



**Red Alert Program In Drilling Rigs:  
A Strong Decision To Show Leadership And To Involve Work Force  
Towards Zero Serious Or Fatal Incidents**

**PETROBRAS**

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## **Red Alert Program In Drilling Rigs**

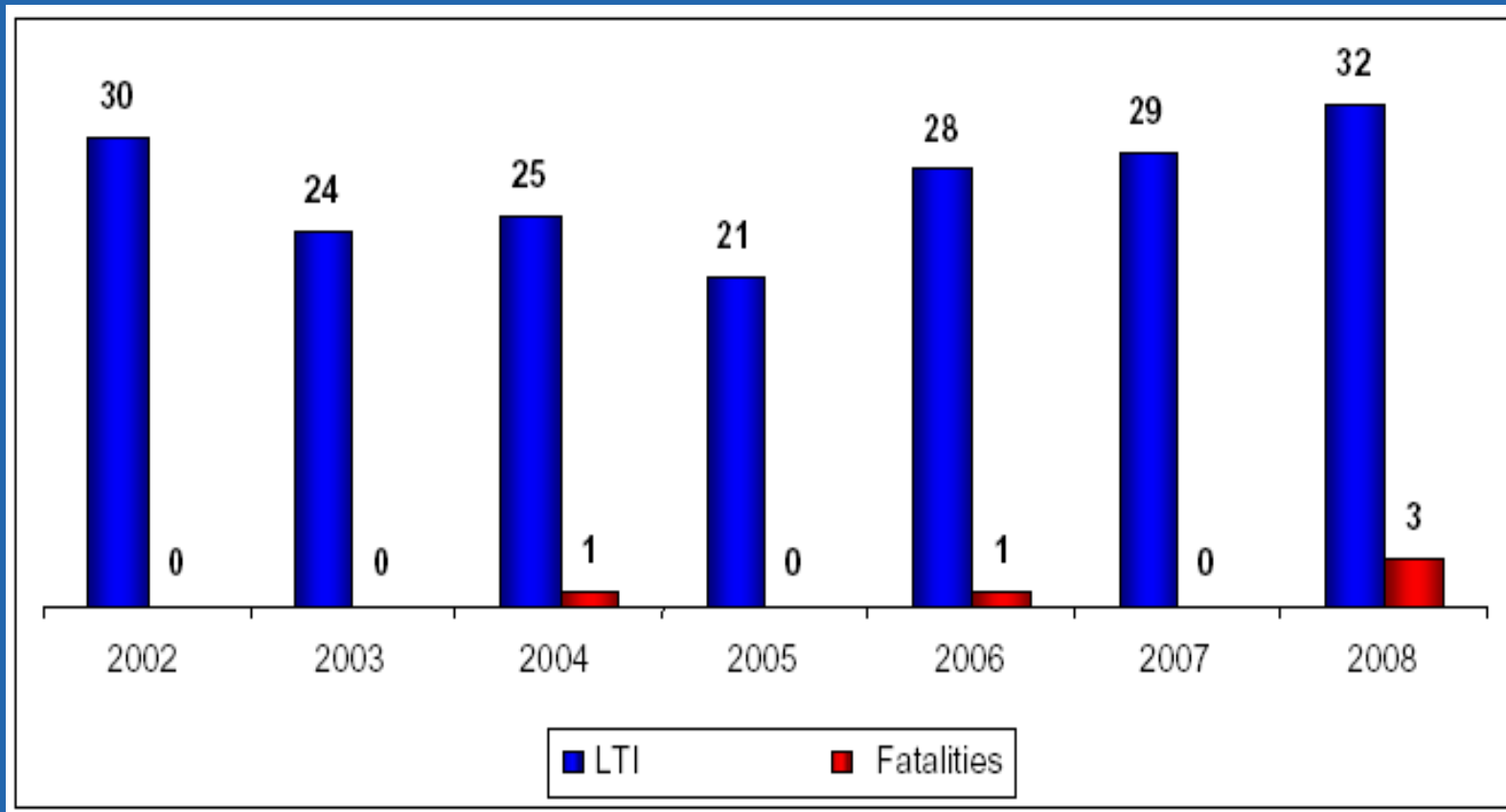
### **Accessing the problem:**

- Increasing number of floating drilling rigs in Brazil;**
- Attract, Hire and Train skilled workers to operate a fast growing rig fleet;**
