>3</td>
<td>Fuel to flares</td>
<td>YES</td>
<td>Energy, GHG &amp; ME</td>
</tr>
<tr>
<td>4</td>
<td>Diesel and gasoline used</td>
<td>YES</td>
<td>Energy &amp; GHG</td>
</tr>
<tr>
<td>5</td>
<td>Electricity from Saudi Electric Company (SECO)</td>
<td>YES</td>
<td>Energy &amp; GHG</td>
</tr>
<tr>
<td>6</td>
<td>Boiler efficiency</td>
<td>YES</td>
<td>Energy</td>
</tr>
<tr>
<td>7</td>
<td>Steam consumption for Urea</td>
<td>YES</td>
<td>Energy</td>
</tr>
<tr>
<td>8</td>
<td>Raw Water Consumption</td>
<td>YES</td>
<td>Water</td>
</tr>
<tr>
<td>9</td>
<td>Generation of Waste (Hazardous &amp; Non Hazardous)</td>
<td>YES</td>
<td>Material Loss</td>
</tr>
</tbody>
</table>

The data collection process should be built into the work process, and there are several options available. The best approach is to collect the data from the Plant Information System (PIS), which will help to track live data from the plant and then any person can issue a daily Sustainability KPI report to the manufacturing teams highlighting the deviations from the target KPI values.

Highlighting and tracking the deviations in the daily reports along with morning meetings will bring more focus and attention towards Sustainability.

Table 4.2: Snapshot of Daily Sustainability KPI Report

55
### DISCUSSIONS

There are many loopholes surrounding the concept of sustainability KPI as companies are still looking for means and ways in bridging the gaps between operational and sustainability KPI. Even though sustainability KPIs are formulated in some companies, the implementation mechanism is still a big challenge. The concept of sustainable KPI was intended to provide the right framework for operational staff, process engineers and decision makers so that issues concerning energy consumption, Water losses, steam losses and Material waste could be addressed and tracked on a daily basis.

In SAFCO, after defining the Sustainability KPIs and monitoring them on a daily basis has resulted in excellent benefits in improving the operational efficiency as well as sustainability performance. Daily Sustainability report helped in identifying plant sustainability issues promptly. It is a good piece of example of effective monitoring.

Below you can clearly see how it proved helpful in addressing issues and we could be able to reduce our overall NG specific consumptions in plants for Y-2015.

![Fig 5.1: Month wise trend of Reduction of Feed NG](image1)

![Fig 5.2: Month wise trend of Reduction of Fuel NG](image2)

![Fig 5.3: Month wise trend of Reduction of Urea Fuel](image3)
CONCLUSIONS

At the heart of the entire subject of sustainability KPIs are a few very important questions.

• Have we done enough to bring sustainability issues to the shop floor employees?

• How can we merge sustainability issues with the daily operational KPIs?

• How can we co-relate the three components (reliability, operational efficiency and sustainability footprint) of sustainable development?

The act of measuring Sustainability KPI promotes an atmosphere of learning in an organization. According to Root Cause, the data generated from measuring key performance indicators fosters critical conversations. Because KPIs promote long-term strategic goals it, becomes important to keep the measurements consistent over time. Although a company can change its goals (as in our case the SABIC Targets), the measurement of the KPI should remain consistent. For this reason, KPIs become strategic to the company’s business plan.

SAFCO has reaped tremendous benefits by starting and monitoring the sustainability KPIs on daily basis, it helps in promoting a culture of sustainability among the manufacturing teams and company at large.

The Added Value of the Best Practice:

There are many loopholes surrounding the concept of sustainability. Even though sustainable development has a short history, the issues surrounding the topic have been addressed till date in a multidimensional aspect. The concept of Sustainability KPIs provides businesses with a tool for real time measurement of the key Sustainability indicators. These indicators are quantifiable metrics that reflect the sustainability performance of a business in the context of achieving its wider goals and objectives. KPIs help businesses to implement strategies by linking various levels of an organization (business unit, departments etc.) with clearly defined targets and benchmarks.

The impact of Sustainability matters on business performance is increasing and will continue to do so. For example poor management of energy, water or material loss can affect current performance; failure to plan for a future in which sustainability factors are likely to be significant may risk the long term value and future of a business.
Enhanced Audiogram Evaluation by SHEM-12.04 Hearing Conservation Program
HSE Area of Practice. (ex.: PTW, Lifting, Working at height,........etc.)

**ENHANCED AUDIOGRAM EVALUATION:**

An enhanced form “audiogram evaluation and age correction” used in SHEM 12.04 (Hearing Conservation) for evaluation of audiogram results to identify if a standard threshold shift has occurred was primarily developed and introduced by SAFCO First Aid Unit to SABIC IH.

This kind modification of the traditional form to a new one will automatically return results once the needed data are entered and in turns will improve the reliability of audiogram evaluation results and the work efficiency to move better implementation of SHEM 12.04.

The Common Practice Known

A manual “audiogram evaluation and age correction” form was used in SHEM 12.04 (Hearing Conservation) to evaluate audiogram results if standards threshold shift has occurred or not.

**The Best Activity(ies) adopted**

SABIC IH adopted and made some improvements to the form, which was initially developed and copyrighted by SAFCO, distributed to all SABIC affiliates to enhance uniformity and reliability of audiogram evaluation results.

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

<please tick as applicable>

6.1 Procedure enhancement: □
Specify: .....................................................................................
.....................................................................................
6.2 More Assurance of Risk Control: □
Specify: .....................................................................................
.....................................................................................
6.3 Communication, Leadership and Accountability : □
Specify: .....................................................................................
.....................................................................................
6.4 Occupational Health Enhancement: ✓
Specify: Accurately and automatically compute the audiometric result and classify if it is STS.
6.5 Minimizing Environmental Impact: □
Specify: ...........................................................................................................
...........................................................................................................

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: ...........................................................................................................
...........................................................................................................

6.7 Economical and Social Impact □
Specify: ...........................................................................................................
..............................................................................................................
Heat Stress Monitoring
The Best Activity(ies) adopted

SAFCO Weather Monitoring Station Monitors Heat Stress every minute. Heat Stress Category was automatically calculated and immediately announced through paging.

