

Behavioural Safety at Workplace

A Case Study of Digboi Refinery, IOCL (AOD), Digboi

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Abstract

The paper highlights the behavioural safety applications along with its practices in Indian Oil Corporation Limited, Assam Oil Division at Digboi, Assam. Though the safety process is adequate in the organization, but the employees' behaviour towards safety measures needs to be improved in the organization. On the backdrop of a sample of 200 employees, the findings have been noted based on which the paper concludes with some recommendations.

CONCEPTUAL BACKGROUND

Behavioural Safety is the systematic application of psychological research on human behaviour to the problems of safety at workplace. A vast body of scientific research testifies that 96% (DuPont study in 1956) of workplace accident is triggered by human improper action or unsafe behaviour. So, it is essentially believed that modification in human behaviour at workplace is the key solution towards the improvement of safety performance for organizations. In reality behavioural safety is not a different aspect from conventional safety management system rather it is complementary to the other. Since early 1990s behavioural safety has effectively been used as the most effective weapon against workplace accidents by different industrial organizations, which resulted in dramatic lower down of accident rates.

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The purpose for application of behavioural safety processes is to ensure improvement in safety performance by increasing safe behavioural practices with consequential decrease in 'At-Risk Behaviour' and to achieve a supportive safety culture at workplace. Any behavioural safety process initiative or any safety improvement process that is termed, as Behavioural Safety comprise of some essentials or features, Ackroyd (2000), such as:

- Significant participation of workforce;
- Targeting to specific unsafe behaviour or action;
- Collection and Recording of observational data;
- Decision making processes are data driven;
- Involves systematic, scheduled and observational improvement;
- Intervention;
- Involves provision of regular focused feedback about on-going safety performance;
- Requires involvements of personnel from all levels.
- Requires visible and demonstrable on-going support and front-line supervision from managers.

Behaviour and At-Risk Behaviour

Behaviour is the action done by an individual and that can be observable by others. It is the reflection of people's perceptions, feelings, thoughts, attitudes, etc., which is noticeable. In other words, Behaviour is a psychological phenomena and that occurs in individual's action as the response to the happenings of his/her surroundings, Becker (1996), Accenture (2004).

On the other hand At-Risk Behaviour is an action, which is inappropriate, unsafe or risky and can lead to an accident. These at-risk behaviours are the results of lack of knowledge or skill on the employee part, certain bodily defects and wrong attitudes. Examples are operating without authority, working without personal protective equipment, making safety devices inoperative, servicing equipment while in operation, operating at improper speed, improper ergonomics or posture, etc.

Personal characteristics like personality, motivation also influences unsafe behavioural in individuals. These personal characteristics, which create tendencies or encourages performing behaviour is called an Activator. Examples of workplace activators are Habits, Risk Perception, Situation, Emotion, Attitude, Motivation,

Goals, Tools, Priorities, Job Description, Procedure, Standards, Rules, Tools, Training, Education, Accountability, Meetings, Suggestions, Signs, Posters, Observing and Imitating models, Events, etc.

Components of Behaviour

Activator and Consequence, the two major components are generally responsible for performing behaviour in human characteristics and the process of human behaviour moves in a cyclic way depending on these two components, Benkhoff (1997). Activators always come first before the behaviour, which it triggers through interpretation of the same by personal factors like perceptions, beliefs, attitudes, values, etc., of an individual. Consequence comes after the behaviour, which it motivates through activators. Activator without consequence loses its effectiveness in triggering behaviour.

Consequences are the outcomes of performed behaviour, which may be either positive for safe action or negative for at-risk action. Consequences of safe behaviours are saving time and efforts, avoiding discomfort and conflict, loss prevention, safety consciousness, higher productivity, etc.

On the other hand Safety culture refers to the environment in which workers can perform their work safely to avoid injury to themselves as well as to others and at the time loss prevention and no harm to the environment itself, Boselie et al. (2005).

