IJC INHOUSE MAGAZINE

2021 EDITION

SAFETY LEADER

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EDITION: 2021

FROM THE DESK OF CEO

Dear Colleagues!!!

Warm Greetings to All!!!

First of all Congratulations to entire IJC family for the various records and achievements during the year 2021. The last year has been a year of good progress for the Company as we have achieved many milestones. Winning the British Safety Award 2021 with "Distinction" marks was one of the major achievements we have grabbed. It's more interesting to know IJC is continuously tended to break the previous records and set the new targets to achieve. Further, I would like to emphasis here another milestone we have achieved in this year - the successful and timely completion of ATA (Annual Turn Around) in a well phased manner during the difficult and most crucial time of Covid-19. Congratulations to the entire team, without your immense support and hard work this would not have been possible.

The year 2022 is going to be more challenging in view of new milestones.

The resilience and determination of IJC family is what will get us through these difficult times. We continue to improve our response planning and actions to fight the coronavirus pandemic. In line with government directives and guidance on public and business response, we have implemented safety precautionary measures face mask, gloves, regular sanitization of hands and social distancing etc. The focus of IJC to promote safety and good environment practices continues to be strong. The participation in the annual safety, health and environment (SHE) benchmarking surveys has grown and provides an important forum to share best practices.

Health and safety are our primary concern at IJC…

Take care, stay safe.

With Warm Regards
Abdel Wahab Al Rowwad
CEO

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FROM THE DESK OF GM

Dear Colleagues!!!

Warm Greetings to All!!!

The year 2021 has been a year of success for IJC. My heartiest congratulations to all of you for various achievements and numerous records we have crossed. We have achieved many miles stones during the year 2021. Particularly, Winning the International Safety Award 2021 with distinction marks. Further, I would like to emphasis to you all that, as highlighted by our CEO in his message, the year 2022 is going to be more challenging in view of new milestones.

Considering the COVID-19 outbreak, we have taken all the necessary precautions on time to time basis in line with government directives and guidance. Let me conclude by focusing on the role and importance of every individual in the organization for their vigorous contribution and dedication towards the team work to take IJC to new heights in the years to come. Hope to achieve many successes together.

Extremely elegant to looking forward for the successful year with many milestones.

Best wishes to all of you and your families.

With Warm Regards

Ali Ababneh

General Manager

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SAFETY AWARDS

International Safety Award
Distinction
— 2021 —

This is to certify that

Indo-Jordan Chemicals Company Ltd

has achieved an International Safety Award for demonstrating a strong commitment to good health and safety management during 2020.

Lawrence Waterman OBE
Chair of The Board of Trustees
5 April 2021

Mike Robinson
Chief Executive
5 April 2021

BRITISH SAFETY COUNCIL
International Safety Awards 2021

British Safety Council (Company Limited by Guarantee) Registered in England and Wales No. 4618713. Registered Charity No. 1097271 and OSCR No. SC037998.