The Common Practice Known

3M QUESTemp Heat Stress Monitor Device was used to determine the Heat Stress Levels.

HSE Area of Practice. (ex.: PTW, Lifting, Working at height,........etc.)

Heat Stress Monitoring:

The New innovative SAFCO/IBB Weather Monitoring Station is providing accurate and reliable reading a of WBGT and heat stress levels in accordance with SHEM 12.06 Heat Stress Monitoring.
The Added Value of the Best Practice:
<please tick as applicable>

6.1 Procedure enhancement: □
Specify: .......................................................................................
.......................................................................................

6.2 More Assurance of Risk Control: □
Specify: .......................................................................................
.......................................................................................

6.3 Communication, Leadership and Accountability:
Specify: .......................................................................................
.......................................................................................

6.4 Occupational Health Enhancement: □
Specify: accurately the Heat stress level in a prompt and
timely monitoring to avoid heat stress related injury.

6.5 Minimizing Environmental Impact: □
Specify: .......................................................................................
.......................................................................................

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: .......................................................................................
.......................................................................................

6.7 Economical and Social Impact □
Specify: .......................................................................................
.......................................................................................


HSE Area of Practice. (ex.: PTW, Lifting, Working at height,……..etc.)

**ILLUMINATION MONITORING**

One of SAFCO efforts in maintaining lighting efficiency of the plant is the illumination monitoring guided by the SHEM 12.01 illumination procedure.

The Best Activity(ies) adopted

The program is designed to continuously maintain the lighting level of the plant through illumination survey. Result of the illumination is sent to each department for either clean, repair or replacement based on the result of the survey. All recommended lights with below SABIC engineering standard are carefully monitored to ensure the correct recommendation is done. After the clean, repair or replacement, illumination re-survey will take place to ensure that the repaired lights is meeting the standard.

The Added Value of the Best Practice:

<please tick as applicable>

6.1 Procedure enhancement:  □
Specify: .......................................................................................
.......................................................................................

6.2 More Assurance of Risk Control:  □
Specify: .......................................................................................
.......................................................................................

6.3 Communication, Leadership and Accountability :   □
Specify: .......................................................................................
.......................................................................................

6.4 Occupational Health Enhancement:  □

6.5 Minimizing Environmental Impact: □
Specify: ............................................................................................................................
........................................................................................................................................

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: ............................................................................................................................
........................................................................................................................................

6.7 Economical and Social Impact □
Specify: ............................................................................................................................
........................................................................................................................................
HSE Area of Practice. (ex.: PTW, Lifting, Working at height, ......... etc.)

Medical I.D

The medical ID provides for a quick recognition of medical conditions, allergies, medications, or treatment wishes; this leads to faster and more effective medical treatment. Symptoms of common ailments can easily be misdiagnosed. Prompt diagnosis is critical to effective treatment. Wearing the medical ID protects employees against potentially harmful medical errors.

The Best Activity(ies) adopted

First Aid unit distributed a medical I.D, which includes important medical information such as blood group, allergies, chronic medical condition, and medicines the employee is taking. This is to avoid any medical negligence, miss diagnosed and giving care especially in an emergency.
The Added Value of the Best Practice:

6.1 Procedure enhancement: □
Specify: ........................................................................................................
..............................................................................................................

6.2 More Assurance of Risk Control: □
Specify: ........................................................................................................
..............................................................................................................

6.3 Communication, Leadership and Accountability: □
Specify: ........................................................................................................
..............................................................................................................

6.4 Occupational Health Enhancement: □
The medical I.D serves as a speaker in times of any emergency where it tells the important medical information of the employee.

6.5 Minimizing Environmental Impact: □
Specify: ........................................................................................................
..............................................................................................................

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: ........................................................................................................
..............................................................................................................

6.7 Economical and Social Impact □
Specify: ........................................................................................................
..............................................................................................................
Random Health Assessment
HSE Area of Practice. (ex.: PTW, Lifting, Working at height, .... etc.)

Random Health Assessment

In along with SAFCO’s continuous improvement for Heat Stress Program, we planned activities that would aid us not only to meet the SHEM12.06 standards but most of all to ensure that we always prioritize our employee’s health, resulting to productivity and success of the company.

The Common Practice Known

Work / Rest regiment is implemented based on the heat stress level.

The Best Activity(ies) adopted

Health Preventive Measures like Random Health Assessment was planned and conducted for the benefit of all employees from SAFCO and IBB. Critical jobs medical evaluation is one of the highlights of health assessment to ensure the fitness of the worker in order to prevent unwanted situation or injury related to health.

The Added Value of the Best Practice:

<please tick as applicable>

6.1 Procedure enhancement: □
Specify: .......................................................................................
.......................................................................................

6.2 More Assurance of Risk Control: □
Specify: .......................................................................................
.......................................................................................

6.3 Communication, Leadership and Accountability: □
Specify: .......................................................................................
.......................................................................................

6.4 Occupational Health Enhancement: □
In 2014, out of 770 employees randomly checked, we stopped a total of 177 employees who shows alterations in their blood pressure and blood sugar more than the normal range. Thereby saved many workers from ill effects of heat stress and achieved “0” incident cases.
6.5 Minimizing Environmental Impact: □
Specify: .................................................................................................
.................................................................................................

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: .................................................................................................
.................................................................................................

6.7 Economical and Social Impact □
Specify: .................................................................................................
.................................................................................................
World Environment Day and Exhibition 2011
• Public awareness
• Tree plantation of approximately 3,000 trees at Jubail City.
The Common Practice Known

This exhibition is part of SAFCO’s commitment to social responsibility and a strong reflection of its efforts to preserve the environment and create community awareness.

The Best Activity(ies) adopted

- Heat Stress
- Hearing Conservation Program
- Chemical Exposure Sampling

The Added Value of the Best Practice:

Procedure enhancement:

- Industrial Hygiene Procedure
- Environment Procedure
- Emergency Response Procedure

More Assurance of Risk Control:

Specify:

6.3 Communication, Leadership and Accountability:

- EHSS Communication Procedure

Occupational Health Enhancement:

General Awareness for the community in the following fields:

- NFPA
- Waste Management (Reduce, Reuse, Recycle)
- General information about ammonia
- Communicating company EHSSQ policy and perspective of stakeholders

Minimizing Environmental Impact:

Proper disposal of waste materials and minimizing the use of materials which were commonly produced from nature (e.g. promoting of paperless practices).