Values and Belief

Values are the rules of interpersonal relationship in an organization, which guide the personal interactions that required for working in a culture. Examples are concern for fellow workers, concern for environment, and open and honest communication, respect to others. Belief, on the other hand is the interpretation of past experiences, which have strong influences on we respond to activator.

SECTION I

Safety Approach

For an organization three components are generally responsible for composition of safety culture, viz., Workplace factor, Personal factor and the Behavioural factor. All these factors are dynamic and interactive to

each other, i.e. change in one is obviously felt on the other two factors, Becker *et al.* (1999). Workplace factor consists of machinery, tools, procedure, house structure, work environment, etc. Personal factor consists of knowledge, skill, attitude, values, belief, personality, intelligence, etc. By Behavioural factors we mean safe and at-risk behaviour, and consists of human psychological factors like attitudes, values, beliefs, perception, etc., are difficult to measure.

Behaviour Based Safety approach refers to a safety process which is characterized by human thinking and understanding of safe and unsafe or inappropriate behaviour at workplace. It is very simple to understand but the logic behind this approach is very powerful and worth giving. It is certainly a visible shift in organization's safety culture.

Here, the identification of critical at-risk behaviour is vital and the behaviour types are the Generic Type and the Task or Occupation Type, Meyer *et al.* (2000), Hoobler *et al.* (2005), Czerny (2006). The Generic type refers to common to a particular industry type and the Task or Occupation type is specific to the task performed in a department. In the implementation of Behaviour Based Safety process both type of behaviour is identified by reviewing the incidents and accidents accordingly action plan is formulated and applied for the modification of at-risk behaviour.

Expected Benefits of Behavioural Safety

The out come from a well planned and well implemented Behavioural Safety system nearly lead to:

- Lower number of incidents or accidents, near misses and property damage.
- Improved levels of quantified safe behaviours.
- Reduced accident costs.
- Increased reporting of defects, near misses etc.
- Increased skills in positive re-enforcement.
- Greater workforce involvement in safety,
- Better communications between management and the workforce.
- Improvements in ongoing safety management system.
- Improve safety cultures.
- Greater ownership of safety by the workforce.
- More positive attitudes towards safety.
- Greater individual acceptance of responsibility for safety.

It can assume that Behavioural Safety is good a vehicle for management and workforce participation that can improve the visibility of managers, Truss (2001). Behaviours and actions influence culture through attitude and perceptions and determine the performance of systems. Contrary to many other types of safety improvement initiatives behavioural safety is not concerned with:

- Aversive control as its ethos is primarily predicted on positive reinforcement or
- Encouragement for engaging in safe behaviour.
- As sole focus on reduced accident rates as the primary outcome measure.
- Decision made on the basis of prejudice.
- Disciplinary actions for incidents or accidents, which lead people to avoid report near, miss incidents or accidents.
- Top down implementation by line management alone.

Industrial Safety Approach

Safety refers to the absence of accidents. In simple term, safety means freedom from the occurrence of injury or loss, Benkhoff (1997), Evans (1999), Sandberg (2000). Industrial safety refers to the protection of workers from the danger of the industrial accidents.

The life of industrial worker is full of risks and hazards. An industrial injury or accident may be defined as 'an occurrence, which interfere the orderly progress of work in an industrial establishment'. According to the Factories Act 1948, it is 'an occurrence in an industrial establishment causing bodily injury to a person which makes him unfit to resume his duty in next 48 hours'. Thus an industrial accident is an occurrence, which disrupts the smooth functioning of the systems, and caused injury to the person involved in it. In other words it is an unexpected event, which is neither anticipated nor designed to occur.

Need for Safety

An accident free industrial establishment enjoys certain benefits. The benefits of industrial safety can be summarized by various means such as Cost Saving, Increased Productivity, Meeting Legal requirements, Meeting Moral requirements, etc.