Certificate number
AW-0006583

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SAFETY TRAININGS

#	Training Topic	Number of attendees	Training Location	Lecturer Name
1	work safe procedure Tools talk box – Hot	12	CWS –Fabrication	Safety Engineer
2	OS&H / Environmental risk assessment for Lab filter floor	4	Sec.22 F.F area	Safety Engineer
3	Induction training for Newly safety technician	2	plant areas Safety dep't &	Safety Engineer/Safety Supv.
4	Policy Smoking	40	PA Plant Areas & SA	M(ES/TS)/SHE Engineer
5	Tools talk box – practical training in safety department	6	Safety department	Safety Engineer
6	Tool box – safe load test for cranes	10	HEY	Safety Engineer
7	Tools box – environmental acid spillage	24	Sec.44 /T-442	Safety Engineer
8	Tools talk box – SCBA safe using	8	CWS – Instrument section	Safety Engineer
9	, Fire hoses & Tools talk box – practical training for HRC showers	4	Plant areas	Safety Supv. & FM
10	work method training for M/S Tools box talk – Safe Njoom Al Hadeed	9	CWS –Fabrication	Safety Engineer
11	OS&H / Environmental risk assessment CWS personnel	2	Sec.22 F.F area	Safety Engineer
12	Induction training for New safety technicians for all ATA-2021 activities	4	plant areas & .Safety dep't	Safety Engineer/Safety Supv.
13	Safe working method statement	12	Safety department / containers	Safety Engineer
14	Tool box – safe load test for cranes	8	HEY	Safety Engineer
15	Tools box – environmental acid spillage	12	Chemical store / CWS	Safety Engineer
16	Tools talk box – Electrical Clearance	4	Electrical Substation PAP	Safety Engineer
17	Tools talk box –ATA-2021 portable electrical tools training	6	CWS	Safety Engineer
18	Safe work method in QCL ,MSDS	6	LAB	Safety Engineer & Safety Supv.
19	Safety Rules, PPEs.	4	Instrument Room	Safety Engineer
20	First Aid, Covid 19	3	Sec 24	Safety Engineer
21	Smoking Policy ,First Aid	8	Sec21 G.F	Safety Engineer
22	Permits types , Noise safety level ,First Aid	6	DCS	Safety Engineer
23	Electrical Safety, co2 Extinguishing sys, Noise analyses	3	TG,TB	Safety Engineer
24	Safety rules, First Aid	3	Sec 21 F.F	Safety Engineer
25	Scaffolding ,First Aid ,PPEs	3	Filter 3	Safety Engineer
26	First Aid , Covid 19 ,PPEs	3	WTP Sec 32	Safety Engineer
27	portable electrical tools ,fire alarm system, First Aid	5	PAP sec 27	Safety Engineer
28	First Aid ,safety rules	3	clinic	Safety Engineer & Safety Supv
29	Safety Rules, PPEs.	3	Instrument Room	Safety Engineer
30	First Aid, Covid 19	5	PA.Mech	Safety Engineer
31	Permits types , Noise level ,First Aid	15	Sec 14	Safety Engineer
32	Covid 19	3	Security caravan	Safety Engineer
33	Safety rules, First Aid	3	Sec 11	Safety Engineer
34	Scaffolding ,First Aid ,PPEs	15	Pin area	Safety Engineer
35	PPEs, Covid 19	3	Security caravan	Safety Engineer
36	Analysis Permit Rules ,job	4	Control room /permits room	Safety Engineer
37	ISO 9001, IMS, Risk Assessment	4	PA) Mech. office)	SHE/Safety Engineer

