Petrol Fuel Station Safety and Risk Assessment Framework

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Abstract— **Petrol Fuel Stations (PFS) are hazardous work places. They store and sell flammable material (petrol, diesel and CNG). Arrival and departure of various kinds of vehicles to take fuel is normal round the clock. Due to availability of flammable materials at PFS poses constant hazard to the staff, public, assets and environment. Minor mistake has the potential to create disastrous situations. Human behavior found one of the dominant factors to create hazard contributing scenarios at PFS. One year data collected (2008) and 1203 events recorded. Other factors related to process failure also exist but requires less attention. 1203 hazard contributing factors further divided into 8 main categories. These are housekeeping (55), transportation hazard (255), slips trips and falls (215), carelessness (244), fire (17), electrical fault (97), medical treatment cases (61) and miscellaneous cases (279). Detail description of these hazards contributing factors also presenting in this paper. Based upon occurrences of these hazard contributing factors, safety and risk assessment framework prepared and is presenting in this study for further implementation.**

Keywords- ***Assets, fuel, group, hazard contributing factors, miscellaneous, root cause.***

I- BACKGROUND

A petrol filling station (PFS) is a hazardous facility and it needs special care in design, construction, installations and maintenance of its components so that they remains safe and secure throughout the life span of station and not to cause explosion or other untoward incidents. Hazards contributing factors recorded during operation and maintenance of PFS were as follows,

- House Keeping
- Transportation Hazards
- Slips trips and falls
- Carelessness
- Fire
- Electrical Fault
- Miscellaneous cases
- Medical treatment cases

These hazards are not independent and interrelated with one another. They have correlation and connectivity with their occurrences. No specific risk assessment model found that can apply to reduce these unsafe acts.

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Application of inappropriate risk assessment model to calculate risk will not give suitable results because of difference in base data used to establish these criteria. Therefore there is a need for safety and risk assessment model that can apply to determine risks on PFS related activities. Intrinsically safe working environment is needed equally at PFS.

II- INTRODUCTION

Unsafe acts and unsafe conditions recorded during operation and maintenance of PFS for one year duration (2008). These PFS were operating by one of the biggest oil marketing company in Pakistan. The company has more than 2500 petrol fuel outlets across the country. The retail outlets were located in urban and rural areas of Pakistan. The unsafe acts and unsafe conditions recorded during data collection phase indicate safety conditions at PFS. PFS are generally operated by two groups of people i-e client and contractors. Hazard contributing factors recorded and presenting in this study were noticed by both of these groups jointly. The continuous occurrences of hazard contributing factors not only at PFS but also in other fields require attention. With availability of adequate barriers to occurrences of these hazards risk can be minimized. Detailed and thorough study conducted related to these hazards contributing factors. The one way to determine accurate root cause of these hazards is "risk assessment criterion". Therefore, there is a need to develop PFS safety and risk assessment model based upon these hazard contributing factors.

III- PROBLEM STATEMENT

Various risk assessment criteria are currently in practice in many organizations. Continuous occurrences of hazard contributing factors during operations and maintenance of PFS indicate weaknesses in these approaches. These hazard contributing factors have potential to create unwanted scenarios at PFS. Therefore there is a need to develop risk assessment framework that prioritize hazards and calculate risk value to assist health safety and environment professionals in decision making.

IV- AIMS AND OBJECTIVES OF STUDY.

The aims and objectives of study conducted are;

1. Determination of hazard contributing factors during operation and maintenance of PFS.
2. Development of safety and risk assessment criterion for PFS.

V- SCOPE AND LIMITATION OF STUDY

There are mainly three (03) stages of work in which hazard can be calculated. These are preliminary, development and construction stage and operation & maintenance stage. Probability and severity of hazards at every stage are unique. This study focus on hazard contributing factors during operation and maintenance stage at PFS.

