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# Accident Investigation and it's Application

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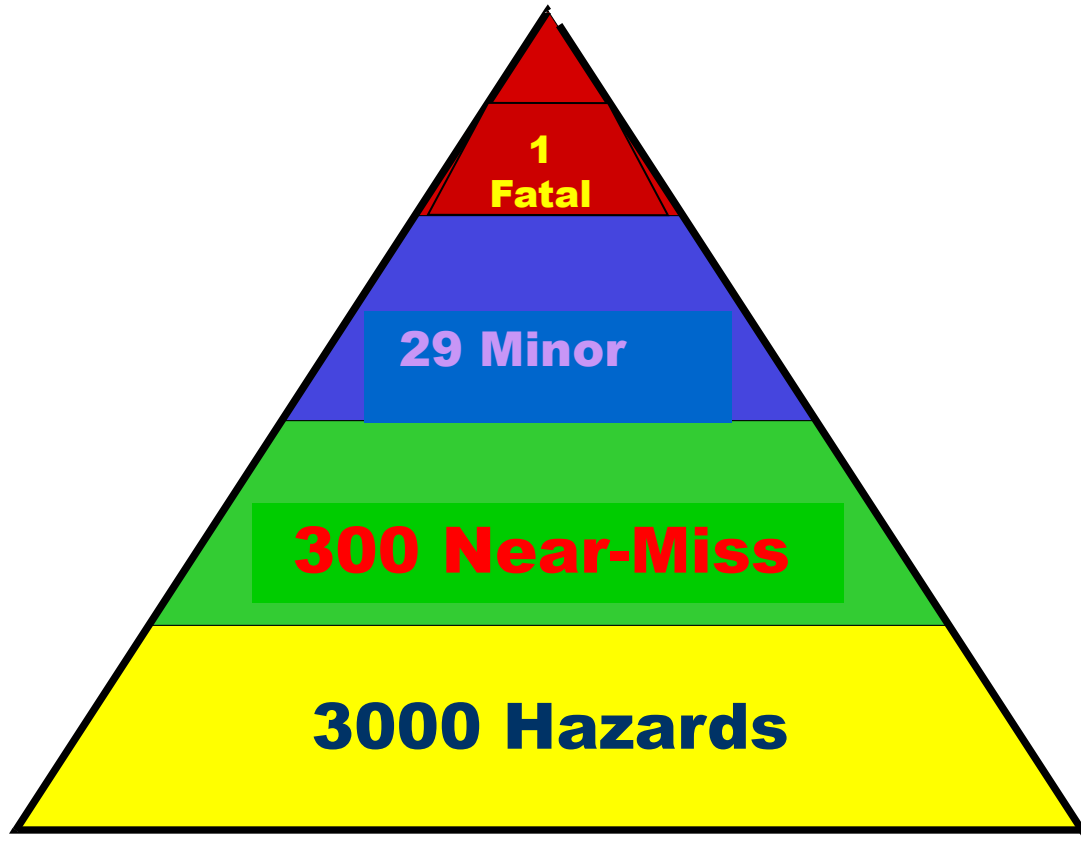






# Heinrich's Triangle

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# Measures of Injury/Illnesses Experience:

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**Frequency Rates** -The disabling injury frequency rate is based upon the total number of deaths, permanent total, permanent partial, and temporary total disabilities which occur during the period covered by the rate.

**Severity Rate** - The disabling injury severity rate is based on the total of all scheduled charges for all deaths, permanent total and permanent partial disabilities, plus the total actual days of the disabilities of all temporary total disabilities which occur during the period covered by the rate. The rate relates these days to the total employee-hours worked during the period and expresses the loss in terms of million man-hour unit by the use of the formula.



# Measures of Injury/Illnesses Experience:

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## Frequency Rate (FR)

$$\text{FR} = \frac{\text{Number of Disabling Injuries} \times 1,000,000}{\text{Employees-hours of Exposure}}$$

## Severity Rate (SR)

$$\text{SR} = \frac{\text{Total Days Lost} \times 1,000,000}{\text{Employees-hours of Exposure}}$$

