

Field survey of effective factors in compliance with safety and risk reduction

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Abstract

Undoubtedly, the science of safety can be considered one of the most important and influential parts of a complex, which, while maintaining the health of the human force, can also maintain its assets and reputation and prevent the damage caused by that activity to the environment.

According to the available reports from various organizations active in the field of safety, we find that the majority of accidents (about 80%) that occur to people in various workshops are due to unsafe practices, and the smaller part is related to unsafe conditions and risks.

In this article, we tried to distance ourselves a little from the principles and science in the world of safety, and examine the causes of accidents from the perspective of reality and work. With this style of investigation, we will realize that performing unsafe acts and errors occur in different cultural and financial dimensions. , knowledge, etc. that we have tried to point out the major part of them and come up with proposals to solve them.

In the preparation of this article, the experiences of working in oil and gas lines, medical environments, aviation industry, both from the point of view of the employer and the contractor, have been used.

Key words: safety, risk, unsafe practices, William fine, unsafe conditions, sudden risks, anomaly

Introduction

If we want to correctly predict accidents in the workplace and deal with them, we must examine these risks from different dimensions before starting work with different techniques.

To identify the anomalies related to different parts and evaluate the risk and after that, by using different methods, including employee training, the presence of specialized safety forces in work environments to warn of relevant issues, and to communicate safety instructions to contractors and department managers, etc., we should try to avoid risks.

And after that, we should be able to manage any error and prevent it from turning into a crisis. So, in general, it can be said that we should observe the crisis cycle in every organization, however small, to identify the risks related to that job and prevent the occurrence of secondary incidents.

So that we can reduce the risk of human, financial, environmental and credit damage to the organization to zero and only items related to sudden and unpredictable events remain.

In the continuation of this article, we have tried to examine the issues that have arisen in various fields by combining science and intuition and found solutions to solve them.

Among the features of this review, it can be mentioned that all the issues have been considered from the point of view of the whole, experienced and solved by using the techniques that we are going to introduce.

1- Prediction

Undoubtedly, the first step of the crisis cycle is to predict the risks, which is the first basic step in risk management. Identifying the risks that we face in an organization is a sure way to prevent the incidents that occur after them. For this purpose, we must first prepare and study the following items:

1. Preparation of anomalies related to all parts of that work and writing them in the relevant format to get the appropriate output

2. Description of actions and operational processes of that organization

3. Classification of jobs and recognition of injuries and issues related to each job

4. Preparing a list of equipment and raw materials and any information that is needed about them, such as MSDS and...

5. Getting to know the culture of the people working in that job and determining the measures aligned with the cultural level (this part is completely experimental and separate from scientific references).

After preparing and studying the above items, the related risks should be thoroughly analyzed and evaluated using various methods of analysis, error identification and risk assessment such as William fine, FMEA, what if, etc. along with field and public visits to the workplace. And necessary efforts should be made in order to prevent it from happening.

2- Review from William fine's point of view

As it has been said, there are many different methods for investigating risks and assessing risk, but in this article, we have tried to use it because of the advantages of this technique and its general and partial view and use it in some cases. The most important goals of the opinion of this technique is the following, which we have tried to pay attention to in this article.

1. Preservation of human resources of the organization

2. Preservation of the assets and property of the organization

3. Preservation of environmental resources

4. Maintaining and protecting the credibility and reputation of the organization

2-1- General objectives of the William fine technique

1. Identification and risk assessment of safety and health risks in organizational activities

2. Identification and risk assessment of environmental aspects in organizational processes

3. Identification and risk assessment of asset risks in the organization

4. Identifying and evaluating the risk of threats to the credibility and reputation of the organization

5. Evaluation of the economic justification of the proposed controls

3- The reasons for the occurrence of risks from the point of view of reality

Well, if we want to measure the reasons for the occurrence of a risk from the point of view of reality, apart from science and from the workshop environment and background events, we must say that the main reason for the incidents is unsafe practices, which is partly related to the culture, knowledge level and conditions of the workforce. Another and important part is related to the employer and contractors, and now we want to analyze both aspects in the field.