Economical and Social Impact

- Improvement of company’s relationship/communication to the community.
- Enhancement of company’s social responsibility.
Environment, Health, Safety & Security (EHSS) Communication
49.0 PURPOSE

The purpose of this procedure is to provide mechanism for the internal and external communication of the Environment, Health, Safety & Security (EHSS) information to employees, contractors, suppliers, and other stakeholders, consultation with contractors and participation of the employees.

50.0 SCOPE

This procedure applies to all elements of the Environment, Health, Safety & Security (EHSS) of SF/IBB. All kinds of internal and external communication like verbal, written, telephonic, fax, email, formal letter, press release, newspaper etc is taken care by through this procedure.

51.0 GLOSSARY, FORMULAE & DEFINITIONS

51.1 **EHSS:** Environment, Health, Safety and Security

51.2 **External Communication:** Any transformation of information from all components of public including customers, media, environmental groups, regulatory agency, community etc.

51.3 **Internal Communication:** Any transformation of information within SF/IBB.

51.4 **MR:** Management Representative.

51.5 **Stakeholders:** Individual or groups impacted or potentially impacted by SF/IBB operations. These includes employees, SABIC Corporate, stockholders, regulatory authorities (i.e. RC & PME, KACST, HCIS), neighboring community, emergencyresponders, other industries, competitors, commercial partners, customers, general public at large, insurers and anyone else with a personal stake in the SF/IBB operations.

52.0 PROCEDURE

52.1 **Contents for Communication**

52.1.1 The contents for communication of the EHSS Management System are as identified in the EHSS Communication Summary Report (Attachment-1).

52.2 **Method of Communication**

52.2.1 All EHSS procedures, forms, documents, job instructions, etc. will be posted on the individual department’s intranet site. Company EHSS procedures will be available in the ISED intranet site.

52.2.2 The EHSS MR will coordinate through respec-
tive EHSS sub-committees for the dissemination of EHSS information to employees through newsletters, E-mail, training, bulletin boards and meetings as appropriate to the message and target audience involved.

52.2.3 Communication channel of EHSS information may involve:
- SF/IBB Intranet site;
- Emails and Newsletters;
- Trainings;
- Department EHSS Meetings;
- EHSS Talks;
- Signs and Labels;
- Suggestion System;
- Display on Plasma Screen;
- Daily Reports;
- Monthly Reports;
- Weekly Report;
- Quarterly Reports;
- Annual Reports;
- Bulletin boards for posting EHSS information
- Special Occasions (town hall meeting, department gathering..) and exhibition.

52.2.4 SF/IBB submits the following reports to the SABIC EHSS on a regular basis:
- Incident and Emergency Reports;
- Medical Surveillance Reports;
- Notice of EHSS Violations, if any;
- EHSS Reports to Regulatory Authorities
- Industrial Hygiene Report;

52.2.5 The EHSSQ policy shall be communicated to stakeholder as per below method:
- Posted in Company portal as well as all main conference rooms and manned buildings in visible locations.
- Presented as part of Company Profile to all company visitors as part of introduction of company.
- EHSS orientation and training/awareness. In addition, it will be provided based on request.

52.2.6 The EHSSQ Policy shall be available to its employees / persons working on its behalf through intranet, information brochures & postings at important locations. The policy shall also be made available to interested parties upon request.

52.2.7 EHSS issues are reviewed by EHSS Central Committee which is chaired by President. The committee:
- Meets on a regular basis.
o Communicates any decisions taken, changes or outcomes of meetings related to EHSS to departments which are communicated through department managers to the employees.

52.2.8 Employee’s EHSS concerns, suggestion and feedback are communicated to the department EHSS coordinator. EHSS coordinator communicates the feedback to Department Manager who then updates the management representative, EHSS Central Committee as needed.

o Employee’s are participating on EHSS matters especially when there are any changes to the workplace that could affect their health and safety.

o Employees are consulted and involved in the development of policies and procedures related to managing risks, aspects in their departments.

o Department EHSS Coordinators are identified on the departmental organization chart and are communicated to all employees through the organizations intranet, notice boards, through EHSS toolbox meetings, and/or from trainings. Additionally, all employees are also informed of who their specified management representative.

o Employee’s communicate their suggestions and concerns to EHSS Coordinator who then provides feedback to Department Managers.

o Employees participate on hazard and aspect identification, risk assessment, and risk control pertaining to their work areas.

o Suggestion System is used by the employees to communicate their ideas or suggestions for the improvement related to day-to-day operations and environment, health, safety and security (EHSS).

52.2.9 The following basic EHSS deliverables will be communicated to contractors and manpower suppliers based on criticality of their works as part of general EHSS awareness/training of contractors/manpower suppliers:

o Awareness about significant environmental aspects and identified occupational health and safety hazards and risk relevant to Contractor activities

o Operational controls in place to manage the environmental aspect, hazards and
pertinent risks.
- Managers or company contractor sponsor to the project should ensure that all appropriate contractors receive pertinent information on the Company’s SHEMS procedure prior to the commencement of their services.
- Communication of EHSSQ Policy and other SHEMS procedure requirements may be included in the contractor documents.
- Respective department manager under whom the contractors are working is responsible for randomly checking contractors and suppliers EHSS performance.

External Communication

52.2.10 ISED Manager or designate shall:
- Deal with all communications related to EHSS matters received from Royal Commission, High Commission for Industrial Security, King Abdulaziz City for Science & Technology or Ministry of Labor.
- Handles any communication on EHSS matters received by ISED
- Responds to external enquiries made to ISED Department with respect to external communication of Significant EHSS aspects in consultation with the Senior Management Team.
- Determines if there is a regulatory, legal or contractual requirement to provide information to an external party, and makes every effort to provide a timely response.