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38	IMS, Risk Assessment ,ISO 9001	4	(SA) Mech. office	SHE/Safety Engineer
39	IMS, Risk Assessment ,ISO 9001	11	Control room Operation	M(ES/TS)/SHE Engineer
40	Risk Assessment ,ISO 9001 ,IMS	8	QCL	M(ES/TS)/SHE Engineer
41	OS&H , Safe work methods	3	MH	Safety Supr.
42	OHE , Safe work	4	HEY	SHE/Safety Engineer
43	14001&IMS , Risk Assessment , ISO 45001	5	Main store	SHE/Safety Engineer
44	Incidents , Use stairs , PPEs	5	Admin	SHE/Safety Engineer
45	policy& Rules, 45001&ISO 14001	22	C.W.S	SHE/Safety Engineer
46	Waste Management to all departments	10	Training center	SHE/Safety Engineer
47	ISO 9001, IMS, Risk Assessment	3	office SAP) Elect&PAP).	SHE/Safety Engineer
48	fire extinguishers test	5	Safety department	SHE/Safety Engineer
49	IMS, Risk Assessment ,ISO 9001	5	HEY	SHE Engineer
50	fire extinguishers test training	7	Sec 46	SHE Engineer
51	First Aid , Ambulance stretcher	4	Safety department	Safety Supr.
52	Risk Assessment –open	4	Training center	SHE/Safety Engineer
53	Work at High elevation, safety belt use	8	Filter 3	SHE/Safety Engineer
54	Incidents , sliding risk , PPEs	5	Sec 32	SHE/Safety Engineer
55	policy& Rules, 45001&ISO 14001	5	C.W.S	SHE/Safety Engineer
56	SHE,PPES	10	Training center	SHE/Safety Engineer
57	ISO 9001,14001,45001, Extinguisher first aid , fire	4	INS. sec	SHE/Safety Engineer
58	PPEs ,welding safety	5	F.F sec 22	SHE/Safety Engineer
59	near misses , work permits ,ISO 9001	4	Engr. stores	SHE/Safety Engineer
60	safety for oxygen & acetylene cylinder	4	CWS / welding	SHE/Safety Engineer
61	ISO 14001,ISO 45001 , spill kit , safety guards	4	CWS /MMS	SHE/Safety Engineer
62	ISO 14001 ISO 45001 , HK , spill kit	6	CWS / Elect	SHE/Safety Engineer
63	SHE policy , ISO 14001	7	DCS	M(ES/TS)
64	forklift & load test for crane	7	HEY	SHE/Safety Engineer
65	policy& Rules, 45001&ISO 14001	2	Elect office	SHE/Safety Engineer
66	SHE,PPES	5	safety office	SHE/Safety Engineer
67	ISO 9001,14001,45001, Extinguisher first aid , fire	5	QCL	SHE/Safety Engineer
68	PPEs ,welding safety , work permits	5	G.F sec 22	SHE/Safety Engineer
69	near misses , work permits ,ISO 9001	3	PA Mech .office	SHE/Safety Engineer
70	ISO 14001,ISO 45001 , PPEs	3	WTP	SHE/Safety Engineer
71	ISO 14001,ISO 45001 , spill kit	3	PA Elect office	SHE/Safety Engineer
72	SHE policy ,Use of fire extinguisher	5	Canteen	SHE/Safety Engineer
73	SHE policy , PPEs	12	Sec 13	SHE/Safety Engineer
74	First Aid	12	Training center	Medical Nurse
75	Work permit	4	G.F	SHE/Safety Engineer
76	Near Miss , SHE policy	5	PA area	SHE/Safety Engineer
77	PPEs ISO14001,45001	9	CWS –MMC	SHE/Safety Engineer
78	safety in office	3	A&P	SHE/Safety Engineer
79	SHE policy ,PPEs	3	CWS – lathe Machine	SHE/Safety Engineer
80	ISO 14001,ISO 45001 , PPEs	5	Safety department	SHE/Safety Engineer
81	ISO 14001,ISO 45001 , PPEs	3	CWS – Elec.	SHE/Safety Engineer
82	Regulation & Rules	3	Clinic	SHE/Safety Engineer
83	Risk Assessments	8	Training center	SHE/Safety Engineer
84	,MSDS ,Risk Assessment , Waste Management	3	.AQ site	SHE/Safety Engineer
85	Risk Assessment ,First Aid ,SHE policy	9	AQ site	SHE/Safety Engineer
86	fire Extinguisher usage, Emergency case	6	AQ site	SHE/Safety Engineer
87	Fire extinguisher usage, work at high	7	T-443	SHE/Safety Engineer
88	ISO45001, waste management	3	Krebs building	SHE/Safety Engineer

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89	Mock up for full down high elevation	7	Filter- 3	SHE/Safety Engineer
90	Firefighting pump work	4	Sec 48	Safety supervisor
91	Waste management	6	Con Room	M(ES/TS)
92	Risk Assessments	10	Near Admin dept.	SHE/Safety Engineer
93	Fire truck	4	Safety dept.	SHE/Safety Engineer








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MOCK DRILL

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Mockup Report - 07.01.2021

- **Objectives:**

The main objective of conducting the emergency Mock Drill was to assess the role played by the Emergency key persons in case of **gas leak from SA Superheater** & to train employees how to deal with **gas leak cases and if any injury was available** and how to safely evacuate the place.