3-1- Society's culture and proper treatment of it

Field observations show that the issue of safety and HSE in general is not a culture for many people in our country. This means that they generally do not pay attention to safety points and do not use personal protective equipment.

And on the other hand, they consider safety training as an unimportant issue that is just a time to pass, not to learn, which can be the basis of many accidents.

So it is a very important point to be able to deal with this issue properly and to consider that people generally do not have proper feedback in one-sided encounters, especially from the side of the security forces.

In general, if they are given an order, they will show the opposite reaction and treat them inappropriately. For this purpose, it is recommended to first approach the officers and safety managers to the forces and justify them properly by forming an active two-way relationship. They say that observing safety is only for your own health and nothing else.

3-2- Level of knowledge

Certainly, paying attention to safety points is a higher priority for a person who has learned a subject academically than a person who has no academic knowledge, because it has been observed that these people have faith in their skills and consider themselves free from any mistakes.

Another problem in this part can be related to the use of personal protective equipment where the force considers the use of this equipment a necessity because of the low level of knowledge and not a solution to stay healthy. Higher knowledge should be used, or if it is not possible, we can improve their knowledge level by holding courses.

3-3- Livelihood situation and recruitment

It has been observed that in some places the recruitment of a worker is not the responsibility of the employer or contractor, but this recruitment is done on a compulsory basis and on behalf of the person with the thoughts that since it is a project within the scope of my life, I must work in it and if I am not in it, there will be problems. I create for the work of that organization and the result of this attraction is that because the person forced himself to do this job, he did not accept any safety warning from the organization, knowing that no one can replace me.

The second part is related to the living conditions and the income level of that group, if the troops are not in relative prosperity or for example their receipt is delayed, this issue will cause confusion and his concentration will be lost and this can lead to an accident.

3-4- Effect of Employer and contractor on safety:

If we go from corner to corner of the workplace, we will realize that, in fact, most of the instructions and notices are sometimes not followed even by the approved safety forces. The employer must be justified that the HSE unit is a unit to better advance the goals, not an obstacle in front of them.

If the employer and the contractor get to know a technique like William fine, they will understand that one of the objectives of the safety unit is to control the credit and reputation of the complex, so they can better cooperate with this unit.

But unfortunately, what is evident to us is that if there is no compulsion from the upstream organizations, many collections will remove this unit and will not spend any money on safety issues. The following items can be one of the most important deficiencies related to the client or contractor.

3-4-1- Lack of training of the troops

As it was said, the training part for many troops is just a time to spend, and for many employers, the training part is only a time to complete the administrative documents about the training time of the troops, at the end of which they have not received any feedback from the training of the troops and are only looking for documentation.

3-4-2- Provision of personal and organizational safety equipment

Of course, the issue of hernias in an organization is one of the most important issues of that group, which should always be under control, but as much as possible, there should be no shortage of expenses related to safety in accordance with the guidelines.

That is, if it is stated in the recipe that the workers of part A should wear clothes of standard B or wear special glasses for that work, this issue should not be ignored because this issue can lead to injury or erosion of the forces.

Using different techniques, it should be determined for the organization how much it will cost if it takes an action and if it does not How much damage does it do?

We will clarify the issue with a real example; it was checked for an organization that if it installs fire extinguishing equipment, it will cost 350 million tomans, but if it does not install and that part catches fire, you will see a loss of 9 billion tomans, and the same thing happened and that It faced the organization with 9 billion costs, which could have been prevented with 350 million tomans.

3-4-3- Use of expert staff

The use of expert personnel can undoubtedly solve most of the problems of an organization. Employing expert personnel means fewer errors in a task, and the lower the error, the greater the safety.