52.2.11 Material Safety Data Sheet (MSDS) of SAF-CO products will be provided by ISE Department to SABIC Business Unit (SBU) Fertilizer.

52.2.12 Communication to contractors and suppliers regarding environmental, health, safety and security requirements shall be done in consultation with the ISE Department.

52.2.13 Any external communication received concerning aspects/impacts, hazards/risks or any management system component of EHSS shall be directed to the ISE Department for appropriate response.

52.2.14 Communication with Public Authorities concerning emergency planning, and for external communication on its significant management systems programs and issues are as follows:
- Communication with public authorities and mutual aid organizations concerning emergency preparedness and response shall be as prescribed in the Sabic Crisis Management Plan.
o No information, other than the integrated EHSSQ policy or documents submitted under the corporate or regulatory requirements will be made public without a request for information.

52.2.15 Employee Consultation, Communication and Participation  
o Employees shall be consulted and represented on EHSS especially where there are any changes to the workplace that could affect their environment, health safety, and security.  
o Department EHSS Coordinators, as identified on the departmental organization charts and documented, shall be communicated to respective department employees. Additionally employees shall be informed of who their specified management representative is.  
o Employees shall communicate their feedback, suggestions, or concerns relating to EHSS to their department EHSS Coordinator.  
o Employees shall be consulted and participated on hazard identification, risk assessment, and risk control including pertaining to their work areas.  
o Employees shall be consulted and involved in the development and review of policies, procedures, and operational controls related to the management of EHSS risk in their departments.

52.2.16 Communication during shift hours:- Any one who receives any environmental complaint or any communication from outside, shall inform Shift superintendent and/or Environment Section. Sr. Shift Supervisor, if he receives the communication shall inform Environment Section, verify if the plant has any upset and initiate corrective action.

52.2.17 Communication during after office hours:- Anyone who receives the communication shall inform Shift superintendent who will take immediate action if any upset has occurred. Shift superintendent inform the details to Environment Section the next working day.

52.2.18 ISED Manager/ Section Head (Environmental & Industrial Hygiene) will respond to external inquiries made to the Environmental Section with respect to External Communication of Significant Environmental
Aspects in accordance with the decision recorded in the annual management review meeting minutes.

52.2.19 The ISED Manager / Section Head (Environment & Industrial Hygiene) will determine if there is a regulatory, legal, or contractual requirement to provide information to an external party, and will make every effort to provide a timely response, without revealing confidential information. To assist in this determination, the ISED Manager / Section Head (Environment & Industrial Hygiene) may consult with appropriate Legal Staff or Public Affairs personnel.

52.2.20 In case of a complaint, the response shall include assurance that investigations will be carried out and that corrective action will be taken if deemed necessary, and information about the outcome of the investigation will be communicated as soon as possible.

52.2.21 If there is not a regulatory, legal, or contractual requirement to respond, the ISED Manager / Section Head (Environment & Industrial Hygiene) will determine, based on best professional judgment, the type of response necessary.

52.2.22 Inquiries from the media shall be transferred to the Industrial Security & Environment Department (ISED). The ISED manager should respond to media inquiries.

52.2.23 On a case by case basis, using professional judgment or as required by regulation, any changes in operations that may pose risks to the community shall be communicated to appropriate members of the public on a timely basis.

52.2.24 The company shall make the environment policy available to its employees / persons working on its behalf through intranet, information brochures & postings at important locations. The policy shall also be made available to the public upon request.

Contractor and Supplier Consultation and Communication

52.2.25 Contractors and suppliers shall be provided with the following EHSS information:

- SAFCO EHSSQ Policy
- SAFCO EHSS Management System requirements
- Importance of conformance to the EHSS Management System
- List of EHSS risks and operational controls relevant to the contractor or suppliers activities
52.2.26 Contractors shall be consulted when there is a change in infrastructure, equipment and materials at the workplace that can affect their EHSS. Community Outreach and Programs

52.2.27 Public/stakeholders input on EHSS system will be sought as per the requirements by various means including surveys, visits, and meetings etc. Emphasis would be made on establishing dialogue with these stakeholders. Any information received shall be routed to the ISED Manager. This information shall be discussed in the Management Reviews and the business plan reviews. EHSS Management meeting shall be used to discuss and finalize what needs to be done.

52.2.28 Community outreach programs will be developed by EHSS Awareness sub-committee to ensure the presence of local communities including schools during the celebrations of occasions such as EHSS days, achievements, picnics and general awareness campaigns. These occasions should be used to make these communities aware of the activities being performed by the respective affiliate and its impact on EHSS.

52.2.29 All such programs should be documented.

52.2.30 For communications with neighboring companies in case of any EHSS concern, please refer to Communication Protocol with Neighboring Industries Attachment 2

RECORDING & COMMUNICATING INCIDENTS

52.2.31 AMAN Incident Reporting System of SAFCO/IBB will be utilized for recording and communication of EHSS incidents reports to SAFCO/IBB personnel.

53.0 RESPONSIBILITIES

53.1 ISED Manager or Designate

53.1.1 This procedure is the responsibility of Management Representative (MR) or designate for establishing, implementing and maintaining a documented communication system with regard to company’s EHSS System.

53.1.2 It is the responsibility of the Section Head (Environment & Industrial Hygiene) to respond to or reply to all internal and external communications appropriately.
54.0 RELATED DOCUMENTS
  54.1 Significant Environment Aspect List
  54.2 Hazard Risk Register

55.0 ATTACHMENT
  55.1 Attachment-1 EHSS Communication Summary Report
  55.2 Attachment-2 EHSS Stakeholders
  55.3 Communication Protocol with Neighboring Industries – Attachment 3

56.0 REFERENCES
  56.1 Clause 4.4.3 of ISO 14001
  56.2 Clause 4.4.3 of OHSAS 18001
  56.3 Clause 4.4.3 of Responsible Care Specification (RC 14001:2008)
  56.4 SABIC SHEM standard
## EHSS COMMUNICATION SUMMARY REPORT