- **PROCEDURES FOLLOWED BY DIFFERENT EMERGENCY TEAMS DURING CONDUCTING THE MOCK DRILL**
- The Operator of Sec.-14 informed the DCS Operator that there is SO2 /SO3 Mix gas sudden leak from SA Superheater & to train employees how to deal with gas leak cases and if any injury was available on 07.12.2021 @ 10:33 PM. The DCS operator immediately informed plant engineer & the SHE Department to provide the necessary Protective Equipment required controlling the Emergency, like Full gas mask to control the situation
- The Plant Engineer informed by the Control Center DCS Operator to take the required actions.
- The emergency meeting has been arranged in the spot in presence of Plant Engineer & Safety Supv on site for close monitoring of the situation.
- The particular Area cordoned off immediately by Safety Personnel.
- The Gas leak direction toward south area.
- One injury case – rigger near superheater, immediately taken by safety ambulance driver and clinic nurse to Clinic center to get first aid
- All employees & riggers evacuate from the area to the nearest assembly point (Raw water reservoir at north side area).
- Time of mock drill start @ 10:00 AM & end @ 10:07 AM, so total time 7 min .

CONDUCTED MOCK DRILL RECOMMENDATIONS

1. All workers should move toward designated assembly point faster.
2. Wind sock at diesel tank NA , to be provided
3. Emergency flow chart to be updated with phone nos.
4. Ambulance driver should park at area faraway from spot of emergency.

Prepared By SHE **Approved By M (ES/TS)**

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Mockup Report – 08.11.2021

1. Objectives:

The main objective of conducting the emergency Mock Drill was to assess the role played by the Emergency key persons in case of high elevation injuries & to train employees how to deal with first aid and how to correct transportation to medical.

2. PROCEDURES FOLLOWED BY DIFFERENT EMERGENCY TEAMS DURING CONDUCTING THE MOCK DRILL

- On 08.11.2021 at 12:00 hrs, safety Supv. Informed the Emergency that emergency took place to Safety Personnel by phone emergency 300.
- The Plant Engineer informed by the Control Center DCS Operator & Safety Supv. To take the required actions.
- The FTO and Nurse come to site for first aid and transporter the case.
- Evacuation done for employees away from Injure.
- First Aid and transporter done correctly.

3. CONDUCTED MOCK DRILL RECOMMENDATIONS

A meeting was conducted on **field** in the presence of the emergency chief coordinator and emergency team leaders to discuss the different mock drill activities and the feedback from the mock drill observers. The following are the conducted Mock Drill Recommendations:

- To be apply mock drills in different topic of safety like electrical injuries and environmental issues
- All employees shall evacuate the Injure area in same time.

Meeting attended committee : **sign:**

1-Mr. Shaban abo male:

2-Mr. Maen Matrook:

3- Mr. Qusai zeyad:

Prepared By SHE **Approved By M (ES/TS)**

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SUGGESTION SCHEME

Good participation in the Suggestion Scheme from all the employees by offering valuable suggestions by channelizing their ideas with creative thinking with an aim to enhance productivity / profitability of our organization.

Following Employees were awarded with Appreciation Certificate along with JD 5 for each suggestion contribution.

Emp.No	Name	DESIGNATION	No.of Suggestions
3317	GIRIBALAAJI	ENGINEER - ELECTRICAL	2
2903	ABDEL RAHMAN AL JUNDI	SUPERVISOR - INSTRUMENTS	2
3323	PRABHU	TECHNICIAN - INSTRUMENTS	1
3042	VASUDEL RAVAL	SR.SUPERVISOR - INSTRUMENTS	2
3321	HARIHARAN	INCHARGE - INSTRUMENTS	3
3009	EHAB AL BSOUL	TECHNICIAN - INSTRUMENTS	1
3329	MANIKANDAN	TECHNICIAN - INSTRUMENTS	1
3266	MURALI	PLANT ENGINEER	5
3313	ANAND	SHIFT ENGINEER	1
3316	NIPUL	PLANT ENGINEER	4
3312	MANOJ	SHIFT ENGINEER	1

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EMPLOYEES PARTICIPATION

The majority of us use electricity every day on the job. This familiarity can create a false sense of security. It's important to remember that electricity is always a potential source of danger.