Today, it can be seen that many recruitments are made with out-of-frame relationships, which can be harmful for the group both in terms of safety factors in the first dimension and in terms of organizational reputation and reputation.

4- Prevention

In the previous part, we found that the occurrence of an error can have wide and numerous reasons, and we even examined a part of it that is not generally seen in academic science. Now we want to examine solutions to prevent possible risks by combining both scientific and intuitive aspects.

4-1- Use of different risk assessment techniques

If we want to assess the risk of an organization's activities, it is better to use different techniques for this, that is, not to use only the FMEA technique by one expert to evaluate all departments.

We must form a study team and use people with different expertise in this study team and we must consider a place for local people with similar

work experience to familiarize us with regional challenges.

First, the anomalies of each section should be checked and completed by the relevant expert And after that, it is much better to investigate these anomalies in the presence of local and experienced people and assess the risk with the desired technique to find suitable solutions to reduce the desired risk.

In the risk assessment, it must be observed that any omission or deviation from the instructions is not acceptable and can have irreparable consequences.

4-2- Obtaining statistical output from risk assessment

Experience has shown that viewing statistics and figures is tangible for the general public and they pay more attention to it.

For example, when it is said that this operation is dangerous, it may not be paid attention to, but when it is stated that this operation has an 80% probability of leading to some kind of error, this is palpable and can justify people in a way that is felt by the listener. It should be said that there is a lot of analysis and science behind this kind of speech and he respects this statement.

But on the other hand, for the organization itself, the output of the data must be in the form of statistics and figures so that they can be compared. Let's say that the probability of this risk is 40%, if preventive measures are taken in the next examination, we can give a more accurate diagnosis in order to reduce or even increase the probability of error.

4-3- Use of analytical and simulator software

With the increasing progress of technology and the emergence of various software in the field of safety, we can take good advantage of them in order to advance the goals.

In the first step, you can take an effective step in the direction of risk assessment and management by using different software and create a useful

database so that you can benefit from it at any time.

But here we are facing a challenge, which is the high price of some of these software. In order to eliminate this challenge, it is recommended to use Excel software, which can be a suitable solution for creating a database and analysis, although it may not be possible. It is 100% compared with specialized software, but you can get the necessary benefit from it. Therefore, the presence of a skilled person familiar with this software in the working group can be a very good idea.

In the second step, in order to predict the level of a series of risks, simulation software should be used. In this way, with a suitable simulation, we measure the extent of an event and can consider the necessary measures to deal with it. And in order to deal with it, simulators such as firefighting equipment software and the like can be used again.

With this work, it not only gives us a good view before the accident, but it is very useful to show the results to all personnel so that they put safety points more in the forefront of their work.

4-4- Experience writing

The employer can make the completion of the experience writing form mandatory for everyone or as much as possible for managers and senior contractors. It means to ask them to write down their risky experiences and to mention the solutions provided to solve it or suggestions to solve it in writing.

With this work, we can have a very good access to an experimental and sometimes scientific base, by studying it, we can reach points that are part of the sudden dangers that we can come up with in order to deal with them.

4-5- Creation and archiving of data and documents

The executive and operational personnel of every organization should know that all permits in any field are considered a legal document, so they

should be extremely careful in writing, signing, executing and archiving it.

In order to do these things efficiently, each group should put a person familiar with this task in charge of implementing the measures so that the maximum efficiency of the database can be obtained whenever necessary. For this purpose, you can use the software available in the market.

Every organization should determine the retention period of its documents according to the necessary checks.

4-6- Provision of standard protective equipment

Protective equipment, both for people and places, must be provided with the best quality and necessary standards.

In the provision of individual equipment with a little more cost, it is possible to face big risks such as the removal of personnel from the production line due to physical injuries.

The employer should also know that maintaining the health of people should be the most important goal of any organization, which can lead to the development of the credit and reputation of an organization. The safety equipment of the premises should also be installed with the best quality and at the highest level of standards so that risks like the example mentioned earlier in section 3 do not happen.