<table>
<thead>
<tr>
<th>Communication</th>
<th>Responsibility</th>
<th>Address to</th>
<th>Method of Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHSSQ Policy</td>
<td>ISED Department / MR</td>
<td>Senior Management / All Managers / Employees</td>
<td>Postings</td>
</tr>
<tr>
<td>EHSS Management System</td>
<td>ISED Department / MR</td>
<td>Senior Management / All Managers / Employees</td>
<td>EHSS Training / EHSS Documentation</td>
</tr>
<tr>
<td>EHSS Aspects and Risk</td>
<td>ISED Department / MR</td>
<td>Senior Management / All Managers / Employees</td>
<td>EHSS Listing / EHSS Documentation</td>
</tr>
<tr>
<td>EHSS Legal &amp; Other Requirements</td>
<td>ISED Department / MR / MR</td>
<td>Senior Management / All Managers / Employees</td>
<td>EHSS Documentation</td>
</tr>
<tr>
<td>EHSS Objectives and Targets</td>
<td>ISED Department / MR / Department Managers</td>
<td>Senior Management / All Managers / Employees</td>
<td>Written and/ or verbal communication as appropriate</td>
</tr>
<tr>
<td>EHSS Management Plans</td>
<td>ISED Department / MR / Department Managers</td>
<td>Senior Management / All Managers / Employees</td>
<td>Written and/ or verbal communication as appropriate</td>
</tr>
<tr>
<td>EHSS Audit Finding</td>
<td>ISED Department / MR</td>
<td>Senior Management / All Managers</td>
<td>Written and/ or verbal communication as appropriate</td>
</tr>
<tr>
<td>EHSS Concerns from Internal Stakeholders</td>
<td>ISED Department / MR</td>
<td>Senior Management / All Managers / Employees</td>
<td>Written and/ or verbal communication as appropriate</td>
</tr>
<tr>
<td>Communication</td>
<td>Responsibility</td>
<td>Address to</td>
<td>Method of Communication</td>
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<tr>
<td>EHSS Reports</td>
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<tr>
<td>Monthly, Weekly, Daily Reports</td>
<td>ISED Department</td>
<td>Employees</td>
<td>Issuing Report</td>
</tr>
<tr>
<td>Quarterly Reports</td>
<td>ISED Department</td>
<td>SABIC EHSS</td>
<td>Issuing Report</td>
</tr>
<tr>
<td>Annual Report</td>
<td>ISED Department</td>
<td>SABIC EHSS</td>
<td>Issuing Report</td>
</tr>
<tr>
<td>Incident and Emergency Reports</td>
<td>ISED Department</td>
<td>SABIC EHSS</td>
<td>Issuing Report</td>
</tr>
<tr>
<td><strong>External communication</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>EHSSQ Policy</td>
<td>ISED Department / MR</td>
<td>Regulators / Government / General Public / Neighboring Companies / Customers</td>
<td>Given upon request</td>
</tr>
<tr>
<td>EHSS Management System</td>
<td>ISED Department / MR</td>
<td>Regulators / Government / General Public / Neighboring Companies / Customers</td>
<td>Appropriate method used</td>
</tr>
<tr>
<td>EHSS Risk</td>
<td>ISED Department / MR</td>
<td>Regulators / Government / General Public / Neighboring Companies / Customers</td>
<td>Appropriate method used</td>
</tr>
<tr>
<td>EHSS Concerns from Stakeholders</td>
<td>ISED Department / MR</td>
<td>Regulators / Government / General Public / Neighboring Companies / Customers</td>
<td>Appropriate method used (a formal written communication advised)</td>
</tr>
</tbody>
</table>
Below table illustrate method used for defining stakeholder, assess stakeholder perspectives, share key findings and corrective and preventive actions with relevant internal and external stakeholders, and evaluate the effectiveness of communications.

<table>
<thead>
<tr>
<th>Stakeholder Category with Example</th>
<th>Prospective</th>
<th>Process to Assess Perspectives</th>
<th>Method of Outreach</th>
<th>Method to Measure Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee, (All direct hire)</td>
<td>Safe workplace / conditions issue Personal liability Personal responsibility</td>
<td>AMAN report and suggestions</td>
<td>- Suggestions - Contractor EHSS coordinators - Meeting with contractor managements MOM</td>
<td>DH Man-hours SHER TRP</td>
</tr>
<tr>
<td>Contractor including 3rd party provider</td>
<td>- Suggestions - Contractor EHSS coordinators - Meeting with contractor managements MOM</td>
<td>SSRS feedback System Meeting with contractor managements MOM</td>
<td>Contractor Man-hours SHER Main Contractor EHSS Performance KPI’s.</td>
<td></td>
</tr>
<tr>
<td>SABIC Corporate, (SABIC EHSS)</td>
<td>Compliance to regulations</td>
<td>Regulatory Audit - Transmittal - Meeting MOM</td>
<td>- Audit finding Closing. - Transmittal - Meeting MOM</td>
<td>No, of Audit findings (noncompliance)</td>
</tr>
<tr>
<td>Regulatory Authority (RC)</td>
<td>In-transit product security Loading / unloading safety Consignee safety</td>
<td>Customer feedback in SAP</td>
<td>Customer feedback investigation in SAP and value team</td>
<td>No of EHSS Complain</td>
</tr>
<tr>
<td>Stakeholder Category with Example</td>
<td></td>
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<tr>
<td><strong>Insurance (MARSH)</strong></td>
<td>Prospective</td>
<td>Process to Assess Perspectives</td>
<td>Method of Outreach</td>
<td>Method to Measure Effectiveness</td>
</tr>
<tr>
<td></td>
<td>Less EHSS Accident</td>
<td>Site audit and incident investigation findings</td>
<td>Transmittal feedback with evidence to insurance site audit and incident report</td>
<td>Risk Assessment Report</td>
</tr>
<tr>
<td><strong>Raw Material and Chemical Supplier</strong></td>
<td>Less EHSS Accident</td>
<td>Direct Transmittal or via Sabic SMO Meeting MOM</td>
<td></td>
<td>Based on Aman findings</td>
</tr>
<tr>
<td><strong>Neighboring Companies (Al-Bayroni, Ibn Zahr, Ibn Sina)</strong></td>
<td>Air, Noise, water Pollution, Security</td>
<td>Direct transmittal or via Sabic Meeting MOM</td>
<td>Direct transmittal or via Sabic Meeting MOM</td>
<td>No of Complains</td>
</tr>
<tr>
<td><strong>Public, (AlJubail Community)</strong></td>
<td></td>
<td>- EHSS Awareness Campaign - School and College visit</td>
<td>- EHSS Awareness Campaign and posters - School and Collage visit</td>
<td>Survey and interview while visiting and campaign</td>
</tr>
<tr>
<td><strong>Internal/External Stakeholders</strong></td>
<td>Key Finding of accident and incidents sharing</td>
<td>- EHSS learning from incidents</td>
<td>-Transmittal/E-mails</td>
<td>Prevent of future accident and incidents</td>
</tr>
</tbody>
</table>