- Lack of qualified personnel and training facilities;**
- Unskilled “rookies” were hired to fulfill the demand for jobs;**
- Increasing number of serious accidents from 2006;**
- In 2008 the number of serious accidents exceeded the expectations, with three fatalities.**



## Red Alert Program In Drilling Rigs

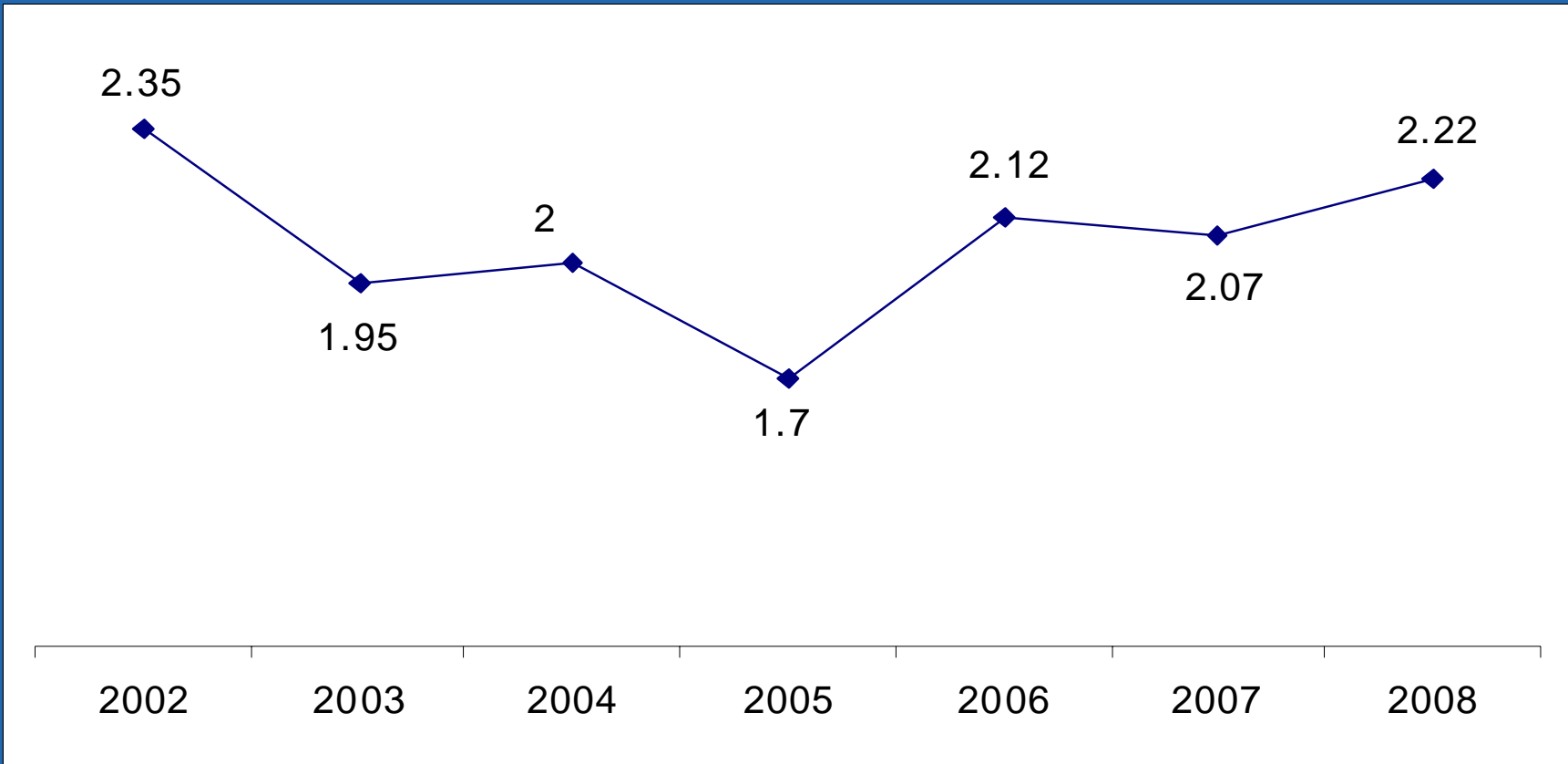
In 2008 LTI Lost Time Injury was 60% higher when compared to 2005. The number of fatalities tripled, when compared to 2004 and 2006.