4-7- Recruitment and integration of local and foreign potential

As discussed in section 3.3, recruitment of troops in some areas is mandatory and if local people are not recruited, they can create barriers to prevent work.

In this regard, it is necessary to attract people to the organization before imposing themselves on it, so that the force does not look like it came by its own force and insistence and no one can replace it.

In the second step, it should be noted that non-native people should be used as much as possible in the supervisory departments, because it has sometimes been observed that if native people are used,

People ignore the safety notices and reporting violations related to it for various reasons such as kinship and the forces do not listen to the observer for the said reasons.

But if non-native people are used, many of these problems will be solved, although this issue itself needs management to prevent secondary consequences.

4-8- Using the law of changing your attitude and control

With every warning, we observe that the forces still do not pay any attention to our work, we express our displeasure and that we only blame the forces without paying attention to this.

In order to prevent it, for example, we have warned 100 times and 100 times it has not been paid attention to, so maybe we have made a mistake 100 times and given inappropriate warnings, it is necessary to go back and correct our behavior and every time we received inappropriate feedback from the law. To use control means to control the behavior of both ourselves and the other party. Don't forget that we are in the prevention phase, not the start of a disaster.

5- HSE and attrition of the force

Non-observance of safety can have many consequences, but one of the most important of them is the issue of attrition of forces. In many cases, due to the level of knowledge and culture, the person himself refuses to comply with safety, but with the first injury he sees, his approach changes and he can no longer function as before.

Therefore, conditions must be created so that the forces are not eroded and maintain their positive performance all the time. But health is not always reduced to not seeing an injury, it can be said

without a doubt that the reason for the occurrence of many errors is lack of mental health. The employer must be able to constantly keep the employees satisfied in terms of mental and mental health by creating appropriate motivational and welfare plans. In this way, it will achieve the following goals:

1. Maintaining the intellectual and psychological health of the force
2. Increasing the concentration of the force, which leads to increasing safety and increasing the efficiency of his work.
3. Increasing reputation and credibility through the high efficiency of forces
4. Increasing the satisfaction of the troops with the organization and compassion to increase that collection
5. Another way to maintain the health of the group is in the matter of nutrition and providing nutritional supplements, such as providing salt tablets for active workers in tropical regions or providing vitamin D3 tablets for active forces in closed environments, or rather all forces, these works cause maintaining the health and vitality of the work environment and ultimately better advancing the goals of the organization.

6- Controls should be economically justified

As we said in this article, our general view of risk assessment is from WILLIAM FINE's point of view. In this style, the J factor is used to check the economic justification of the proposed controls, which has a special formula that finally, if the obtained number is less than 10, the controls are unacceptable, and if it is greater than or equal to 10, the costs are acceptable.

7- confrontation phase

In the previous sections, we tried to point out some of the important points in the direction of risk assessment and risk control, but a risk is not always controllable and sometimes something happens for various reasons.

An Incident, no matter how big or small, has the potential to become bigger, which means that even a small incident, if not controlled, can easily lead to a big incident and sometimes a disaster.

Consider the lack of focus of a flight engineer who makes just one minor mistake and sets the flight altimeter to FEET instead of meters, the pilot goes on the runway and his information does not match the information from the control tower.

And finally, it leads to the damage of that flight and endangering the lives of several hundred people (a real example). Here, the carelessness of the pilot should not be overlooked, but in general, everything starts from a small carelessness, but in case Lack of control can be a disaster.

We must be able to manage incidents. For an organization, having an expert with crisis management expertise and his presence in the safety team can be mandatory.

In the confrontation phase, we must first manage our HOT Zone well, do not allow people without expertise and knowledge to enter it, and by isolating it, prevent the transmission of marginalizing news.

In case of life-threatening accidents, we should be able to perform the best performance in providing medical services by triaging the condition of the injured.