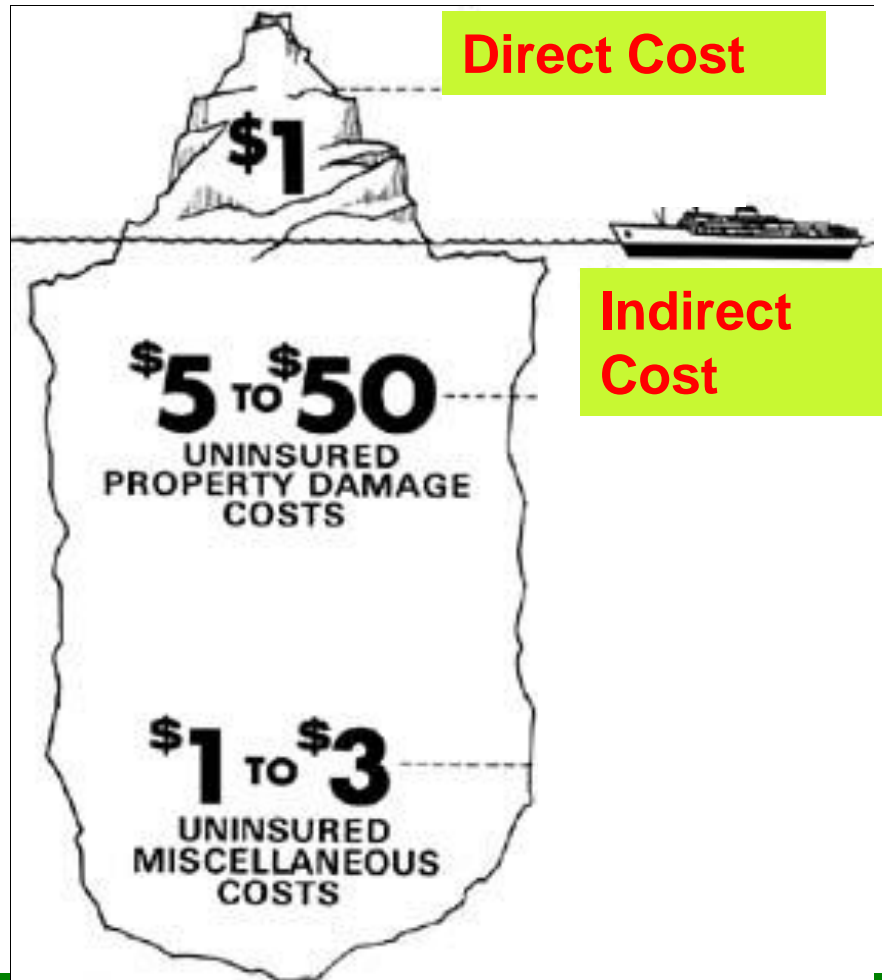


# ACCIDENT INVESTIGATION

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- **A methodological effort to collect and interpret the facts of accident**
- **An inquiry as to how and why the accident occurred in order to explore actions that should be taken to prevent or minimize recurrence of the accident**

# Ice Berg Theory



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# PRINCIPLES OF ACCIDENT INVESTIGATION

**The investigation of any accident event will never progress unless that event is first properly reported to the appropriate management within an organization**



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# PRINCIPLES OF ACCIDENT INVESTIGATION

A **Formal Policy** requiring the proper and consistent reporting of all accidents is one of the most important principles of any accident investigation program.





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# PURPOSE OF ACCIDENT INVESTIGATION

- **To establish all facts**
- **To draw conclusion**
- **To make recommendations**
- **To prevent recurrence**



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# TYPES OF ACCIDENT TO BE REPORTED

- **Fatal accidents**
- **Accident causing injury or illness**
- **Diseases**
- **Dangerous occurrences**
- **Near miss**

# **REASONS WHY ACCIDENTS ARE NOT REPORTED**

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- **Natural fear may people have of being associated with an accident event.**
- **Idea of investigating a situation that has resulted in some degree of loss**
- **Reflect unfavorably on their own performance or that of their department.**
- **Simply do not wish to interrupt work production**



# *Who should conduct ?*

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- **Investigation is usually the supervisor's responsibility**
  - **More familiar with the people involved**
  - **Have better understanding of the operation**
  - **Have personal stake in accident investigation**
  - **Employees may be willing to speak more freely**



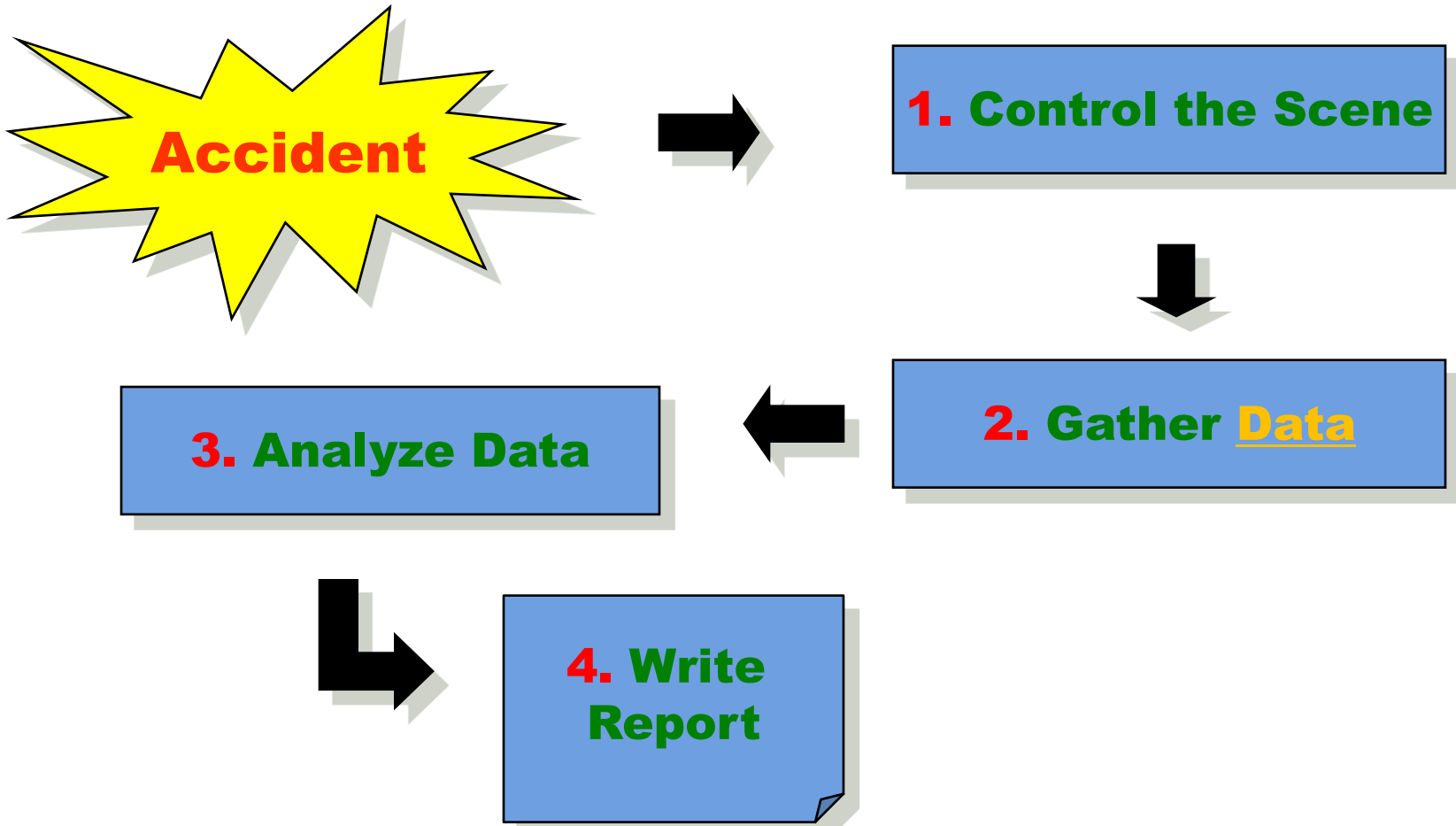
# SIZE OF INVESTIGATING TEAM

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- **The extent of injury**
- **The potential for injury or damage**
- **The potential of repetitions**
- **The department/s involved**
- **Requirement for specialized knowledge**
- **Legal requirement**