VI- LITERATURE REVIEW

Petrol fuel stations are fuel storage places available within an urban and rural areas. Fuel has the potential to create fire accidents [1]. Fuel hazard fire assessment is an important input for fire management plan [2]. Vapors concentration of suspended fuel volatile are depends upon weather conditions but near surface fuels always burns in any fire scenario even in availability of less intensity [3]. From 1993 to 2004 approximately 243 incidents related to fire broke up reported at PFS around the world. Electrostatic charges found to be main root cause for fire generation [4]. Tank lorries (T/Ls) during their operation and maintenance at PFS posses various kind of hazards on allied facilities and staff [5]. Automobile refueling is one of the main sources of benzene vapors production. It has severe health effect on workers and nearby staff [6]. Risk level of different hazardous activities prioritized by using risk assessment criteria models and it provides viable knowledge to safety professionals to set company goals and objectives [7]. Every year in USA alone about 150-200 fires events occurred due to static-electricity-caused ignition of gasoline vapors [8]. Both contractors and client have the activities that can create major and minor injuries during operation. Minor incidents reported in Pakistan State Oil (PSO) which is one of the country back bone oil marketing company were 130 excluding the incidents at contractor's end. The major cause identified was carelessness [9]. Less impact of available theories proposed by various researchers and working groups [10]. With appropriate approach and scrutinize main causes of accidents, incidents, unsafe acts and unsafe conditions can be improved significantly [11]. With application of behavior based safety approach and identification of at risk behaviors safety condition can be improved significantly [12]. Hazard identification and risk assessment is an important tool to prioritize hazardous activities. Rank them according to their severity level and take corrective and control measures [13]. Electrostatic charges have interaction of weather, clothing, and car seat material, getting in an out of car [14]. Most of the incidents occur under low-humidity conditions; consequently, they are more prevalent in cold weather. A disproportionate fraction of these incidents (55% of the incidents where the ignition details are known) have involved an individual who re-enters and re-exits the vehicle during the fueling operation [15]. Static-prone seats in vehicles, allowing a high charge to be built up on a person moving in or out of the seat [16]. 5–8 kV values are more common to generate while in a single action of getting out of a car of an individual. But individual sometime can produce over 15 kV. Other studies have shown that charging an individual to around 6 kV can suffice to produce an incentive spark [17]. In terms of responsibility of the individual doing the refueling, the American Petroleum Institute issued a widely-publicized press release on February 3, 2000, "Do not get back into your vehicle during refueling." Their press release also emphasized that if for some reason the person does have to re-enter the vehicle, "Discharge the static electricity buildup when you get out by touching the outside metal portion of your vehicle, away from the filling point, before attempting to remove the nozzle"[18]. In construction project Behm reference work from Szymberski demonstrates that the best time to influence safety is at top concept and design phase. Refer appended below figure-1 and figure-2 [19].

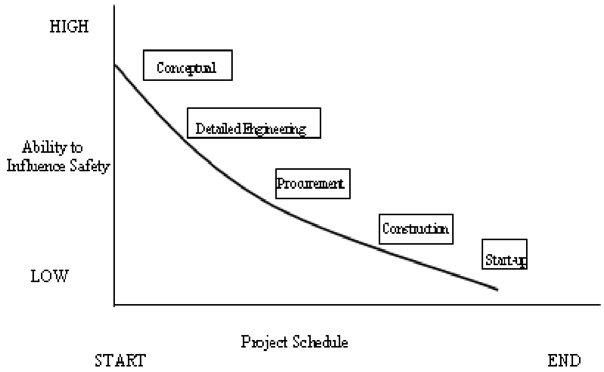


Figure-1 Time/safety influence curve (from Behm). The ability to influence safety Reduced as project moves towards start up.

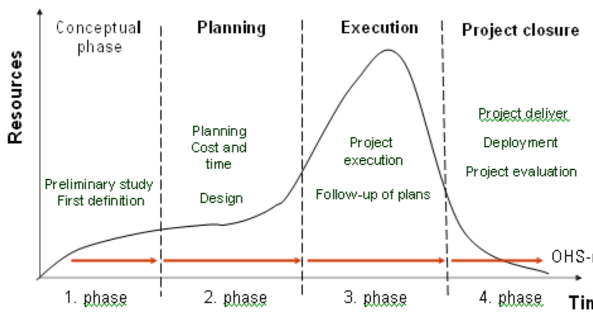


Figure-2 Occupational safety and health matters progress during construction project life-cycle. (From Behm).