Accidents are enormously costly, cause losses directly or indirectly and the losses are either visible or

invisible. Invisible losses are immeasurable and cannot be valued in monetary terms. A safe industry, by avoiding accidents eliminates losses of direct and indirect costs.

A safe plant is efficient plant. To a large extent safety is directly proportional to the productivity of the plant. Thus safety promotes productivity. Employees in a safe plant can devote time to improving the quality and quantity of their output by having no worry about their safety and well being.

Providing safety to the employee has moral dimension. Employees are workers in their factory but the bread earners for their families. So, the happiness of workers' family and so as the society or the country depends upon the health and well being of the workers. As per the provisions of the Workmen's Compensation Act 1923 employees or their family in the course of accidents might get compensation; but a monetary compensation cannot be a substitute for a person's life. So, managers must undertake accident prevention measures to eliminate or to minimize the pain and suffering of workers and their families often exposed to as a result of the accidents.

There are legal reason too that obliged the industrial establishment undertaking safety measures. There are laws covering occupational health and safety, and penalties for non-compliance having become quite severe. The responsibility extends to the safety and health of the surrounding community too. The Supreme Court of India held, 'An enterprise which is engaged in a hazardous or inherently dangerous industry which poses a potential threat to the health and safety of the persons working in the factory and industry in the surrounding areas, owes an absolute and non-delegable duty to the community to ensure that no harm results to anyone on the account of the hazardous or inherently dangerous nature' this implies unlimited liability.

Safety Programme

Safety programme deals with the prevention of accidents and with minimizing the resulting loss and damage to person and property; consists of five basic principles such as:

1. Multiple factors of accidents have to be traced to their root.
2. Identify potential hazards, provide effective safety

facilities and equipment and to take prompt remedial action.

3. The safety policy of the organization should be determined by the top management and it must be continuously monitored and in ensuring that corrective action is to be taken when necessary.
4. The management and the supervision must be made fully accountable for safety performance in the working area they control.
5. All employees should be given thorough training in safe methods of work and they should receive continuing education and guidance on eliminating safety hazards and prevention of accidents.

SECTION 2

About the Study

The objectives of the study is to understand the employees' awareness level on Behavioural Safety and its role towards attitude building efforts on safe action at workplace in Digboi Refinery of IOCL (AOD). In that line the present researchers have made few efforts to cover the following factors:

- Organization's Safety Culture,
- Employees' perception and communication,
- Use of Personal Protective Equipments (PPE),
- Rules, Regulations and Propitiatory orders,
- Risk assessment,
- Leadership commitment,
- Role of Total Productive Management (TPM) on safety improvement and
- Employees' satisfaction and Motivation.

Based on this framework the paper proceeds with setting up of the following objectives:

- To assess the employees' Perception and Participation on Behaviour Based Safety practices.
- To assess the implementation of Behaviour Based Safety in Digboi Refinery.

Methodology

In this study the present researchers have opted the exploratory design to analyse and understand the employees' perception level about the safety as a behavioural consequence and their willingness for safe action at workplace voluntarily.

The primary data have been collected through

Questionnaire and Personnel interview. The present researchers have designed the questionnaire in three different languages English, Assamese and Hindi which were translated properly in order to get the exact result with the help of certain experts so as to make respondent comfortable in understanding the questions. The questions were structured carefully specifically to the subject matter and relevant to the safety aspect of day-to-day working environment of the Refinery; simple in wording and placed sequentially in the questionnaire.

In response to the necessity of the study that was specific with the research problem the present researchers used the Stratified Random Sampling technique to collect the primary data inside the refinery premises. The sample size was 204 employees of workmen category working in different departments and collected proportionately from the universe of 1020. Out of the samples so selected and the questionnaire being served, 200 responded and accordingly the study was carried out.