* For mutual aid, refer to SHEM-11 procedure
EHSS Incident Reminder
Board at Job Site
The Common Practice Known

After completing investigation, Summary of EHSS Incidents, recommendation and lesson learning proactive actions (points) related root causes are shared to all employees through email and displayed at LCD screen provided in control rooms and maintenance building.

The Best Activity(ies) adopted

Here it happened  EHSS Incident reminder board is prepared based on the EHSS incident investigation report. This reminder boards are kept placed in SAFCO/IBB facilities where incident occurred. This board is having Incident description, caution message and lesson learning points to alert the employees and contractor about the incident zone and enhance their presence of mind while executing the job and effective supervision at site.

The Added Value of the Best Practice:
Procedure enhancement:
This initiatives are included in dept EHSS KPI under Best Practices implementation in SHEM00.06. Audit And Evaluation Procedure.

More Assurance of Risk Control:
Employees and contractors are aware of incident zone area, job-associated hazards, and recommendation action.

Communication, Leadership and Accountability :
Area owner is responsibility to share incident occurred in their site with others to prevent similar incident.

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

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

Improved HSE Control on Contractors (Service Providers):
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 and carry out job safely to reach their home.
Major Emergency Drill
**The Best Activity**\(^{(ies)}\) **adopted**

Major emergency drill was conducted with a scenario same as reflecting a realistic situation that could happen in the site with participation of external authorities/support. The drill was observed by external authorities and achieved full score.
The Added Value of the Best Practice:

<please tick as applicable>

6.1 Procedure enhancement: □
Specify: ......................................................................................................................
......................................................................................................................

6.2 More Assurance of Risk Control: □
Specify: ......................................................................................................................
......................................................................................................................

6.3 Communication, Leadership and Accountability: □
Specify: ......................................................................................................................
......................................................................................................................

6.4 Occupational Health Enhancement: □
Specify: ......................................................................................................................
......................................................................................................................

6.5 Minimizing Environmental Impact: □
Specify: ......................................................................................................................
......................................................................................................................

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: ......................................................................................................................
......................................................................................................................

6.7 Economical and Social Impact □
Specify: ......................................................................................................................
......................................................................................................................
The Best Activity(ies) adopted

Major emergency drill was conducted with a scenario same as reflecting a realistic situation that could happen in the site with participation of external authorities/support. The drill was observed by external authorities and achieved full score.

1.0. Roles & Responsibilities:

1.1. General Managers shall nominate Engineer based on charter requirement as per EHSS department request.

1.2. Start annual analysis of EHSS Incident including near miss and EHSS Observation after 10th January in every year.

1.3. Member shall participate full time basis for analysis.

1.4. Team shall identify common causes and recommendations.

1.5. Conduct meeting with all concerned senior manager for recommendation and target date.

1.6. Finalize the annual EHSS Incident Analysis Report before 20th February in every year.
Effective hazardous and non-hazardous waste management
The Best Activity(ies) adopted

Specific Chemical Waste Yard Inspection Checklist was developed to identify all potential deficiencies in the implementation of waste management procedure. This is to ensure that the waste stored is in full compliance with regulatory requirements.

Refer to attachment
<table>
<thead>
<tr>
<th>SN</th>
<th>Items</th>
<th>Yes</th>
<th>No</th>
<th>Remarks</th>
<th>Action Required</th>
<th>Target Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Condition of drums and packing</td>
<td></td>
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<tr>
<td></td>
<td>Drums are sealed</td>
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<tr>
<td></td>
<td>No corrosion</td>
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<td></td>
<td>Not leaking</td>
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<td></td>
<td>Waste accumulation on top of drum</td>
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<tr>
<td></td>
<td>Bags are sealed and in good condition</td>
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<td></td>
<td>Empty contaminated drum stored</td>
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<td></td>
<td>Batteries (lead acid/lithium) are stored properly</td>
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<tr>
<td>B</td>
<td>Condition of wooden/plastic pallets</td>
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<tr>
<td></td>
<td>Not broken or damaged</td>
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<td></td>
<td>Max stack in 2 rows</td>
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<td>Properly arranged for accessway</td>
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<tr>
<td>C</td>
<td>Spillages/leaks</td>
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<tr>
<td></td>
<td>No spillage or leak</td>
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<tr>
<td>D</td>
<td>Proper segregation of waste</td>
<td></td>
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<td></td>
<td>Segregated according to type</td>
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<tr>
<td></td>
<td>Stored at its designated location</td>
<td></td>
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<tr>
<td>E</td>
<td>Labeling of drums</td>
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<tr>
<td></td>
<td>Yellow waste sticker placed</td>
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<td></td>
<td>Full information of waste written on</td>
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<tr>
<td></td>
<td>1. Plant</td>
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<td></td>
<td>2. Equipment No.</td>
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<td></td>
<td>3. Name of waste</td>
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<td></td>
<td>4. Type of waste</td>
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<tr>
<td></td>
<td>5. Drum numbering</td>
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<td></td>
<td>6. Date</td>
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<td>7. Waste stored less than 6 months</td>
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<td>Permanent marker utilized</td>
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<td></td>
<td>Faded labels</td>
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<tr>
<td>F</td>
<td>General housekeeping</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Unwanted material</td>
<td></td>
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<tr>
<td></td>
<td>Paved area is clean</td>
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<td></td>
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<tr>
<td></td>
<td>Water accumulation</td>
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<td>Dust, sand, foreign material accumulation</td>
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<tr>
<td></td>
<td>Storm water channel free of obstacles</td>
<td></td>
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<tr>
<td></td>
<td>Storm water collecting pit is empty</td>
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<tr>
<td>G</td>
<td>Radiation Storage</td>
<td></td>
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<tr>
<td></td>
<td>Sign board available</td>
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<tr>
<td></td>
<td>Segregated fence</td>
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<td></td>
<td>Door is locked</td>
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<td>Concrete cover placed properly and in good condition</td>
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<tr>
<td></td>
<td>List of stored radioactive source</td>
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<td></td>
<td>Available</td>
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<td>H</td>
<td>Others</td>
<td></td>
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</tr>
</tbody>
</table>