## Red Alert Program In Drilling Rigs

Lost Time Injury (LTI) for 1 million man worked hours.





## **Red Alert Program In Drilling Rigs**

**Solution found by Petrobras and Contractors' leadership:**

### **Actions:**

- Create a strong movement to engage the workforce towards accident prevention;**
- "RED ALERT" Program - stop all rigs to get workers involved;**
- 24 hours to think about safety, risk perception, management of change and hazard hunt;**



## **Red Alert Program In Drilling Rigs**

**Workshops and meetings were held with each rig crew to:**

- Explain the reasons to stop;**
- Fatalities review and lessons learned;**



## **Red Alert Program In Drilling Rigs**

- Around 43 drilling rigs working for Petrobras - deep water;**
- 7,500 people were involved;**
- Cost of US\$ 7 million;**
- Sharing downtime costs;**

SPE International Conference on Health, Safety and Environment  
in Oil and Gas Exploration and Production



## Red Alert Program In Drilling Rigs

Leadership and workforce on board:  
Workshops and hazard hunting.







# Red Alert Program In Drilling Rigs

## Hazard Hunt Card

HAZARD HUNT		Equipment: _____
Location rated: _____		
<input type="checkbox"/>	Inadequate housekeeping	<input type="checkbox"/> Defective
<input type="checkbox"/>	Inadequate maintenance	<input type="checkbox"/> Inadequate
<input type="checkbox"/>	Constricted space	<input type="checkbox"/> Poorly maintained
<input type="checkbox"/>	Inadequate lighting	<input type="checkbox"/> Without safety protection
<input type="checkbox"/>	Light fixtures with no safety cables	<input type="checkbox"/> Without safety signage
<input type="checkbox"/>	Lack of safety signage	<input type="checkbox"/> Other: _____
<input type="checkbox"/>	Unprotected electrical equipment	<input type="checkbox"/> Other: _____
<input type="checkbox"/>	Excessive noise	
<input type="checkbox"/>	Excessive heat	Moving Loads:
<input type="checkbox"/>	Excessive vibration	<input type="checkbox"/> Crane _____
<input type="checkbox"/>	Blocked escape route	<input type="checkbox"/> Fork-lift _____
<input type="checkbox"/>	Blocked emergency exit	<input type="checkbox"/> Gantry crane _____
<input type="checkbox"/>	Inadequate ladder maintenance	<input type="checkbox"/> Cat-line _____
<input type="checkbox"/>	Out-of-order showers and eye-wash stations	<input type="checkbox"/> Pulley _____
<input type="checkbox"/>	Blocked fire-fighting equipment	<input type="checkbox"/> Sling / Pad eye _____
<input type="checkbox"/>	Blocked life saving equipment	<input type="checkbox"/> Other: _____
<input type="checkbox"/>	Access to procedures	<input type="checkbox"/> Other: _____
<input type="checkbox"/>	Other: _____	
Work place situations:		Tools: _____
<input type="checkbox"/>	Risk of falling (people and objects)	<input type="checkbox"/> Defective
<input type="checkbox"/>	Risk of slipping or stumbling	<input type="checkbox"/> Inadequate
<input type="checkbox"/>	Risk of pinch point	<input type="checkbox"/> Poorly maintained
<input type="checkbox"/>	Risk of fire	<input type="checkbox"/> Other: _____
<input type="checkbox"/>	Risk of explosion	<input type="checkbox"/> Other: _____
<input type="checkbox"/>	Risk of electrical shock	
<input type="checkbox"/>	Excessive strain	Commentary:
<input type="checkbox"/>	Contact with hazardous materials	_____
<input type="checkbox"/>	Risk of leaking chemicals	_____
<input type="checkbox"/>	Lack of protection from chemical exposure	_____
<input type="checkbox"/>	Inadequate PPE	_____
<input type="checkbox"/>	Other: _____	_____