# Investigation is a 4 Step Process

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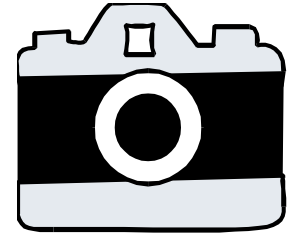
# Control the Scene

- Provide medical care for injured
  - First Aid
  - On Scene Evaluation
  - Transport for Medical Care
- Control existing hazards
  - Prevent further injuries
  - Get more help if needed
  - Isolate the site
- Preserve evidence



# Gather Data

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- Photos of accident scene
- Drawings & sketches & measurements
- Data
  - Persons involved
  - Date, time, location
  - Activities at time of accident
  - Equipment involved
  - Identify the witnesses (eye/ear witness)
- Existing records





# ***CONDUCTING AN ACCIDENT INVESTIGATION***

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- **Must answer the following questions**
  - **WHO** was injured?
  - **WHAT** happened?
  - **WHERE** did the accident occur?
  - **WHEN** did the accident occur?
  - **WHY** did the accident occur?
  - **HOW** can a similar accident be prevented?



# FINDING THE WITNESS

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- **Essential for individual to arrive at the scene PROMPTLY**
- **Question supervisor to identify employees present at the accident**
- **Workers in adjacent areas may have information - sight, sound, weather condition, lightings, noise and other factors related to accident.**
- **Limit contact between witness**
- **Assure the witness will have the opportunity to tell the whole story**

# THE INTERVIEW

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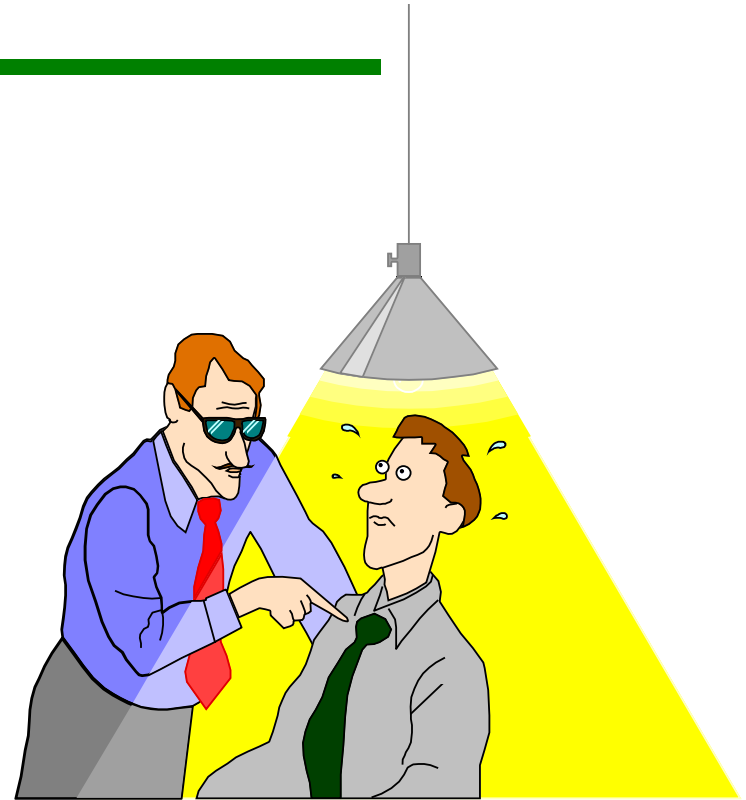
- **Get written statement**
- **Reassure the witness**
- **Let the witness tell the story**
- **Begin with open-ended question**
- **Don't ask leading questions**
- **Summarize**
- **Ask for recommendations**
- **Close on a positive note**



# Interview Process

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- **When? Where?**
- **In group or individually?**
- **Put the person at ease**
- **Reassure them that this is a fact-finding process only**