Failures in human behaviors and process are two primarily main causes of hazards occurrences. This study will deal in length human behavior contribution in hazards scenario development at PFS. One (01) year data (January 2008 to December 2008) was collected and hazard contributing factors grouped into further eight (08) categories. Risk assessment criterion based upon occurrences of these hazards created for PFS. Severity and likelihood calculated. Finally risk calculated based upon these risks hazard contributing factors prioritized to assist safety professionals so that they can take further necessary actions to reduce unsafe practices.

Studies conducted normally focused on process safety failures. Very few literatures found that explores on human behaviors aspects. By controlling human behaviors aspects safety statistics can be improved significantly and also have the capability to remains long lasting impacts. No study conducted during operation and maintenance at PFS with regards to human behavior improvement. By highlighting this gap through this study it is envisaged that with proper implementation of at risk behaviors measure and mitigation strategies unsafe acts and unsafe conditions at PFS can be control. The study conducted proposing a new approach to calculate risk. Studies conducted in past refers only fatality, accident, incident and near misses cases for risk calculations. The approach proposing in this study develops safety and risk assessment framework by using actual field data related to hazard contributing factors at PFS. With little modifications this risk assessment method can be applied in any discipline. As the significance and importance of human behaviors is of vital application in any sector.

VII-COMPONENTS OF PETROL FUEL STATION

PFS facilities available in urban and rural areas. These workplaces normally consists of following components;

1. Fuel System
   -Tanks
   -Pumps
   -Pipework
   -Tank lorries

2. Forecourts
   -Surfacing
   -Islands
   -Oil separator

3. Non Fuel
   -By the way
   -Car wash
   -Tyre shop
   -Oil suction machine
   -Service bays

4. Signages
   -Canopy fascia
   -Monolith/flag/pole
   -In/out/CNG
   -Site name
   - Service block
   - Shop fascia
   - Tyre shop
   - Waiting room
   - Oil change
   - Car wash
   - Restaurant
   - Lube trolleys
   - Decantation sign
   - Fire extinguishers and buckets
   - Canopy column
   - Safety signs

5. Equipments
   -Generator
   -Compressor

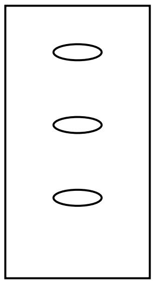
6. Allied Facilities
   -Restaurant
   -Prayer area
   -Credit card reader
   -Security post
   -Public toilets
   -Water cooler
   - Truck parking shed

7. CNG
   - CNG island
   - Compressor shed
   - Fire rated wall
   - Control room
   - Pipe channel

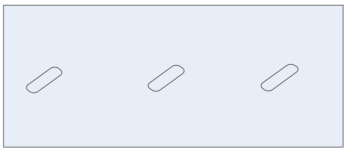
8. Forecourt

Forecourt normally tollgate, echelon or four (04) square arrangement. The provision of forecourt is also depends upon the availability of space.

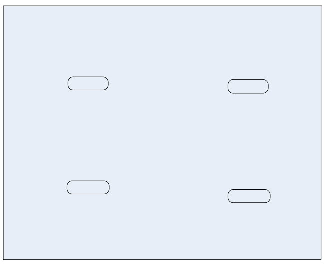
Tollgate



Echelon



Square



9- Fuel tanks

Fuel tanks are normally bitumen coated single skinned mild steel tanks. The fuel tanks located depending upon the safe decantation position to minimize pipe-work costs. The number of tanks required determined by selecting the closest configuration of three (03) nominal sizes which best meet the sales volumes with a five (05) day cover. The nominal tank sizes are 18000, 27000 and 45000 liters. Tanks maybe single or double compartment for the 45000 liters tank. Reinforced concrete pits are provided adjacent to tanks.