The basic rule is simple: consider all electrical wires and equipment to be live until they are tested and proven otherwise.

The human body is an efficient conductor of electricity and contact with electric current can cause serious injury, including:

- **Electric shock** - results when electricity flows between parts of the body or through the body to a ground or the earth.
- **Electrocution** - results when a person is exposed to a lethal amount of electrical energy.
- **Electrical burn** - occurs when electric current flows through tissues or bone, generating heat that causes tissue damage.
- **Thermal burn** - occurs when the skin touches hot surfaces of overheated electric conductors, conduits, or other energized equipment.
- **Loss of muscle control** - occurs when a current of six to 25 milliamperes (ma) flows through a body.

The extent of injury depends on the amount of electric current, the path, and duration.

Employees in the construction industry can get electrical injuries from:

- Contact with high voltage power lines
- Poorly installed or maintained electrical equipment, tools and machinery
- Contact with hot electrical machinery or equipment
- Arc flash

Electricity also can cause fires and explosions in environments that contain flammable gases, vapors, or combustible dusts.

As an employer you must:

- Train all employees to recognize and avoid the hazards associated with their work.
- Contact the authority that owns or operates the electrical utility line or utility line equipment to ensure that the line or equipment is (a) de-energized, or (b) adequately insulated or guarded before permitting any employees to start work.
- When an employee who is not a qualified person is about to start work that is liable to bring any person or object close to an energized electrical line or utility line equipment, maintain the minimum distances specified in the table.

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Phase to Phase Voltage of Energized Electrical	
Utility Line or Utility Line Equipment	**Distance**
Up to 750 v	900 mm
750 v - 100,000 v	3.6 m
100,001 v - 250,000 v	5.2 m
250,001 v - 345,000 v	6.1 m

- Ensure that the employee does not use a metal ladder or wire reinforced ladder when they work closer to utility lines or utility line equipment than a distance specified in the above table.
- Train operators, electricians and maintenance staff on lockout/tag out procedures, emergency response procedures and other safe work procedures and ensure those procedures are followed.
- Allow only authorized persons to enter a room containing energized electrical equipment with exposed parts by marking it with conspicuous warning signs at the entrance of the room.
- Allow only qualified persons to work on and maintain electrical equipment and machinery.
- Ensure that no employee in a manhole or tunnel works on an energized electrical conductor or with electrical equipment having a potential in excess of 750 volts.
- Ensure that temporary panel boards are securely mounted, protected from weather and water, easily accessible to employees, and kept clear of obstructions.
- Ground any equipment that can become energized such as dispensing equipment used for transferring flammable liquids and overhead cranes used in high voltage areas.

While the employer is ultimately responsible for all the provisions mentioned above, the supervisor has a vital role to play in the safety of their teams. As a supervisor, you must:

- Acquaint your employees with the hazards and control measures associated with their work
- Provide the information and instruction necessary to ensure their health and safety
- Enforce company safety rules, programs, codes of practice and procedures, including ensuring employees comply with the requirements below.

To prevent from the risks of electrical hazards, as an employee you must:

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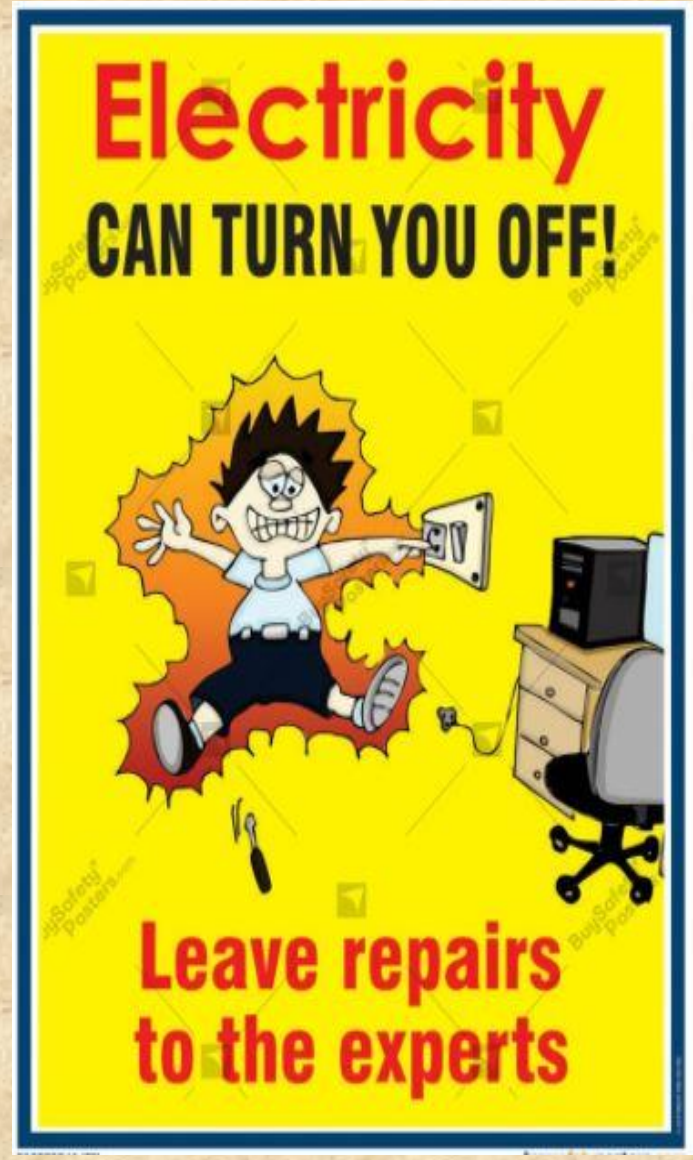
- Maintain a safe distance when working near overhead power lines and energized equipment.
- Not use a metal ladder or wire reinforced ladder when working closer to utility lines or utility line equipment than a distance specified in the above table.
- Use rubber gloves, mats, shields and other protective equipment to ensure protection from electrical shocks and burns while performing the work, where it is not practical to de-energize the equipment.
- Use only appropriately rated testing equipment when testing and trouble-shooting electrical equipment.
- Use only fuses or breakers of the recommended amperage. For example, if the electrical system is rated for 30 amps, do not use a fuse or breaker that's higher than 30 amps.
- Never cut off, bend back, or cheat the ground pin on three-prong plugs.
- Make sure extension cords are the right gauge for the job to prevent overheating, voltage drops, and tool burnout.
- Check extension cords and outlets with a circuit-tester before use.
- Always use a ground fault circuit interrupter (GFCI) when using portable electric tools outdoors or in damp or wet locations. GFCIs detect current that may be leaking to the ground from a tool or cord, and will shut off power before injury or damage can happen.
- Check for electrical wires or equipment before drilling, nailing, cutting, or sawing into walls, ceilings, and floors.
- Never use water extinguishers to fight electrical fires.

Giribalaaji
Engineer – Elect. Planning



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MANAGERS PARTICIPATION

What is a confined space? To be considered a confined space, the four criteria below need to be present:

1. Enclosed or partially enclosed space.
2. Not designed or intended for continuous human occupancy.
3. Restricted access or egress.
4. A space that is or may become hazardous to a person entering it because of its design, construction, location, atmosphere or the materials or substances in it or other conditions.

Although it is not possible to provide a comprehensive list, examples of confined spaces include: tanks, storage bins, boilers, double hulls, vats, pumping stations, kilns, pits, sumps, vaults, vessels, silos, manholes, pipelines, water reservoirs, wells, sewers, and manure pits.