SECTION 3

Analysis and Interpretation

From the Table 2, it has been observed that 69.5% (strongly agree) + 22.9% (agree) = 93.4% respondents feel a close attachment with the organization; clearly it establishes the employees satisfaction level being members of IOCL family. However from the table it has been observed that 38.3% respondents strongly agree and 49.4% respondents agree that IOCL has a transparent Safety Policy. The figures shown above indicate the requirement of communication to make employees more aware of the safety policy.

Further it has been observed that 24.7% respondents strongly agree and 50.0% respondents agree that their working environment is supportive to perform assigned duty. Another 20.0% partially agree for that; which indicates scope for further improvement in working environment at refinery premises. Again it has been observed that 30.0% respondents strongly agree, 45.2% respondent agrees and another 21.8% respondents partially agree that the workplace is safe and secure. The figures shown indicate measures need to be taken to improve workplace safety. On the contrary it has also been observed that 41.0% respondents strongly agree and 48.0%

respondents agree that there is a need of 'behavioural means improvement' in safety performance by increasing safe behaviour at workplace. The figures shown above have indicated that employees understand the need for safe behaviour at workplace.

From the Table 2, it has been observed that 45.9% respondents strongly agree and 44.7% respondents agree that they are aware of Unsafe Action. The figures clearly indicate that the level of awareness about unsafe behaviour is on the higher side. AOD can take measures to convert the awareness level of that 44.7% of agreed employees into the next strongly agree category. However, it has been observed that 44.7% respondents strongly agree and 42.4% respondents agree that they are aware of unsafe condition, which means that employees are aware and understand the meaning of unsafe conditions at workplace.

The study reveals that 39.5% respondent strongly agrees, 38.0% respondent agree and 18.0% respondents partially agree that 96.0% (BBS standard 2007) accidents caused due to unsafe action. The figures indicate the need for educating employees regarding the findings of different accidental study reports that from where the figure 96.0% has been drawn as the causes accident are unsafe action. At the same time it has been observed that 43.5% respondent strongly agree and 44.0% respondents agree that they put off all electrical appliances at their workplace while not in use. The figures shown above clearly indicate the employees' commitment and concern toward the safe behaviour at workplace and the behaviour can be further enhanced by positive reinforcement.

It has been observed that 43.5% respondents strongly agree and 42.4% respondents agree that they are aware of not to use any electronic appliances, which are restricted inside the refinery premises. The figures shown have clearly indicated the consciousness from the employees' part to abide by the rules and being reinforced positively. From the Table 2 it has also been observed that 61.8% respondents strongly agree and 32.9% respondents agree that the best way to prevent accident is Safe Action. The figures have clearly indicated the employees' perception level towards safe action and accident prevention; that may also reflects the safety culture Digboi Refinery.

The study also reveals that 30.6% respondent strongly agree, 49.4% respondents agree and 14.7% respondents partially agree that they are free to consult

on unsafe action with management. The figures have indicated the need for further improvement of free communication. From the Table 2 it has been observed that 34.0% respondents strongly agree, 48.0% respondents agree and 13.0% respondents partially agree that they are free to consult on unsafe condition with management. The figures shown have indicated the need for further improvement of communication. Again it has further been observed that 31.0% respondents strongly agree, 49.5% respondents agree and 16.0% respondents partially agree that safety meetings are held regularly thus indicating need for further improvement of communication.

From the Table 2 it has been observed that 24.5% respondents strongly agree, 55.5% respondents agree and 16.5% respondents partially agree that hazards are notified properly. The figures shown have indicated need for further improvement of communication. Further, it has been observed that 24.7% respondents strongly agree, 47.6% respondents agree and 25.3% respondents partially agree that Near Misses are attended promptly and properly. The figures shown above have clearly indicated the need for the improvement of attention and correction of the Near Miss incidents. Again it has been observed that 54.7% respondents strongly agree and 33.5% respondents agree that they use Personal Protective Equipment while at work. From the above table it has also been observed that 8.8% respondents partially agree on the matter of PPE use. The figures have indicated the improvement that is to be needed from the employees' part in the habit of PPE use.