VIII- HAZARD CONTRIBUTING FACTORS

Unsafe acts and unsafe conditions recorded during operation and maintenance of PFS for one year duration. 1203 events recorded. These PFS were operating by one of the biggest oil marketing company in Pakistan. 1203 events categorized into 8 divisions. Table-1 shows notations for hazards contributing factors and monthly number of unsafe events recorded during study period.

Table-1 Percentage distribution of Hazards Contributing Factors

No	Description	Notation	Total	%age
1	Miscellaneous Cases	Misc	279	23.19%
2	Transportation Hazard	T	255	21.20%
3	Carelessness	C	224	18.62%
4	Slips, trips and falls	S	215	17.87%
5	Electrical Fault	E	97	8.06%
6	Medical Treatment Cases	M	61	5.07%
7	Housekeeping	H	55	4.57%
8	Fire Risks	F	17	1.41%

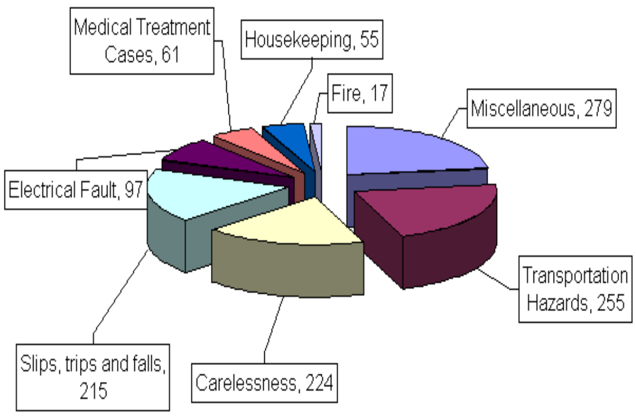


Figure-3 Distribution of hazard contributing factors

Figure-3 represents the distribution of hazard contributing factors round the year 2008. Major non-compliance recorded in miscellaneous cases. Miscellaneous cases cause unsafe events due to mechanical fault, small leakages and unsafe conditions that produced by natural phenomenon. 255 events recorded due to transportation hazards. It mainly includes accident cases due to transportation of fuel, collision of heavy vehicles including tankers with other allied facilities at PFS and unsafe acts due to driver's behaviors. Carelessness is the 3rd hazard contributing factor during operation and maintenance of PFS. 224 cases recorded due to carelessness.

Table-2 shows the detailed breakup of hazard occurrences events on monthly basis for one year duration. Maximum number of unsafe events recorded in November, in initial six (06) months the frequency of occurrences of unsafe events is comparatively less in number as compared to last six (06) months of the year. Occurrences of non-compliance due to miscellaneous cases found to be most significant. Total 279 cases reported. Whereas, transportation hazard, carelessness and slips, trips & falls attains 255, 244 and 215 events respectively. Medical treatment cases got 6th ranking among eight (08) contributing factors with a score of 61. 55 unsafe acts and unsafe conditions recorded due to base cause of housekeeping. 17 events recorded that results in occurrence of fire at PFS and got the lowest ranking.

Table-2 Detailed monthly breakup of Hazard Contributing Factors

No	HCF	**Monthly Total**												
		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
		62	**41**	**83**	**69**	**59**	**63**	**100**	**124**	**155**	**107**	**196**	**144**	**1203**
1	Misc	7	13	10	20	12	15	26	28	40	25	53	30	**279**
2	T	18	5	17	22	19	9	24	29	25	26	30	31	**255**
3	C	17	9	14	19	3	14	17	20	32	17	40	22	**224**
4	S	12	11	27	0	17	12	9	22	34	13	30	28	**215**
5	E	4	0	9	0	7	9	10	7	15	13	14	9	**97**
6	M	0	0	6	1	0	1	6	5	5	7	16	14	**61**
7	H	1	0	0	6	1	3	7	11	3	5	11	7	**55**
8	F	3	3	0	1	0	0	1	2	1	1	2	3	**17**