* Action required and target date of completion to be agreed by Environment & Industrial Hygiene Manager.

Auditors:
1
2

Approved by:

Environment & Industrial Hygiene Manager
The Added Value of the Best Practice:

Minimizing Environmental Impact:
Compliance to waste management procedure as per regulatory requirements.
Greenhouse gas (GHG) emissions reduction from SAFCO complex.
Greenhouse gas (GHG) emissions reduction from SAFCO complex.

- Greenhouse Gases (GHG) has become a major concern for global environment. Carbon dioxide (CO2) is one of the major GHG emitted due to human activity. It is responsible for the global warming since long.
- The capture of CO2 emissions from industrial sources and the long-term storage in stable underground reservoirs or converting it to a valuable product are gaining attention internationally as well as in KSA.
- SABIC has its own commitment toward Environment, Reliability & Sustainability. Millions of $ has been invested to capture the emitted CO2 & converted it to valuable products.

The Best Activity(ies) adopted

SAFCO V Project is one of the largest standalone Urea plant commissioned to utilize the vented CO2 and covert it into usable fertilizer product.

SAFCO/IBB is comprising of four Ammonia and four urea plants. SAFCO/IBB annual Ammonia production capacity is around 3 MM MT and 3.6 MM MT CO2 gas.

In 1993, SF-2 Ammonia and Urea plants were commissioned with capacity of 1500 MTPD ammonia and 1800 MTPD urea respectively. Due to excess production of CO2 at ammonia plant, 480 MTPD CO2 was forced to vent into atmosphere.

Later on with the commissioning of SF-3 urea and ammonia plants, it was thought that connecting CO2 headers of SF-2 and SF-3 would gave an operational margin to sustain urea production during the stop-
With the commissioning of SF-4 plant in Y 2006, CO2 grid was expanded to SF4. Since, the capacity of SF-4 plant is 3300 MTPD NH3; the excess CO2 quantity was 2500 MTPD from all the plants.

This quantity is just enough to operate any one of urea plants of SF2 and SF3 in case either one of NH3 plants is down.

In line with its proactive approach towards accomplishing sustainability targets, SABIC/SAFCO decided to install a “Stand Alone” urea plant purposefully designed to consume vented excess CO2 from already operating ammonia plants.

The plant will be capable of producing 3250 MTPD of granular urea that corresponds to consumption of 2400 MTPD of CO2.

After implementation of SF V project, CO2 emissions of SAFCO/IBB are going to reduce by 97%.

This will reduce direct CO2 process emissions by 850,000 TPY.

This will allow SAFCO/IBB to achieve sustainability KPIs for 2025.
The Added Value of the Best Practice:

6.1 Procedure enhancement: □
Specify: ........................................................................................................
...................................................................................................................

6.2 More Assurance of Risk Control: □
Specify: ........................................................................................................
...................................................................................................................

6.3 Communication, Leadership and Accountability: □
Specify: ........................................................................................................
...................................................................................................................

6.4 Occupational Health Enhancement: □
Specify: ........................................................................................................
...................................................................................................................

6.5 Minimizing Environmental Impact: □
Specify: Significantly reduced process CO2 emissions (850,000 tons/year) that was vented into atmosphere. Thereby, reducing the environmental impact from GHG.

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: ........................................................................................................
...................................................................................................................

6.7 Economical and Social Impact □
Specify: ........................................................................................................
...................................................................................................................
Environmental Monitoring of industrial waste water and emission from point sources
HSE Area of Practice. (ex.: PTW, Lifting, Working at height,........etc.)

_Environmental monitoring of industrial wastewater and emissions from point sources._

**The Best Activity(ies) adopted**

Specific Key Performance Indicators (KPIs) were developed for each industrial wastewater stream being discharged from the facility and emissions from the point sources. It is monitored and accountable for the respective Operation Managers.

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

*<please tick as applicable>*

6.1 Procedure enhancement: □
Specify: ................................................................................................
................................................................................................

6.2 More Assurance of Risk Control: □
Specify: ................................................................................................
................................................................................................

6.3 Communication, Leadership and Accountability: □
Specify: ................................................................................................
................................................................................................

6.4 Occupational Health Enhancement: □
Specify: ................................................................................................
................................................................................................

6.5 Minimizing Environmental Impact: □
Specify: It is ensured that all wastewater discharges and air emissions are within the stipulated regulatory limits.

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: ................................................................................................
................................................................................................

6.7 Economical and Social Impact □
Specify: ................................................................................................
................................................................................................

**The Common Practice Known**

The common practice known is to fix the limits for wastewater discharge parameters and emissions and monitor them.
Urea Granulator Ammonia Abatement (UGAA) project
The Common Practice Known
The normal practice is to scrub the free ammonia released from the granulator by water.

The Best Activity(ies) adopted
Refer to attachment
The Added Value of the Best Practice:

Minimizing Environmental Impact:
This has reduced ammonia emissions to the atmosphere from urea granulator stack by 90%. Project implemented as part of proactive measure for environment protection.
Environmental monitoring of ambient air quality (Ammonia fence line monitoring)
The Best Activity(ies) adopted

SAFCO has commissioned the Ammonia Fence line Monitoring Project. The new system was successfully launched and put online to monitor SAFCO Complex fence lines and measure ammonia emissions. It will be used for detecting and monitoring the Ammonia emissions from SAFCO plants to the neighborhood with latest state-of-art technology using Safe Leaser Signal Beams to detect the Ammonia gas with High accuracy and with auto-adjustable scale based on the online reading changes with range from 0 to 700 PPM with high accuracy which and can also detect the Ammonia emissions from outside sources by utilizing information from the wind direction and speed to specify the source.