Also, if necessary, we should also take the documents and documents away from the accident area and take them to a safe area so that they can be used in the subsequent investigations of an incident. Do not forget that the documents and documents, especially the permits issued in a The set of rulings has the black box of flight and is a suitable legal document for productivity.

In general, we should know that in the confrontation phase, everything should be done under the supervision of expert people and organizations, and any additional activities should be avoided because every incident has a common border with a bigger incident.

Λ-The border between prevention and confrontation

In this border, there is a preparation phase, a phase that is a part of prevention but similar to confrontation. Definitely, the best activity in this border is holding maneuvers, and we should hold these maneuvers in two ways:

Holding coordinated and training maneuvers in which people perform a maneuver after seeing the necessary training and implementing it. The second type of maneuvers is that the troops have no knowledge of the maneuver and must be suddenly called and execute a maneuver.

However, according to the observations and investigations carried out in more than 30 maneuvers, we found that more than 80% of the maneuvers in our country were of the first type, but in the report of the second type maneuver and zero hour maneuvers, it is reported that this issue is only a show, not a maneuver, and the result is the weakening of the forces in the implementation and the lack of proper information of the employer about the capabilities of the forces.

¶-summary

If we want to reach a suitable conclusion, we try to summarize this issue by stating a real example;

In one of the construction projects, when the security team consisting of the author's team started working, they encountered forces that were generally from local people and sometimes imposed themselves on the complex.

In the beginning, the forces were dealt with several times with one-sided encounters to ensure safety, but we did not receive any response from the executive team, and we were only observers of the margins between safety and the Ajr team, but by using the following methods, we were able to take an effective step in the direction of our activities:

¶-First, we tried to form an active two-way communication with the forces, introduced

ourselves as their friend, and by sharing the memories of the observed incidents, we were able to create a little change in their minds.

2- Using safety software and simulators, we simulated the risks and showed the results to the troops in training classes and explained the consequences.

۳- All daily activities, even typing a letter, were recorded in Excel software with the details of the day and time, and we were able to refer to them many times.

4- One of the most important features that could improve the relationship between the team and the forces was to express our operational records so that they know that we are also capable of noble work.

5- Setting up a system of encouragement and punishment, which was very useful, encouragement, no matter how small, could lead the troops to comply with safety.

So it was observed that with these measures, no matter how small, we were able to take an effective step towards setting up a powerful safety system, and the key to this system was proper communication, a two-way communication that became an indirect communication. Where other forces observed their safety well when they saw the safety personnel.

10- Conclusion

The points mentioned in this article are the result of activities in various fields of the aviation industry, petrochemical companies, oil and gas, and the review of the activities of organizations such as the Red Crescent Society, emergency and fire brigade with voluntary activities in them.

So we find out that all the information is touched by these people. In general, it can be said that the employer and the contractor must first be well justified that the HSE unit is a prevention unit and in order to advance the goals in the best and healthiest way possible.

And this unit must defend the health and safety of employees, the environment and the goals of the group in the best possible way by applying all the rules and instructions.

In no way should a specific goal prevent the security force from doing its work correctly, and this unit should have a valid reason for all its actions, prepare a written report and file them according to the statements.

But some needs can be related to localization in order to better advance the goals. Localization of cultures and guidelines can be the first step. We should not forget that many of these guidelines were written for another country and with another culture, so we should manage them well by localizing the culture of the region to get the best result.

The second step can be related to the localization of software, where the high price of risk assessment software and simulators, as well as the non-providing services of some of them to our country, causes safety officials cannot take proper advantage of this software and continue to operate in the traditional style.

So, by localizing these software and promoting the culture of using them, we can take a big step in the advancement of safety science.

In the end, we conclude that the health of a society depends on the health of people and its environment, and the health of people depends on the health of organizations and the environment, and in the same way, the health of the environment depends on them and this cycle will continue forever. It will be possible to guarantee the health of an entire society by having intellectually healthy people, the only requirement is that proper management is done and everything is under the control of academics.

Recourses

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