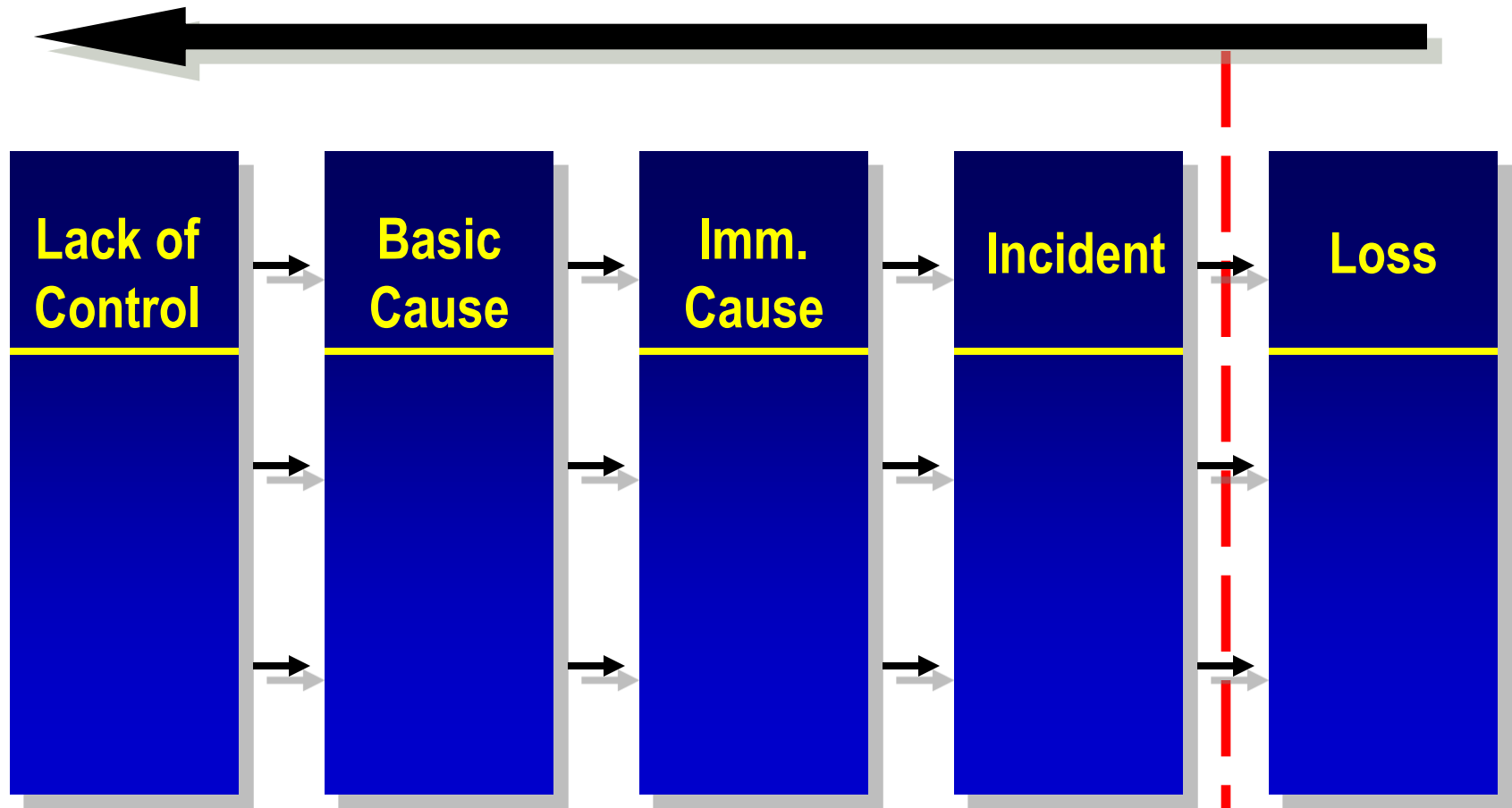
# WHEN

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- **AS SOON AS POSSIBLE**

- **Operations are disrupted**
- **Memories fade**
- **Employees are at risk**

# Accident Analysis



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# Analyze Data

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- **Gather all photos, drawings, interview materials and other information collected at the scene**
- **Determine a clear picture of what happened**
- **Formally document sequence of events**

# Data Analysis List

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- **Accident Title**
- **Date, Time, Location**
- **Persons involved**
- **Witnesses**
- **Work and environmental conditions at time of accident**
- **Immediate actions taken at scene**

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# Causes of Accidents

- **Immediate Causes**
- **Basic Causes**
- **Lack of Controls**

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# Immediate Causes

- **Unsafe acts**
- **Unsafe conditions**



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# Basic Causes

- **Personal Factors**
- **Job Factors**



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# Lack of Control

- **Inadequate system**
- **Inadequate standards**
- **Inadequate compliance to standards**

# *Safety and Health Controls*

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- **Engineering Controls** - machine guards, safety controls, isolation of hazardous areas, monitoring devices, etc.
- **Administrative Controls** - procedures, assessments, inspection, records to monitor and ensure safe practices and environment are maintained.
- **Training Controls** - safety orientations, job specific safety training and periodic refresher training
- **Personal Protective Equipment** - safety shoes, hard hats, etc.



# Final Report

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- **Background information**
- **List of those involved & other witnesses**
- **Account of the Accident**



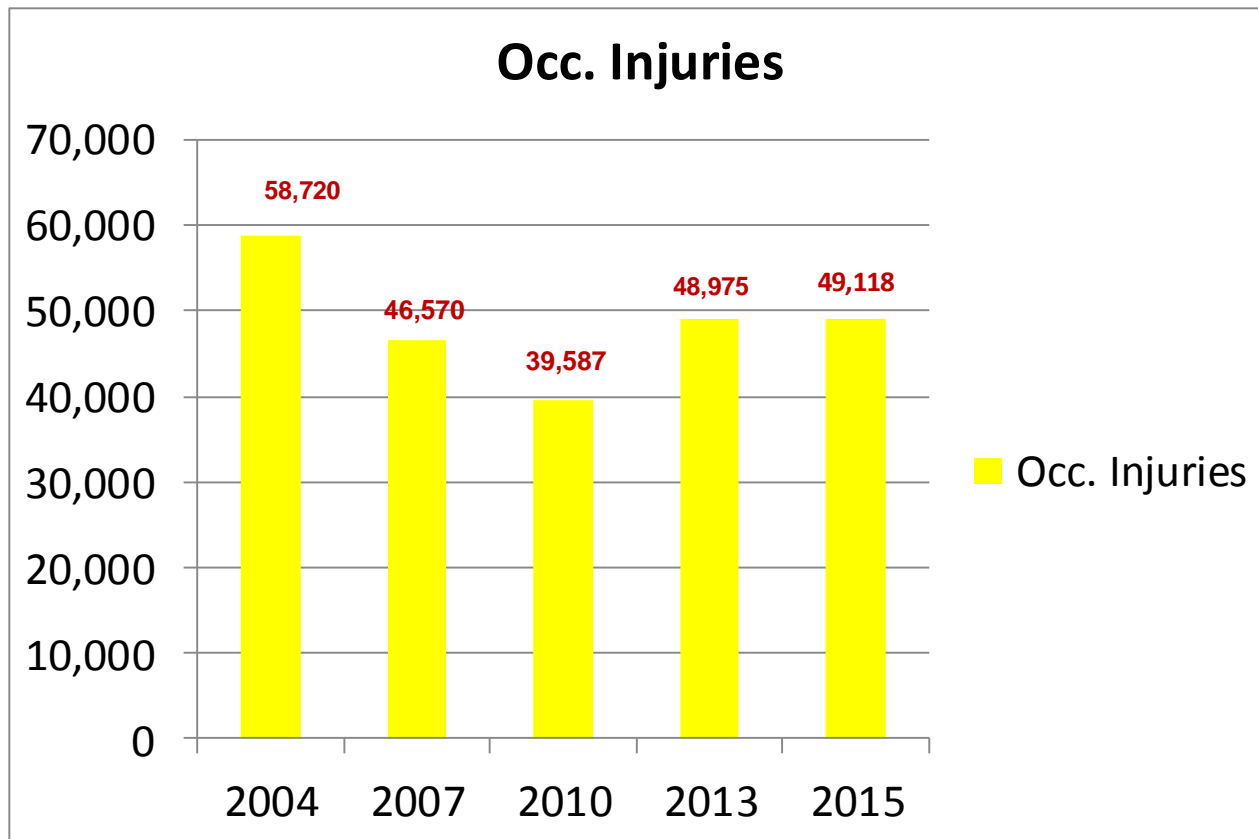
# Final Report

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- **Analysis of the Accident**
  - **Causes – Immediate and Basic Causes**
- **Recommendations**
  - **Engineering Controls**
  - **Administrative Controls**
  - **Training Controls**
  - **Personal Protective Equipment**