The new analyzer system will work in compliance with Royal Commission Environmental Regulations toward monitoring and reducing the ammonia emissions for environmental protection. The Online Ammonia Emissions Fence Line Monitoring System can be now used as the best data source for Ammonia Emissions from SAFCO fencelines to neighborhood.

This innovative approach has allowed SAFCO to monitor ammonia emissions from our plants and created an opportunity to act accordingly in preventing the spread of ammonia to the atmosphere.
The Added Value of the Best Practice:
<please tick as applicable>

6.1 Procedure enhancement: □
Specify: ..............................................................................................
..............................................................................................

6.2 More Assurance of Risk Control: □
Specify: ..............................................................................................
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6.3 Communication, Leadership and Accountability: □
Specify: ..............................................................................................
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6.4 Occupational Health Enhancement: □
Specify: ..............................................................................................
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6.5 Minimizing Environmental Impact: □
Specify: This is a proactive approach for pre-alerting in case of any ammonia release observed near the perimeter fence. It is a continuous monitoring system with indication in the control room.

6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: ..............................................................................................
..............................................................................................

6.7 Economical and Social Impact □
Specify: ..............................................................................................
..............................................................................................
HSE Area of Practice. (ex.: PTW, Lifting, Working at height,........etc.)

Carcinogen Control Monitoring:
SF/IBB has developed and been implementing a management system that accomplishes the requirements Sub-element SHEMS 12.05 Carcinogen control. Urea Formaldehyde Concentrate baseline, routine, and non-routine area monitoring is being conducted annually if results were below PEL of 0.75ppm and every 6 months if results were above PEL.

The Best Activity(ies) adopted
SF/IBB Carcinogen Control Monitoring activity is regularly implemented to closely monitor Formaldehyde air concentration to prevent health and safety hazards associated with the material.

The Added Value of the Best Practice:
<please tick as applicable>

6.1 Procedure enhancement:  
Specify: ...........................................................................................................
...........................................................................................................

6.2 More Assurance of Risk Control:  
Specify: ...........................................................................................................
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6.3 Communication, Leadership and Accountability:  
Specify: ...........................................................................................................
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6.4 Occupational Health Enhancement:  
Specify accurately the Heat stress level in a prompt and timely monitoring to avoid heat stress related injury.

6.5 Minimizing Environmental Impact:  
Specify: ...........................................................................................................
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6.6 Improved HSE Control on Contractors (Service Providers):  
Specify: ...........................................................................................................
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6.7 Economical and Social Impact:  
Specify: ...........................................................................................................
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The Common Practice Known

Annual checkup is the basis for renewal/application for ERT/FIRE staff before giving the Physical Fitness Certificate.

The Best Activity(ies) adopted

Stress test machine was used to evaluate the overall physical fitness for ERT member. It is done during application of new members and annually physical fitness before renewal along with the medical check-up.

The Added Value of the Best Practice:
<p><strong>&lt;please tick as applicable&gt;</strong></p>

6.1 Procedure enhancement: □
Specify: .......................................................................................
.......................................................................................

6.2 More Assurance of Risk Control: □
Specify: .......................................................................................
.......................................................................................

6.3 Communication, Leadership and Accountability: □
Specify: .......................................................................................
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6.4 Occupational Health Enhancement:

6.5 Minimizing Environmental Impact: □
Specify: .......................................................................................
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6.6 Improved HSE Control on Contractors (Service Providers): □
Specify: .......................................................................................
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6.7 Economical and Social Impact: □
Specify: .......................................................................................
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Senior Management EHSS Walkthrough
The Best Activity(ies) adopted

Senior Management Team EHSS Walkthrough is conducted after conducting Face-to-Face Meeting. One of the Senior Management Team member along with respective Sr. Managers leads each team from operations, maintenance and technical, EHSS as well planning economic. The audit is conducted as IMTIYAZ operating rhythm guideline and on every Wednesday. Each audit is conducted as per topic provided with comprehensive checklist. Employees and contractors are recognized as part of the audit program for implementing safe work practices and positive safety attitude. Audit findings are recorded, communicated to concerned department for corrective action. The completion of audit recommendation is followed, tracked and reviewed subsequent face to face meeting for taking proactive action by departments.
The Added Value of the Best Practice: "please tick as applicable"

6.1 Procedure enhancement: □ Specify: This practice has helped to amend the SHEM00.06 procedure for improving EHSS culture through audit program.

6.2 More Assurance of Risk Control: □ Specify: Experts from various department involved to recognize the hazards associated with plant operations, condition and personnel acts to take immediate action with committed manner.

6.3 Communication, Leadership and Accountability: □ Specify: This practice is helped to exhibits top level leadership commitment and their accountability at site as part of SHEM00.00 procedure.

6.4 Occupational Health Enhancement:
Specify: It is proactive action to avoid occupational health illness and ensure the implementation of SHEM12 requirements.

6.5 Minimizing Environmental Impact: □ Specify: Environment impact is minimized while conducting audit at process area to assess integrity of equipment’s and to take immediate corrective action for avoiding leak and sudden release of hazardous and nonhazardous materials

6.6 Improved HSE Control on Contractors (Service Providers): □ Specify:- Contractor related issues are identified and helped to highlight in Contractor EHSS Sub-committee.

6.7 Economical and Social Impact □ Specify: .................................................................................................................................
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AFA MISSION

Encourage members to ideally utilize available natural resources, optimally achieve added value, effectively contribute in economic, social & agricultural development, & efficiently promote safe and secure production, storage & transportation of agricultural nutrients, to enhance food security and combat hunger.

This material is a valuable summary of experts efforts, through heavy assessments and results evaluation, beside a close monitoring to the graph of improvements. A material that fully made of hard work, dedication, and finally members cooperation.