*HCF=Hazard Contributing Factor

Hazard contributing factors has significant role for the causation of fatality, accident, incident and near miss cases. Table-3 is providing break up of total reported unsafe events into four (04) group's i-e fatality, accident, and incident and near miss cases. Four (04) fatality cases reported during year 2008. Accident, incident and near miss distribution were 91, 352 and 756 cases respectively. Root causes of 4 fatality cases were;

1. While a T/L # MND-3042 entering into the facility, it hit the conservancy worker near gantry. He died.
2. A passenger vehicle arrived for CNG filling, during refueling the vehicle CNG cylinder was burst. As a result a woman (passenger) died on the spot and the driver was also died later.
3. Driver of T/L # SI-4585 fell down from the HSD (high speed diesel) filling point during filling of his T/L due to dizziness. Later he was expired.
4. Due to heart attack, a worker was expired.

Table-3 Fatality, Accident, Incident and Near Miss causation due to Hazard Contributing Factors

No	Description	Monthly Total												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1-	Fatality	0	1	0	1	0	0	0	0	1	0	1	0	**4**
2-	Accident	13	1	3	13	7	0	11	12	11	8	4	8	**91**
3-	Incident	26	19	32	22	18	11	26	27	58	26	50	37	**352**
4-	Near Miss	23	20	48	33	34	52	63	85	85	73	141	99	**756**
	Total	**62**	**41**	**83**	**69**	**59**	**63**	**100**	**124**	**155**	**107**	**196**	**144**	**1203**

Impacts of PFS on environment, human and property (assets) are of potential value. Table-4 illustrating the effects of hazard contributing factors on environment, human and property. Major impacts from 1203 cases reported causes severe impacts on property (assets). Total number of activities impacts on property damages and loss of property recorded was 595. Events affects on human got second rank with a value of 436 and least impact recorded on environment with a score of 172 events.

Table-4 Effect created by Hazard Contributing Factors on Environment, Human and Property

No	Description	Monthly Total												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1-	Environment	4	8	8	10	4	10	21	21	26	13	32	15	**172**
2-	Human	20	17	42	20	26	23	32	37	55	34	73	57	**436**
3-	Property	38	16	33	39	29	30	47	66	74	60	91	72	**595**
	Total	**62**	**41**	**83**	**69**	**59**	**63**	**100**	**124**	**155**	**107**	**196**	**144**	**1203**

IX- QUARTERLY DISTRIBUTION OF HAZARD CONTRIBUTING FACTORS

Hazards patterns provide a bench mark to reduce equal number of hazards occurrences in every quarter. Danger of more hazardous occurrences of same kind of events identified and remedial measures can be developed for implementation. In 1st quarter one unsafe event related to housekeeping was recorded. It is progressing in 2nd, 3rd and 4th quarter of the year 2008. 10, 21, and 23 unsafe events recorded with root cause as housekeeping. The same phenomenon observed related to transportation hazard, electrical fault and miscellaneous cases. Table-5 shows the number of events occurrences in respective quarters. Whereas slips trips and fall, carelessness, fire risk and medical treatment cases show similar occurrences trends in four (04) quarters. The number of cases in these 4 areas dragged down in 2nd quarter and increase in 3rd and 4th quarter. Altogether 186, 191, 379 and 447 cases reported related to hazard contributing factors in 1st, 2nd, 3rd and 4th quarter respectively.

Table-5 Quarterly distribution of Hazard Contributing Factors in year-2008

HCF	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
H	1	10	21	23	**55**
T	40	50	78	87	**255**
S	50	29	65	71	**215**
C	40	36	69	79	**224**
F	6	1	4	6	**17**
E	13	16	32	36	**97**
Misc	30	47	94	108	**279**
M	6	2	16	37	**61**
Total	**186**	**191**	**379**	**447**	**1203**

*HCF=Hazard Contributing Factor

Bench mark establishment and prioritization of remedial measure can be finalized for implementation. Immediate corrective actions with target dates can be developed. Sudden increase in housekeeping, transportation hazards, and miscellaneous cases shows the review of their individual improvement programs.