The four main dangers in confined spaces are: oxygen deficiency or enrichment, fire or explosion, toxicity, and drowning in liquids or free-flowing solids. The following key actions are necessary before entering a confined space:

1. **Pre-entry testing** - a competent person must test the atmosphere in a confined space for oxygen level, explosive conditions, and flammable and toxic contaminants. The competent person also verifies, by tests, that all electrical equipment and machinery are locked out and in a zero-energy state.
2. **Purging and ventilating** - If the test results show the atmosphere may be harmful or flammable, purging and ventilating needs to be conducted. Remove air contaminants, and adjust oxygen levels by mechanical ventilation.
3. **At least three people are required at a site** - The entrant, a person standing at the entrance, and a back-up employee within sight and shouting distance with no obstructions or barriers to overcome to reach the space (for example, not in another room or a parking lot). Each has to be properly trained to carry out their responsibilities.
4. **Personal protective equipment and lifeline** - A competent person appointed by the employer must identify all required PPE and inspect it for any defects. When identified in the written report by the competent person, each entrant must wear a Class E full-body harness attached to a lifeline that is tied to a secured anchor point outside the confined space.
5. **Continuous monitoring and communication** - Special equipment and techniques (such as radio, microphones, hand signals and flags) must be in place to allow communication among all personnel involved with the work. In addition, where it cannot be confirmed that the concentration of toxic substances or safe levels of oxygen is able to be maintained or

where there is a possibility that other hazards may occur while an employee is in the confined space, the competent person must ensure that the confined space is continuously monitored for the hazard while the employee is in the confined space.

As an employer, you must:

- Appoint a competent person to verify by tests that the
  - environment inside the confined space is not hazardous
  - oxygen level is between 19.5% and 23% in volume
  - safe levels for the work environment can be maintained during the work inside the space
  - any substance that has the potential of engulfment and entrapment has been removed and the entry of any liquid, free flowing solids has been isolated by secure means
  - All electrical equipment and machines have been locked out, with the machines being put in a zero energy state.
  - the opening for entry and exit from the confined space will allow an employee using protective or emergency equipment to have safe passage
- Ensure that the competent person uses the appropriate and properly calibrated instruments to perform the tests inside the space.
- Ensure that the competent person provides, in a written report, the test results and an evaluation of the hazards of the space, as well as the procedures to be followed, including emergency procedures.
- Provide each employee entering the space or performing rescue operations the protective and emergency equipment identified and inspected by the competent person.
- Explain, instruct and train all employees entering the space about the procedures and the use of protective and emergency equipment
- Where the concentrations and percentage of oxygen noted above cannot be complied with, purge the confined space and have the competent person re-conduct the required tests.
- Ensure continuously monitoring for the hazards when unable to ascertain a safe environment.
- Ensure a competent person trained in the procedures is at the entrance outside the confined space, in constant communication with the employee inside and provided with a suitable alarm.
- Ensure that a competent person has a valid standard-level first aid certificate and training in CPR.
- Ensure an employee trained in the emergency procedures and hazards is in the immediate vicinity of the space.
- Permit employee to enter or remain inside a space only where the airborne dust or concentration of airborne or mixture of

chemical agents does not exceed 50% of the lower explosive limit.

- Allow employees only do the cleaning or inspecting the space, and use explosion proof lighting, where the concentration of the environment does not exceed 50% of its lower explosive limit.
- Allow employees only do the cold work using non-sparking equipment and use explosion proof lighting where the concentration of the environment does not exceed 10% of its lower explosive limit.
- Ensure that when the environment inside the space is hazardous the employee uses the appropriate respiratory protective equipment (SCBA capable of providing at least five minutes reserve of air).
- Ensure that the confined space does not contain flammable or combustible substances or reactive material if the oxygen level is higher than 23%.
- Ensure that electrical equipment taken into a wet or solidly grounded space is battery operated, double insulated or bonded to ground and equipped with a tested GFCI.
- Ensure that written reports are kept at the place of employment near the confined space for a period of two years and written report to be available to an officer upon request.
- Install adequate warning signs and barricades to protect an employee in a space when a hazard from traffic exists.