It has been observed that 38.2% respondents strongly agree, 21.2% respondents agree, 19.4% respondents partially agree, 11.8% respondents partially disagree and 9.4% respondents disagree upon that personal protective equipment is necessary to use although it increases discomfort and reduces skill due to poor flexibility. The figures have indicated some perceptual gaps regarding use of PPE, bodily comfort and skill which need due attention. On the other hand it has been observed that 35.5% respondents strongly agree, 52.5% respondents agree and 10.5% respondents partially agree that management gives top priorities on safety as core valued function. The figures shown above have been indicated that the management's commitment on Safety is moderate.

Here also needs can be felt for some efforts of communication that will enhance employees' perception level. The study further reveals that 27.0% respondents strongly agree, 49.0% agree and 19.0% respondents partially agree that safety manuals, safe operating procedures and instructions easily available at workplace. The figures shown above have indicated need for improvement regarding the availability of manuals, operating procedures, instructions, etc., at workplace.

It has been observed that 20.5% respondents strongly agree, 55.5% respondents agree and 18.0% respondents partially agree that safety inspections are carried out regularly. The figures shown above have indicated the need for further improvement in safety inspections schedule. From the Table 2 it has been observed that 28.0% respondents strongly agree, 41.5% respondents agree and 27.0% respondents partially agree that responsibilities of each employee for sustenance and improvement of personnel and workplace safety are clearly documented. The figures shown above have indicated some work necessarily be done for further improvement. The table further reveals that 40.0% respondents strongly agree and 50.5% respondents agree that Total Productive Maintenance (TPM) and its ownership culture can enhance the safety culture of the organization. The figures shown above have clearly indicated the employees' perception level about TPM and its ownership culture and are well convinced about the benefits of the same. It has been observed that 18.8% respondents strongly agree, 53.5% respondents agree and 24.2% respondents partially agree that they are satisfied with management's appreciation and recognition of employees' safety achievements. The figures shown above have indicated some amount of improvements; however satisfaction is a relative term and psychologically oriented and hence needs further study. From the Table 2 it has further been observed that 23.5% respondent strongly agree, 58.8% respondents agree and 14.7% respondents partially agree that employees are well motivated to perform their work with Safe Behavioural Application. The figures shown above have indicated some amount of work to be done to raise the motivation level of those employees who are already motivated but need little inspiration and encouragement.

SECTION 4

Findings

After studying the Behavioural Safety aspects of Digboi Refinery from different dimensions as mentioned in the objectives, thoroughly; the research findings have been summarized. It has been observed that employees have strong association with the organization and feel highly esteemed by being a member of Indian Oil family. IOCL (AOD) has a huge reserve of highly committed and skilled groups of workforce and enjoys the service from them. They have their Unique Work Culture within which organization's safety is the most integral part and they want to keep it going on endlessly with a halt. Regarding organization's safety policy and its transparency, employees feel more of information and knowledge sharing. Employees feel scope for further improvement in their working environment to enhance safety at workplace.

Regarding communication with the management; employees feel scope for further improvement in both way communication for perceptual clarity and workplace safety. Employees use Personal Protective Equipment regularly to prevent unsafe action, but there is scope for inducing the feeling of PPE importance even in the course of poor flexibility. Employees feel scope for more improvement in Risk Assessment measures like hazards notification, safety inspection and near miss handling procedure. Employees also feel availability of more information resources like safety manual, procedures, instruction, etc., at workplace.

Employees are convinced of management's commitment on safety as core area of concern and feel scope for more communication. It has been observed that employees are well convinced of the benefits that might be bought by the Total Productive Maintenance and its Ownership concept. Employees feel need for improvement in appreciation system of safety achievement that bring pride and enhance motivation further.