186 non-compliances recorded during 1st quarter. Majority of non-compliance occurred in the categories of slips trips & falls, transportation hazards and carelessness. Table-5 and figure-4 show the breakdown of non-compliances.

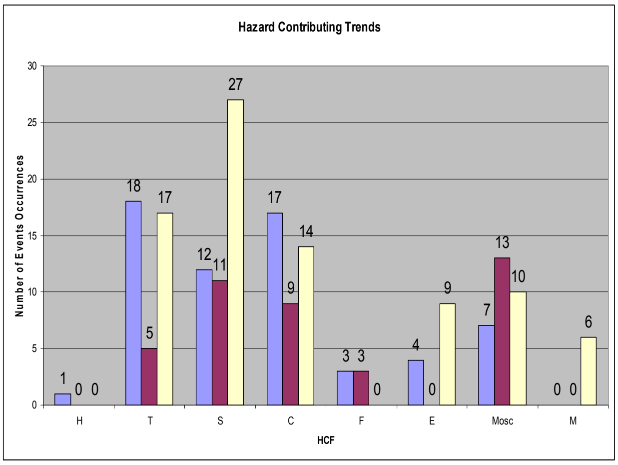


Figure-4 Flow of hazard contributing factors in 1st quarter.

In 2nd quarter 191 total numbers of unsafe events noted. Mainly transportation hazard and miscellaneous cases contributed. 3rd main hazard contribution category were carelessness. Figure-5 represents the trends of hazards occurrences during 2nd quarter period.

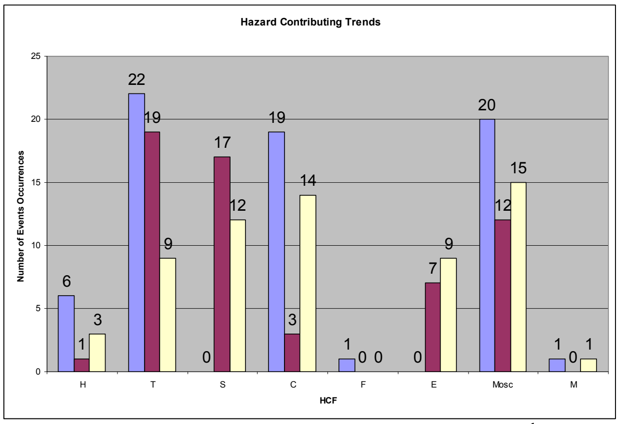


Figure-5 Flow of hazard contributing factors in 2nd quarter.

Figure-6 shows the flow of hazard contributing factors in 3rd quarter. Total numbers of non-compliances recorded during this quarter were 379. Miscellaneous cases suddenly increased in this quarter from 47 to 94. Another rebound noticed in transportation, slips trips & falls and carelessness. Remaining contributing factors increment also sharper but comparatively with lesser extend.

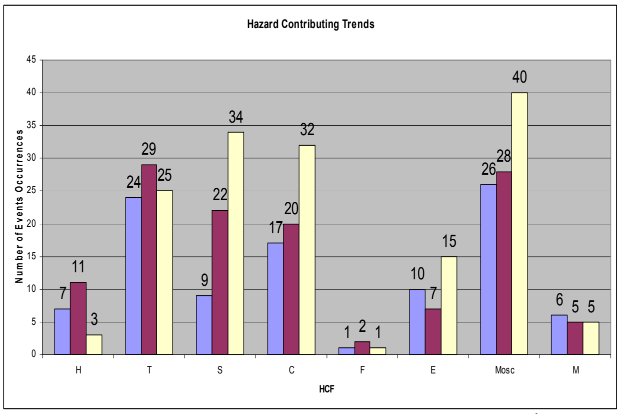


Figure-6 Flow of hazard contributing factors in 3rd quarter.