# Occupational Injuries: 2004, 2007, 2010, 2013 & 2015



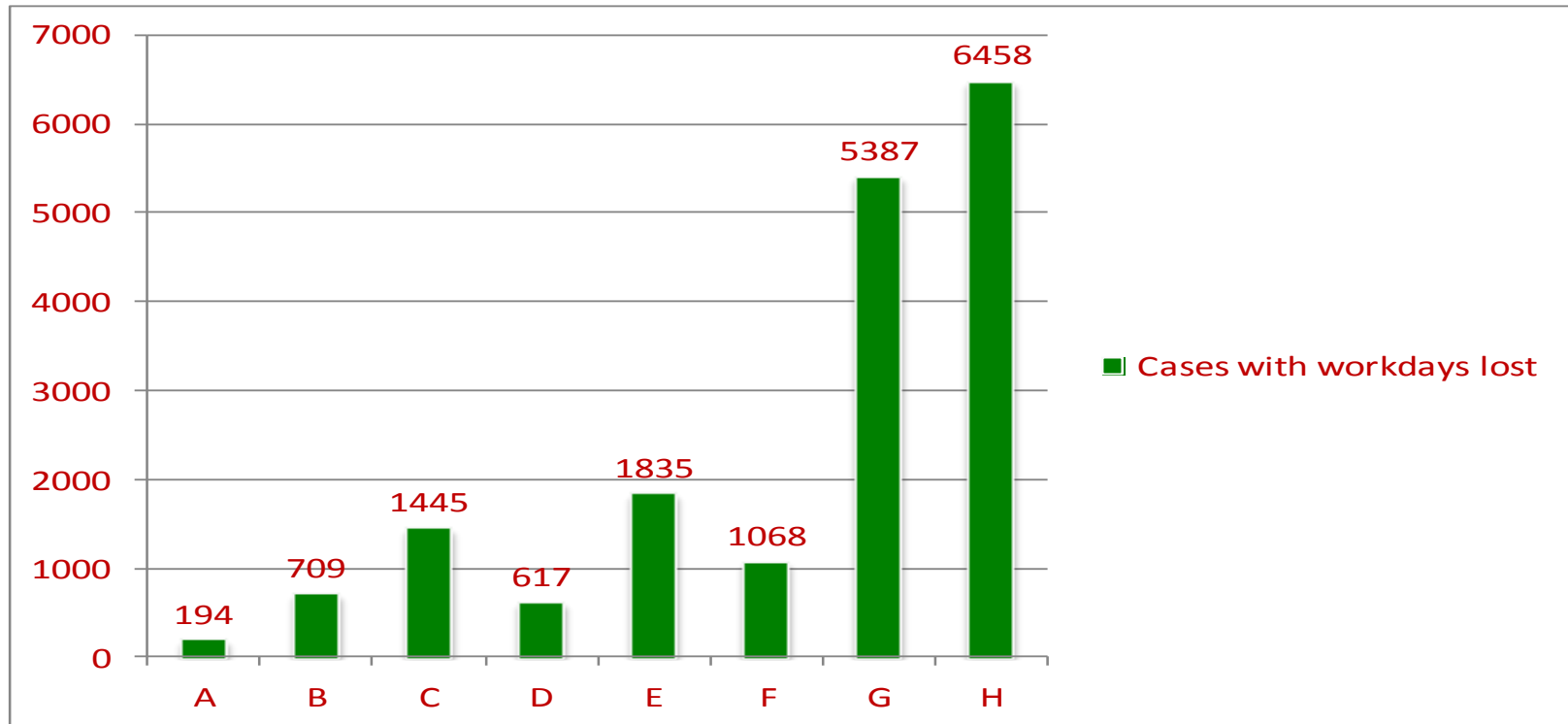
Source: 2004/2007/2010/ 2013/ 2015 OIS of the BITS



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# Cases of Occupational Injuries with Workdays Lost by Major Occupation Group:2010



*A – Corporate Executives, Managers, Managing Proprietors and Supervisors*  
*B – Professionals*  
*C – Technicians and Associate Professionals*

*D – Clerks*  
*E – Service Workers and Shop and Market Sales Workers*  
*F – Craft and Related Trades Workers*