CONCLUSION

The application of Behavioural Safety at workplace is to ensure the utmost possible safety by means of modification of human Inappropriate or Risk-taking Behaviour. Psychologist who has studied industrial accidents throughout the years observed that because of various psychological inputs people are habituated

in some At-Risk or Inappropriate Behaviour at their workplace knowingly or unknowingly. It is also a proven phenomenon that by systematic application of various kinds of planned behaviour modification intervention techniques organizations are getting tremendous improvements in their safety performance worldwide.

For an industrial establishment the purpose of introduction of Behaviour Based Safety processes is to ensure improvement in safety performance continuously by means of increasing awareness for Safe or Proper Behaviour and willingness to avoid unnecessary Risk-taking Behaviour towards the achievement of supportive safety culture where employees feel and demonstrate responsibility for their own as well as their peers' safety with total involvement, and consequently for sustenance of safety at workplace.

The Assam Oil Division of the Oil major The Indian Oil Corporation Limited has adopted Behaviour Based Safety approaches and applied them in its Digboi Refinery along with its well structured conventional safety management system. In the implementation process of Behaviour Based Safety in Digboi Refinery different measures like inventory development of at-risk behaviour, performance survey and feedback, awareness and behaviour observation training for employees, safety meetings with participation from all working section, performance appreciation, suggestions, reward, etc., have been taken in reasonable spirit. Accidents statistics reflect the pattern of safety achievement in Digboi Refinery.

In some cases employee's expectations are high. In those areas where employee's response levels are mediocre, further improvement will be required to keep the employee motivation high.

In its unique Work Culture of Digboi Refinery inclusion of Behaviour Based Safety approach is another milestone in its hundred years of sustainable cultural strength. Its importance and implication is very high on the Productivity, Growth and Sustainability of Digboi Refinery. Behavioural Safety is a proven weapon against the war of workplace accidents.

RECOMMENDATIONS

Digboi Refinery of IOCL (AOD) has adopted Behavioural Safety approach as an area of most concerned and applied different kinds of techniques

for the successful implementation of Behaviour Based Safety in entire refinery premises to improve the safety culture in its fullest form. As an outcome of the study conducted few areas have been identified on which the present researcher would like to forward few recommendation as felt beneficial towards the implementation of BBS at Digboi Refinery.

- More communication on Behavioural Safety approach and information flow to the plant level personnel.
- Increase in activities like Meetings and Interactions with management to sort out and remove the obstacles in the implementation path of BBS.
- Increase in frequency and numbers of training in the forms of 'On the Job' and 'Off the Job' can be arrange to reinforce safe habits.
- More participation and involvement of field/plant level personnel are to be ensured.
- Inspections of hazardous area, supervision and spot identification of unsafe act and condition by safety personnel are to be maximized.
- A task force consisting management personnel and workmen from various departments will be more effective in the BBS implementation process.

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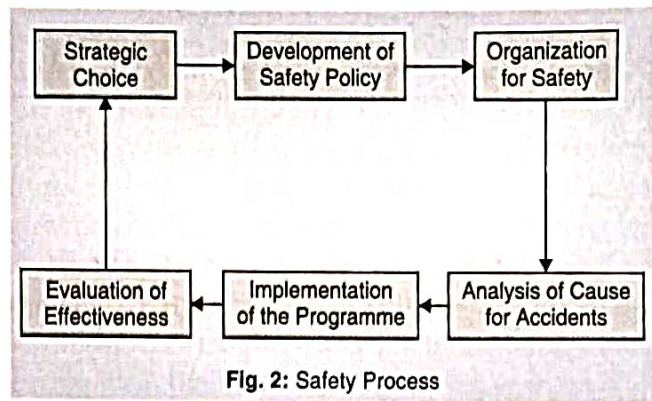
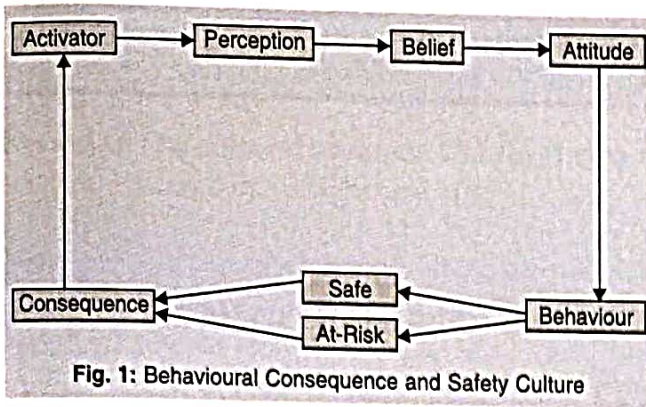
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Table 1: Causes of Industrial Accidents