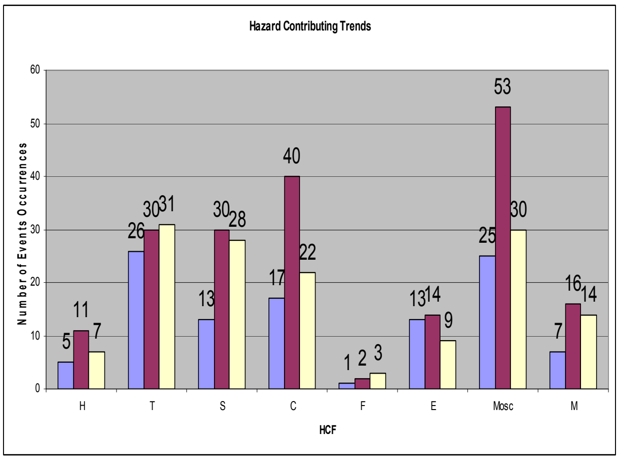


Figure-7 Flow of hazard contributing factors in 4th quarter.

Hazard contributing factors gain value much higher in 4th quarter. 447 total numbers of unsafe events recorded during 4th quarter. Occurrences of all hazard contributing factors roses in this quarter. 4th quarter ranked as the most severe quarter of the year. Figure-7 above shows the further distribution of other categories in bar chart form.

X- RISK ASSESSMENT CRITERION

Risk management is one of the main components of health safety and environment management system (HSEMS). Risk assessment criteria's developed by various researchers contains many gaps. ALARP (as low as reasonably practicable) can involve increased level of expenditures for more processes [20]. There are various ways to calculate risks associated with work trades. Many researchers suggested different methods to determine risks based on some specific parameters. The importance of risk evaluation and determination can be understood easily by viewing that many companies make it a part of their HSE policy. This is the responsibility of company to conduct its operational activities in a manner that minimize HSE risks. Protect health and safety of employees, contractors, customers and community at large the environment in which the group activities are conducting. Any company with active involvement of all employees and contractors can manage HSE risks to prevent accident, injuries and occupational illnesses.

XI- RESEARCH METHODOLOGY

One year data collected from PFS located all around the country. By reviewing past data and hazards trends it was felt that safety measures and considerations required at PFS demands different approach. Eight (08) potential areas noticed, that create unsafe conditions during operation and maintenance at PFS. Data collected and activities grouped under eight (08) hazard contributing factors. Risk assessment methods show failures to reduce continuous occurrences of these hazards. The company requested for data collection is a well reputed oil marketing company. Implementation of environmental management system components were already in implementation stage in the last 10 years. The failure of company to control these hazards at their retail outlets dictates either under utilization of available resources to improve safety measures or lack of safety management staff to target right approach. Risk assessment carried out to rank the occurrences of top events for further safety considerations. It was found that risk assessment criterion was the only method that company was using to prioritize the hazards. Risk assessment criterion that prepared for one industry cannot be used for another sector. The main difference to avoid this practice is the base data. Base data for every risk assessment method is different. Therefore it was mutually agreed and decided with management committee that because of using inappropriate risk calculations approach the hazards are recording continuously. The availability of suitable risk assessment approach was highly felt. By using inappropriate risk determination method the hazard is merely shifts from one contributing factor to another and the actual risk remains same.

A risk assessment model developed based upon one year data collected from PFS during operation and maintenance. All data collected from PFS analyzed using a statistical package for social sciences version 16.0 (SPSS 16.0). Multiple regressions performed and by adding respective coefficient with contributing hazard value severity level calculated. Frequency of the respective hazard contributing factor determined and with multiplication of severity and frequency risk was calculated.

Pearson correlation calculated to determine the correlation between these hazard contributing factors. Finally standard tests performed and mean, std. error of mean, median, mode, std. deviation, variance, skewness, std. error of skewness, kurtosis, std. error of kurtosis and range calculated.