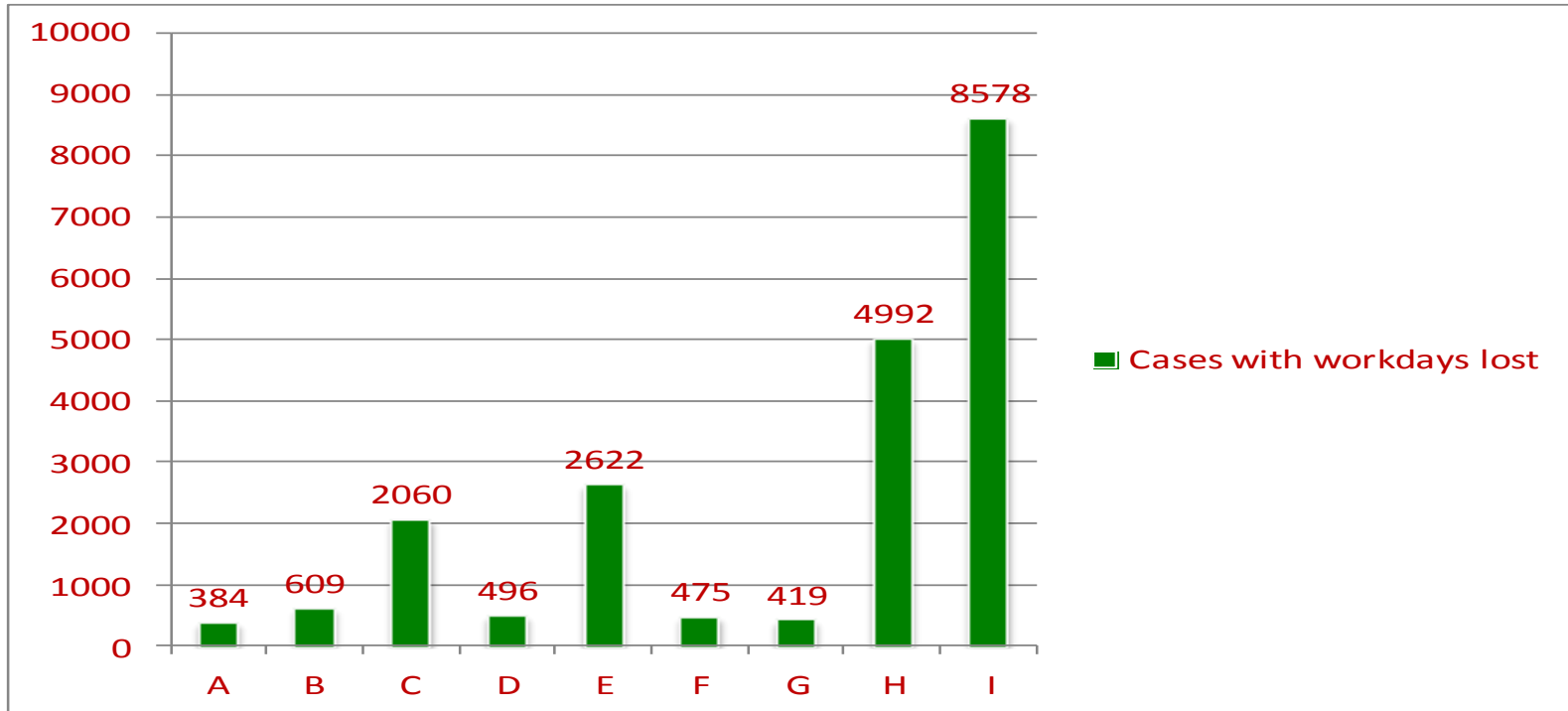
*G – Plant and Machine Operators and Assemblers*  
*H – Laborers and Unskilled Workers*

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# Cases of Occupational Injuries with Workdays Lost by Major Occupation Group:2013



*A – Corporate Executives, Managers, Managing Proprietors and Supervisors  
B – Professionals  
C – Technicians and Associate Professionals*

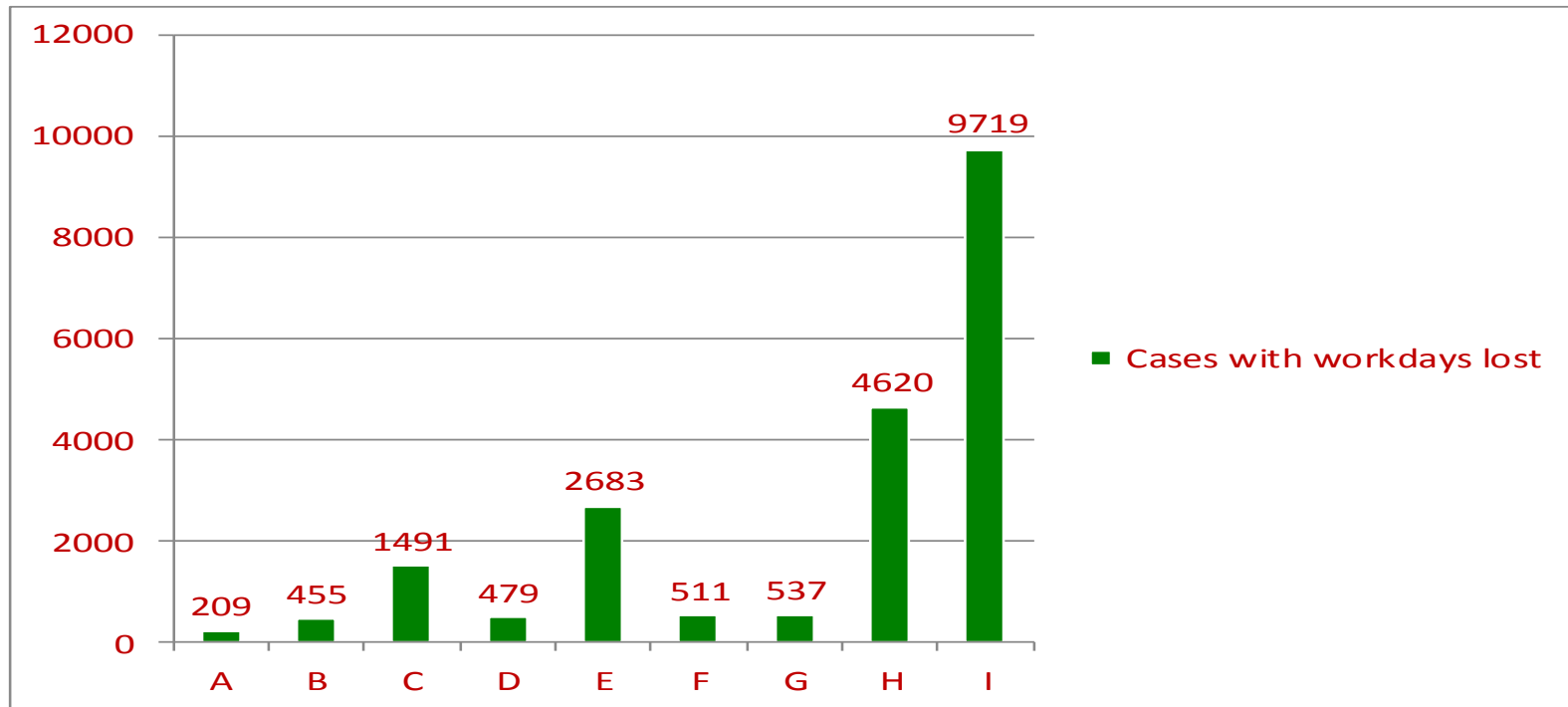
*D - Clerks  
E – Service Workers and Shop and Market Sales Workers  
F – Farmers, Forestry Workers and Fishermen*