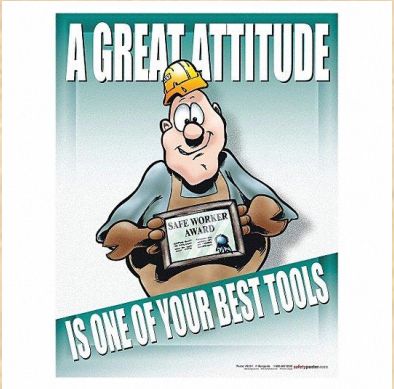
While the employer is ultimately responsible for all the provisions mentioned above, the supervisor has a vital role to play in the safety of their teams. As a supervisor, you must:

- Acquaint your employees with the hazards and control measures associated with their work
- Provide the information and instruction necessary to ensure their health and safety
- Enforce company safety rules, programs, codes of practice and procedures, including ensuring employees comply with the requirements below.

As an employee, you must:

- Enter or work inside a confined space only after someone competent verifies the environment is not hazardous and the appropriate controls are taken.
- Read and understand the procedures set out in the report, be aware of hazards and acknowledge by signing a dated copy of the report.
- When entering, exiting or when occupying the confined space, follow the procedures set out in the report and use the protective and emergency equipment as required.

Shaban Abu Ma'al
M (O)



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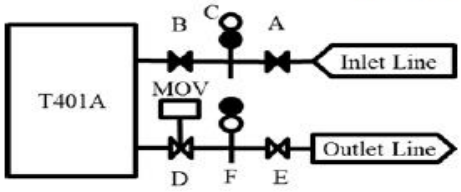
CASE STUDY

VALVE POSITION ERRORS CAN CAUSE SERIOUS INCIDENTS

Figure 1
Storage Tank Fires

Figure 2 Line Blind

Figure 3 Line Blind after incident



In October 2009, a release of over 260,000 gal. (984 cubic m.) Of gasoline from a storage tank led to a major explosion, killing 11 including both operators. (Figure 1).The official report indicated that the operator made a mistake in the sequence of valve operations when switching from tank filling to tank discharging, using a line blind valve (Figures 2 & 3).

One operator closed Valves A and B, then moved blind C from open to closed. The official report did not reach a conclusion about exactly what happened next; as the operators died in the incident. Shortly after, a different operator moved line blind F from closed to open. Gasoline began leaking quickly out of the opening in the top of the line blind. The manual valve E and the Motor-Operated Valve (MOV) D were both found in the open position after the accident. (Figure 4)

11 people were killed; the fire burned for 11 days and the terminal was a total loss

Did You Know?

Manual valves may not be operated often and may not seal for many reasons such as worn seats, debris blocking the sealing surfaces and corrosion.

- There are many configurations for manual valves. If the correct position is not obvious, ask.
- Manual valves that are considered safety critical are often car-sealed or tagged in a given position. They deserve extra caution before operation.
- Line blind can provide a positive shutoff, but in most cases, changing position of line blinds can result in some leakage until completely resealed. Switching blinds should be handled like a line break and using a permit.
- Certain valving operations have a proper order of operation; this should be noted in the operating procedure.

What Can You Do?

When changing valve positions, have the procedure and the PID or piping diagram with you to ensure correct operation. If the procedure or diagram does not match the piping in the field. Stop and ask before proceeding. The procedure or diagram may have an error.

- If you need to operate a line blind, ensure that it has been properly isolated and is truly safe to move before changing its position.
- If a valve is car-sealed in a position, the procedure should note this. If it is not called out specifically, verify you have the correct valve before operation.
- When operating any valve, it is important to verify all drains and sample taps are closed before operation. If the operating procedure calls for a specific order of operation for repositioning valves –follow it.
- If a valving operation is done by 2 or more crews, verify all valve positions are correct before proceeding.

Take extra time to review the situation <u>before</u> operating manual valves.