<i>Unsafe Acts of Person</i>	<i>Unsafe Mechanical of Physical Conditions</i>
<ul style="list-style-type: none"> • Operating without clearance, to heed warning. • Operating at an unsafe speed. • Making safety devices inoperative. • Using unsafe equipment or using equipment unsafely. • Unsafe loading, placing, mixing, combining, etc. • Taking an unsafe position or posture. • Working on moving or dangerous. • Distracting, teasing, abusing, startling, etc. • Failure to use safe attire or personal protective equipments. 	<ul style="list-style-type: none"> • Inadequately guarded, guards of improper height, strength, mesh, etc. • Unguarded, absence of required guards. • Defective, rough, sharp, slippery, decayed. • Unsafe machines and tools design. • Unsafe arrange, poor housekeeping, congestion, blocked exits, etc. • Inadequately lighted, source of glare, etc. • Inadequately ventilated, impure oil source. • Unsafely clothed, no goggles, glares of masks, high heels, etc. • Unsafe processes, mechanical, electrical, chemical, nuclear, etc.

Table 2: Responses on Issues related to Behavioural Safety

Sl. No.	Statements	Responses	Strongly Agree	Agree	Partially Agree	Partially Disagree	Disagree	Total
1	Being a member of IOCL family you feel esteemed	No. of Res.	139	46	9	4	2	200
		In PC (%)	69.5	23	4.5	2	1	100
2	IOCL has a transparent Safety policy	No. of Res.	77	99	16	6	2	200
		In PC (%)	38.5	49.5	8	3	1	100
3	Your working environment is supportive to perform assigned duty	No. of Res.	50	100	40	8	2	200
		In PC (%)	25	50	20	4	1	100
4	You feel Safe and Secure at your workplace	No. of Res.	60	90	44	4	2	200
		In PC (%)	30	45	22	2	1	100
5	You know Behavioural Safety means improvement in safety Performance by increasing safe behaviour at workplace	No. of Res.	82	96	16	2	4	200
		In PC (%)	41	48	8	1	2	100
6	You are aware of the meaning of Unsafe Action	No. of Res.	92	89	8	7	4	200
		In PC (%)	46	44.5	4	3.5	2	100
7	You are aware of the meaning of Unsafe condition	No. of Res.	89	85	15	7	4	200
		In PC (%)	44.5	42.5	7.5	3.5	2	100
8	You do agree that 96% of accidents caused due to Unsafe Action	No. of Res.	79	76	36	2	7	200
		In PC (%)	39.5	38	18	1	3.5	100
9	You do put off all the electrical appliances while in use at your workplace	No. of Res.	87	88	11	8	6	200
		In PC (%)	43.5	44	5.5	4	3	100
10	You are aware of not to use any kind of electronic appliances inside the refinery	No. of Res.	87	85	9	11	8	200
		In PC (%)	43.5	42.5	4.5	5.5	4	100
11	The best way to prevent accident is 'Safe Action'	No. of Res.	124	66	8	1	1	200
		In PC (%)	62	33	4	0.5	0.5	100
12	You are free to consult on Unsafe Action with Departmental Head/Management	No. of Res.	61	99	29	4	7	200
		In PC (%)	30.5	49.5	14.5	2	3.5	100
13	You are free to consult on Unsafe Condition with Departmental Head/Management	No. of Res.	68	96	26	2	8	200