*G – Craft and Related Trades Workers  
H - Plant and Machine Operators and Assemblers  
I – Laborers and Unskilled Workers*

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# Cases of Occupational Injuries with Workdays Lost by Major Occupation Group:2015



*A – Corporate Executives, Managers, Managing Proprietors and Supervisors*  
*B – Professionals*  
*C – Technicians and Associate Professionals*

*D - Clerks*  
*E – Service Workers and Shop and Market Sales Workers*  
*F – Farmers, Forestry Workers and Fishermen*

*G – Craft and Related Trades Workers*  
*H - Plant and Machine Operators and Assemblers*  
*I – Laborers and Unskilled Workers*

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# Cases of Occupational Diseases by Major Industry Group: 2004, 2007, 2010, 2013 & 2015

Major Industry Group	2004	2007	2010	2013	2015
All Industries	55,413	47,235	71,894	85,483	171,787
Agriculture				2,757	4,803
Mining & Quarrying	1,350	51	1,484	854	9,255
Manufacturing	35,956	26,284	34,065	31,096	51,110
Electricity, Gas, Steam Air Conditioning Supply	1,112	526	5,062	2,930	4,108
Water Supply; Sewage, Waste Management					266
Construction	149	370	1,928	875	4,175
Wholesale & Retail Trade	5,241	4,342	3,551	6,256	10,816
Accommodation and Food Services	2,195	1,697	1,289	4,681	3,712
Transport and Storage	3,828	6,176	5,835	5,849	3,429
Information and Communications					6,258
Financial and Insurance	594	700	1,514	5,110	5,504
Real Estate, Renting & Business Activities	761	2,926	7,138	5,756	240
Professional, Scientific and Technical Activities					1,517
Administrative and Support Services (e.g. Call Center)		1,175	4,657	11,005	56,115
Private Education Services	2,694	2,204	4,877	4,937	5,746
Human Health and Social Work	839	1,233	1,656	3,010	2,986
Others	695	728	3,495	367	
Arts, Entertainment and Recreation					1,464
Repair of Computers and Personal Household Goods					286

Source: 2004/2007/2010/2013/2015 OIS of the BITS

# Cases of Occupational Diseases by Type of Occupational Disease: 2004, 2007, 2010, 2013 & 2015

Type of Occupational Disease	2004	2007	2010	2013	2015
<b>Total</b>	<b>55,413</b>	<b>47,235</b>	<b>71,894</b>	<b>85,483</b>	<b>171,787</b>
<b>Occupational Dermatitis</b>	<b>5,028</b>	<b>5,965</b>	<b>5,644</b>	<b>4,374</b>	<b>9,391</b>
<b>Occupational Asthma</b>	<b>6,742</b>	<b>8,759</b>	<b>4,906</b>	<b>3,852</b>	<b>8,914</b>
<b>Acute Poisonings</b>	<b>202</b>	<b>189</b>	<b>192</b>	<b>91</b>	<b>125</b>
<b>Heat Stroke, Cramps, Exhaustion</b>	<b>631</b>	<b>577</b>	<b>633</b>	<b>1,044</b>	<b>1,792</b>
<b>Chilblain, Frostbite, etc.</b>	<b>150</b>	<b>112</b>	<b>37</b>	<b>99</b>	<b>268</b>
<b>Deafness</b>	<b>510</b>	<b>172</b>	<b>320</b>	<b>868</b>	<b>296</b>
<b>Infections</b>	<b>7,825</b>	<b>6,517</b>	<b>6,403</b>	<b>8,278</b>	
<b>Tuberculosis</b>					<b>3,670</b>
<b>Other infections</b>					<b>6,395</b>
<b>Cataract</b>	<b>634</b>	<b>284</b>	<b>140</b>	<b>314</b>	<b>218</b>
<b>Cardiovascular Diseases</b>	<b>1,454</b>	<b>854</b>	<b>767</b>	<b>2,030</b>	<b>1,879</b>
<b>Essential Hypertension</b>	<b>5,708</b>	<b>6,152</b>	<b>9,101</b>	<b>11,241</b>	<b>19,382</b>
<b>Peptic Ulcer</b>	<b>5,347</b>	<b>4,135</b>	<b>5,871</b>	<b>6,967</b>	<b>19,434</b>
<b>Work-Related Musculoskeletal Diseases</b>	<b>20,603</b>	<b>13,296</b>	<b>28,574</b>	<b>45,572</b>	<b>89,454</b>
<b>Carpal Tunnel Syndrome</b>					<b>6,098</b>
<b>Shoulder Tendinitis</b>					<b>4,758</b>
<b>Neck-shoulder Pain</b>					<b>18,255</b>
<b>Back Pain</b>					<b>54,244</b>
<b>Other work-related musculoskeletal diseases</b>					<b>6,099</b>
<b>Others</b>	<b>579</b>	<b>222</b>	<b>9,306</b>	<b>952</b>	<b>10,779</b>

Source: 2004/2007/2010/2013/2015 OIS of the BITS

### LLCS Regional Performance

Period: January 1, 2016 to December 31, 2016

(generated on 05 January 2016 )