XII-RESULTS AND DISCUSSION

Table-6 shows the results of safety and risk assessment model for PFS. Top most hazard contributing use recorded was carelessness. Risk calculated due to carelessness at PFS is 49.28%. 2nd most significant factor was slips, tips & falls. It achieves risk value of 28.70. 3rd top most risk oriented contributor was miscellaneous cases. Further description according to their ranking is mentioned in Table-7. By considering these risk values appropriate remedial and mitigation measures can be prepared. Table-8 and table-9 show the values of other statistical parameters for better understanding of hazards occurrences patterns. It is envisaged that by applying this method of risk calculation could provide help to HSE professionals to priorities in events of hazard contributing factors.

Table-6 Petrol fuel station safety and risk assessment framework result

No	Trades	F	S	R = F x S
1-	Miscellaneous Cases	0.2468	84.195	20.78
2-	Transportation Hazards	0.211	48.221	10.17
3-	Carelessness	0.186	264.964	49.28
4-	Slips, trips and falls	0.178	161.227	28.70
5-	Electrical Fault	0.080	102.833	8.23
6-	Medical Treatment Cases	0.050	160.188	8.01
7-	Housekeeping	0.0457	12.993	0.59
8-	Fire	0.0141	81.282	1.15

Table-7 Risk prioritization result of petrol fuel station safety and risk assessment framework

No	Trades	Risk Prioritization
1-	Carelessness	49.28
2-	Slips, trips and falls	28.70
3-	Miscellaneous Cases	20.78
4-	Transportation Hazard	10.17
5-	Electrical Fault	8.23
6-	Medical Treatment Cases	8.01
7-	Fire Risks	1.15
8-	Housekeeping	0.59

Table-8 Correlation between different hazard contributing factors

	H	TH	S	C	F	EF	Misc	M
H	1	.761(**)	.176	.629(*)	.221	.320	.746(**)	.652(*)
TH	.761(**)	1	.441	.626(*)	.152	.533	.700(*)	.726(**)
S	.176	.441	1	.554	.064	.682(*)	.560	.629(*)
C	.629(*)	.626(*)	.554	1	.255	.573	.891(**)	.713(**)
F	.221	.152	.064	.255	1	-.294	.161	.242
EF	.320	.533	.682(*)	.573	-.294	1	.656(*)	.629(*)
Misc	.746(**)	.700(*)	.560	.891(**)	.161	.656(*)	1	.777(**)
M	.652(*)	.726(**)	.629(*)	.713(**)	.242	.629(*)	.777(**)	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table-9 Statistical parameter among hazard contributing factors

	MISC	T	C	S	E	M	H	F
Mean	23.2500	21.2500	18.6667	17.9167	8.0833	5.0833	4.5833	1.4167
Std. Error of Mean	3.88690	2.34238	2.80242	2.95024	1.41131	1.54458	1.13123	.33616
Median	22.5000	23.0000	17.0000	15.0000	9.0000	5.0000	4.0000	1.0000
Mode	7.00(a)	5.00(a)	17.00	12.00	9.00	.00	.00(a)	1.00
Std. Deviation	13.46460	8.11424	9.70785	10.21993	4.88892	5.35059	3.91868	1.16450
Variance	181.29545	65.84091	94.24242	104.44697	23.90152	28.62879	15.35606	1.35606
Skewness	.972	-.818	.853	.045	-.430	1.060	.484	.241
Std. Error of Skewness	.637	.637	.637	.637	.637	.637	.637	.637
Kurtosis	.747	.037	1.445	-.851	-.466	.407	-.901	-1.352
Std. Error of Kurtosis	1.232	1.232	1.232	1.232	1.232	1.232	1.232	1.232
Range	46.00	26.00	37.00	34.00	15.00	16.00	11.00	3.00
Minimum	7.00	5.00	3.00	.00	.00	.00	.00	.00
Maximum	53.00	31.00	40.00	34.00	15.00	16.00	11.00	3.00
Sum	279.00	255.00	224.00	215.00	97.00	61.00	55.00	17.00

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