## **Red Alert Program In Drilling Rigs**

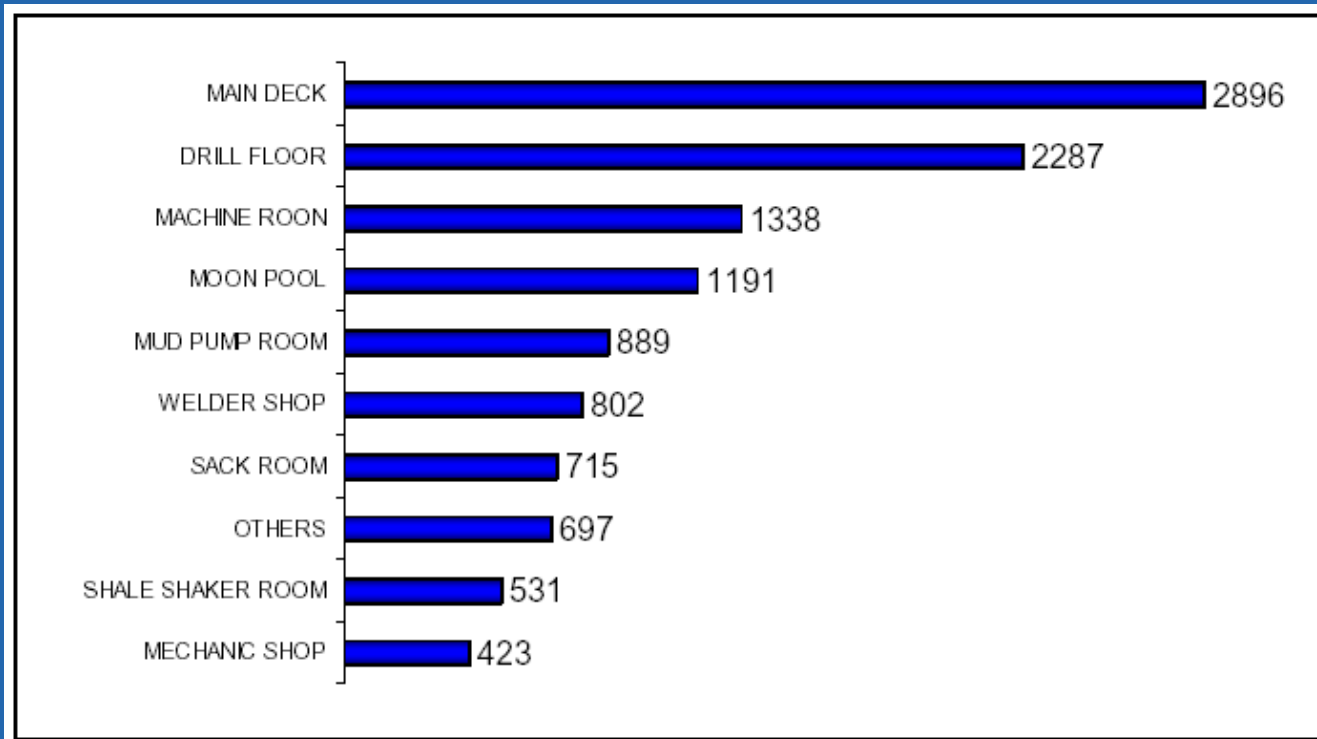
### **Hazard Hunt results:**

- 18,032 identified hazards in 34 drilling rigs;**
- 530 hazards per rig (average);**
- Most hazards were found on main deck, storage and cargo handling areas, 2,896 hazards - 16% of the total hazards found.**