REGION	Establishments covered	Target	% Performance	Est. with deficiencies	Total Est. w/ Deficiencies Provided with Appropriate Assistance Leading to Compliance (In %)	Initial Compliance Rate	
						GLS	OSHS
						(In %)	(In %)
PHILIPPINES	60,376	52,074	115.9	37,803	76	49.9	59.2
NCR	15,995	14,297	111.9	10,710	50	56.1	38.6
CAR	2,232	2,019	110.5	1,336	100	44.2	86.4
I	1,389	1,266	109.7	204	90	86.7	98.1
II	1,607	1,376	116.8	1,407	73	16.1	49.5
III	8,694	6,822	127.4	5,331	100	51.1	50.7
IV-A	8,453	6,048	139.8	6,171	65	31.3	72.1
IV-B	1,579	1,224	129.0	1,137	100	41.6	57.8
V	1,466	1,455	100.8	782	100	60.2	66.3
VI*	1,455	1,129	128.9	397	100	38.7	45.7
VII*	4,557	4,191	108.7	2,961	77	44.9	37.4
VIII	1,466	1,096	133.8	863	100	50.6	68.1
IX	1,625	1,554	104.6	1,187	100	42.6	33.7
X	2,607	2,590	100.7	1,348	84	55.4	74.5
XI	3,270	3,181	102.8	1,390	100	64.1	81.1
XII	1,324	1,317	100.5	872	77	53.6	47.1
CARAGA	1,235	1,135	108.8	1,081	96	31.2	39.2
NIR*	1,422	1,374	103.41	575	88	75.56	90.72

Notes:

1. Number of Actual LLCOs deployed is based on the generated LLCO Performance,
2. By manual filtering there are: 867 closed establishments; 562 cannot be located establishments; 909 moved-out establishments,
3. NIR data are accomplishment report manually submitted by NIR.
4. RO 6 and RO 7 MIS-generated data are recomputed based on the accomplishment report submitted by NIR.



## Department of Labor and Employment OCCUPATIONAL SAFETY AND HEALTH CENTER



**LLCS Performance Report  
CY 2015**

REGION	Targets	Total Establishments Covered	Estabs. with Deficiencies Given Appropriate Assistance (100%)	Compliance Rate after Correction	
				GLS	OSHS
<b>PHILS</b>	<b>44,590</b>	<b>50,161</b>	<b>26,484</b>	<b>73.18%</b>	<b>66.94%</b>
NCR	16,111	13,470	6905	87.25	41.23
CAR	836	1,196	712	87.42	86.27
I	1,633	1,794	293	74.50	99.07
II	1,164	1,371	1,038	73.03	41.67
III	4,710	6,230	2,999	73.05	75.36
IV-A	3,656	5,383	3,809	73.04	72.29
IV-B	1,000	1,187	877	77.29	84.16
V	2,000	2,170	917	47.00	81.53
VI	1,680	2,056	511	77.29	92.57
VII	3,480	4,220	3161	47.00	41.27
VIII	913	1,110	589	80.26	92.85
IX	821	1,266	716	79.17	65.84
X	2,250	3,159	974	75.40	86.54
XI	2,000	2,830	1,224	75.41	94.14
XII	1,164	1,384	835	78.04	73.79
CARAGA	1,172	1,335	924	85.05	67.57

**Note:**

*GLS Compliance is within the 10-day prescribed Correction Period*

*OSHS Compliance is within the 3-month Remediation Period (another run of report generation will be done on April 2016)*



CY 2014

REGION	Targets	Total Establishments Covered	Estabs. with Deficiencies Given Appropriate Assistance (100%)	Compliance Rate after Correction	
				GLS	OSHS
<b>PHILS</b>	<b>76,766</b>	<b>76,880</b>	<b>23,865</b>	<b>84.57%</b>	<b>88.06%</b>
NCR	33,411	21,663	4,641	92.75%	92.11%
CAR	852	1,213	293	89.74%	95.08%
I	2,038	2,151	151	96.85%	99.85%
II	1,018	1,544	1,063	72.62%	80.90%
III	6,649	8,072	1,166	91.59%	98.39%
IV-A	8,880	10,343	6,302	59.67%	81.43%
IV-B	1,073	1,349	653	69.38%	89.90%
V	1,738	2,138	846	80.59%	73.38%
VI	3,906	4,864	1,001	97.29%	99.73%
VII	5,273	7,212	1,761	81.33%	85.43%
VIII	1,120	1,478	692	72.06%	55.02%
IX	1,521	1,951	1,049	71.52%	70.46%
X	2,788	3,518	636	91.64%	92.26%
XI	3,579	5,371	1,753	93.85%	87.39%
XII	1,921	2,333	1,104	83.03%	63.62%
CARAGA	999	1,524	649	90.20%	96.83%

**Note:**

*GLS Compliance is within the 10-day prescribed Correction Period*

*OSHS Compliance is within the 3-month Remediation Period*



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# DEPARTMENT OF LABOR AND EMPLOYMENT

## NCR –2011

Total Projects Inspected	No Violation	With Violation	No. of Establishments with Violations on:					
			OSHS					
			CSHP	Safety Officer (SO)	Rule 1020	Rule 1040	First Aider	Others
<b>174</b>	<b>2</b>	<b>172</b>	<b>524</b>	<b>402</b>	<b>74</b>	<b>174</b>	<b>35</b>	<b>447</b>



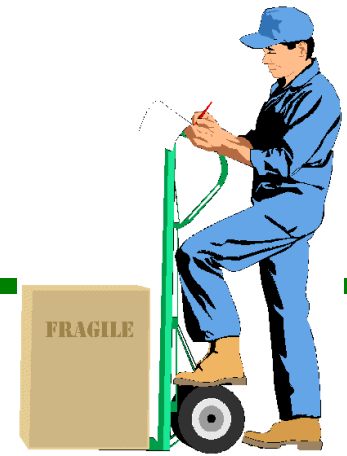
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# ***SAFETY PHILOSOPHY @ WORK***

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**“THE WORK AND PERSONAL HEALTH, WELFARE AND WELL BEING OF EMPLOYEES ARE EQUAL IN IMPORTANCE, THAT EVERYONE MUST TAKE THE TIME AND EXHAUST HIS BEST TO PERFORM HIS WORK SAFELY. IT IS THE RESPONSIBILITY OF EVERYONE ON SITE TO APPLY EVERY POSSIBLE MEASURE, TO ENSURE THAT ALL LEAVE THE JOB IN THE SAME CONDITION THEY ARRIVED.”**



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**Department of Labor and Employment  
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# Thank you!



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