		In PC (%)	34	48	13	1	4	100
14	Management always communicates Safety related matters with employees through regular Safety meetings	No. of Res.	62	99	32	5	2	200
		In PC (%)	31	49.5	16	2.5	1	100
15	Hazards are notified properly	No. of Res.	49	111	33	4	3	200
		In PC (%)	24.5	55.5	16.5	2	1.5	100
16	Near Misses are reported and attended promptly/ properly	No. of Res.	49	95	51	4	1	200
		In PC (%)	24.5	47.5	25.5	2	0.5	100
17	Personal Protective Equipment (PPE) is used always while at work	No. of Res.	109	67	18	2	4	200
		In PC (%)	54.5	33.5	9	1	2	100
18	Personal Protective Equipment (PPE) is necessary to use although it increases discomfort and reduces skill due to poor flexibility	No. of Res.	76	42	39	24	19	200
		In PC (%)	38	21	19.5	12	9.5	100
19	Management gives top priority on Safety as Core Valued function	No. of Res.	71	105	21	3	0	200
		In PC (%)	35.5	52.5	10.5	1.5	0	100
20	Safety Manuals and safe operating procedures/ instructions are easily available at workplace	No. of Res.	54	98	38	6	4	200
		In PC (%)	27	49	19	3	2	100
21	Safety inspections are carried out regularly	No. of Res.	41	111	36	8	4	200
		In PC (%)	20.5	55.5	18	4	2	100
22	The responsibility of each employee for sustenance and improvement of personnel and workplace are clearly defined and well documented	No. of Res.	56	83	54	5	2	200
		In PC (%)	28	41.5	27	2.5	1	100
23	Total Productive Management (TPM) and its ownership concept can enhance the Safety Culture of your organization	No. of Res.	80	101	13	4	2	200
		In PC (%)	40	50.5	6.5	2	1	100
24	You are satisfied with management's appreciation and recognition of employees' safety achievements	No. of Res.	38	107	48	6	1	200
		In PC (%)	19	53.5	24	3	0.5	100
25	Employees are well motivated to perform their work with utmost Safe Behavioural application	No. of Res.	47	118	29	2	4	200
		In PC (%)	23.5	59	14.5	1	2	100



ANNEXURES

ANNEXURE 1: Accident Statistics (Corporation Employees)

Parameters	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Minor Accident	22	41	43	32	12	17	17	13
Lost Time Accident	0	0	1	1	1	0	0	0
Fatal Accident	0	0	0	1	0	0	0	0
Occupational Illness	0	0	0	0	0	0	0	0
Total Accident	22	41	44	34	13	17	17	13
Man Days Lost	0	0	200	81	75	0	0	0
MMH worked	3.23	3.03	2.67	2.60	2.61	2.73	2.70	2.52
Frequency Rate	6.81	13.53	16.48	13.08	4.98	6.23	6.30	5.16
Severity Rate	0.00	0.00	74.91	31.15	28.74	0.00	0.00	0

ANNEXURE 2: Accident Statistics (Contractor Employees)

Parameters	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Minor Accident	9	21	7	10	1	4	0	1
Lost Time Accident	0	7	0	0	0	0	0	0
Fatal Accident	0	3	0	0	0	1	1	0
Occupational Illness	0	0	0	0	0	0	0	0
Total Accident	9	31	7	10	1	5	1	1
Man Days Lost	0	0	0	0	0	0	0	0
MMH worked	3.37	4.37	2.3	1.90	1.18	1.16	1.31	1.28
Frequency Rate	2.67	7.09	3.04	5.26	0.85	4.31	0.76	0.78
Severity Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00