## Red Alert Program In Drilling Rigs

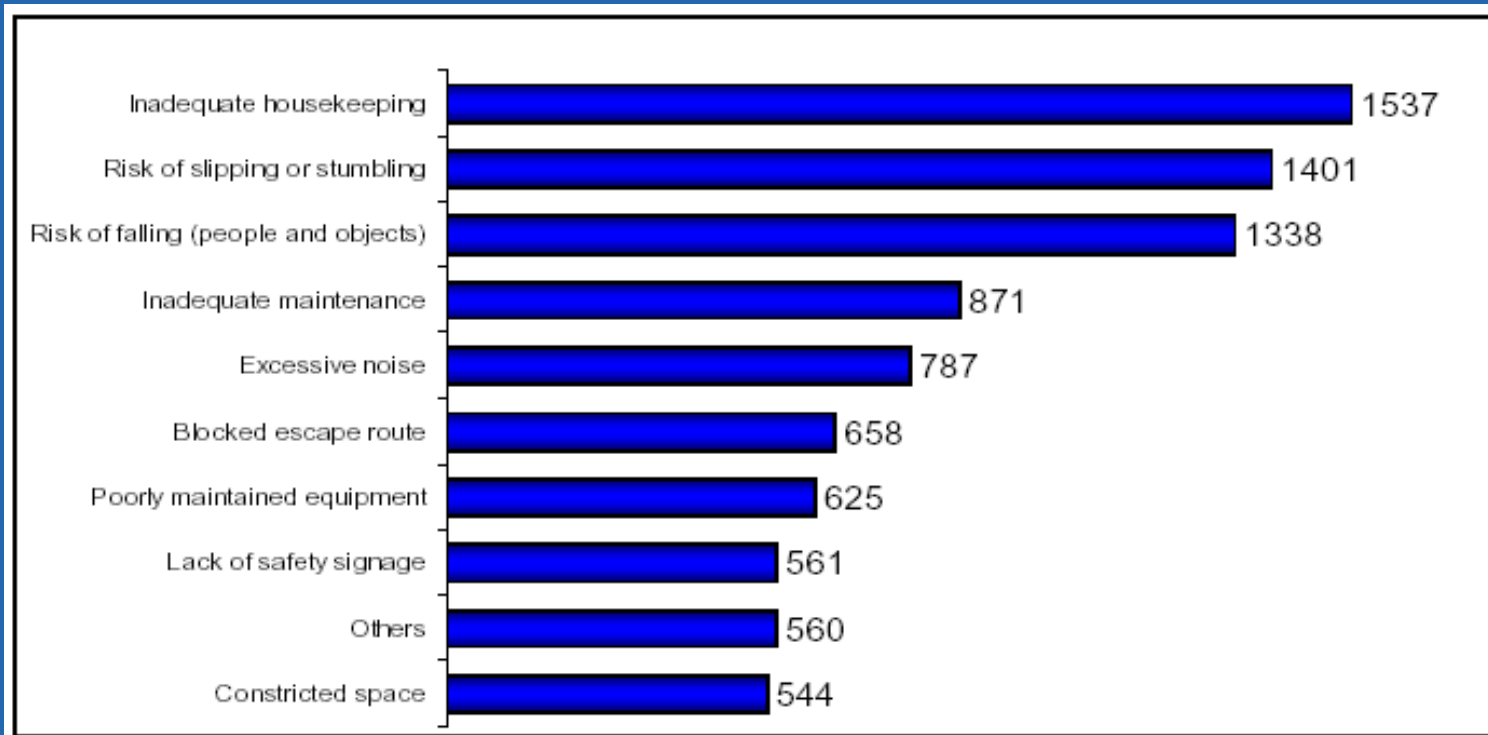
Hazards by area in all rigs:





## Red Alert Program In Drilling Rigs

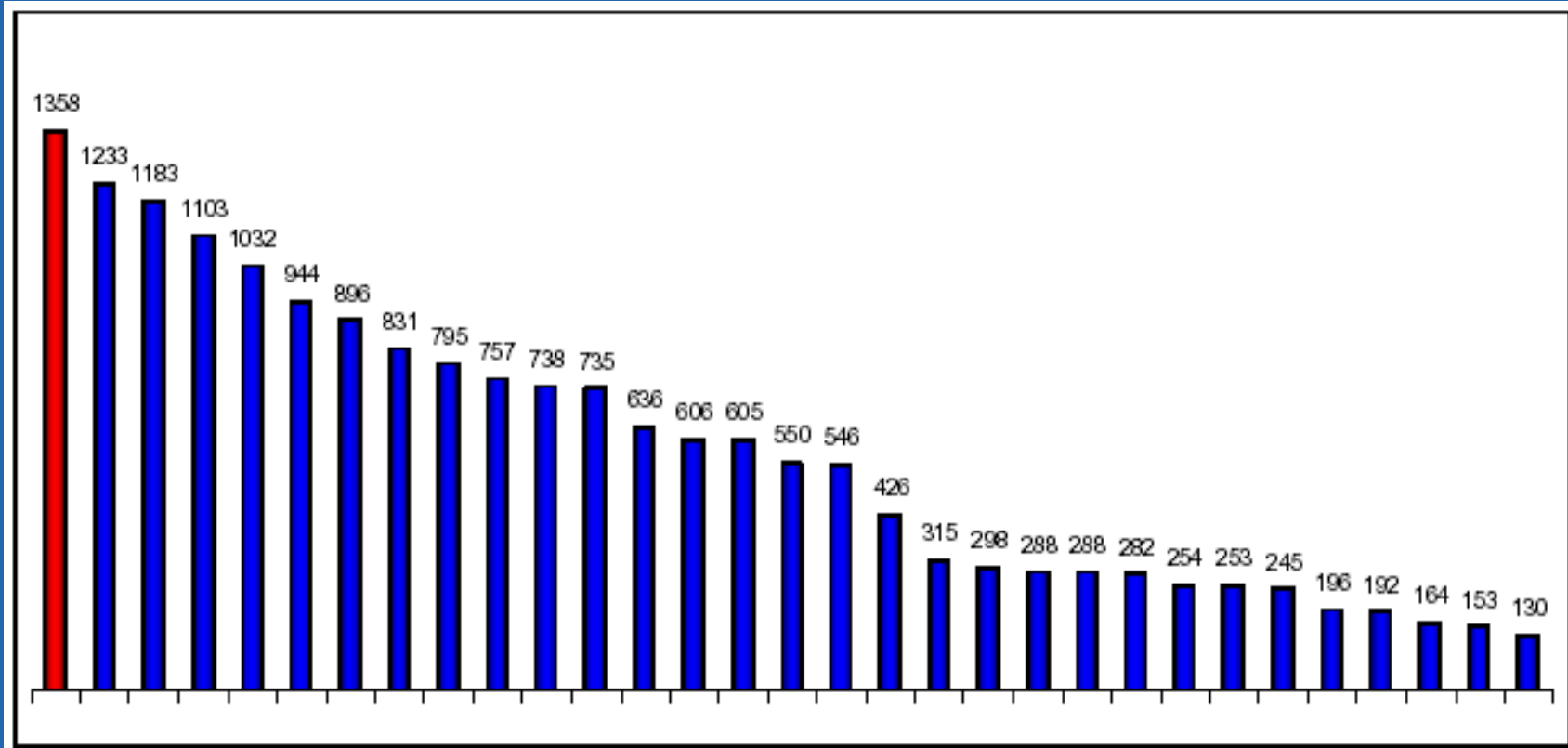
1,537 hazards related to “Inadequate housekeeping”, representing 9% of the total hazards found.





## Red Alert Program In Drilling Rigs

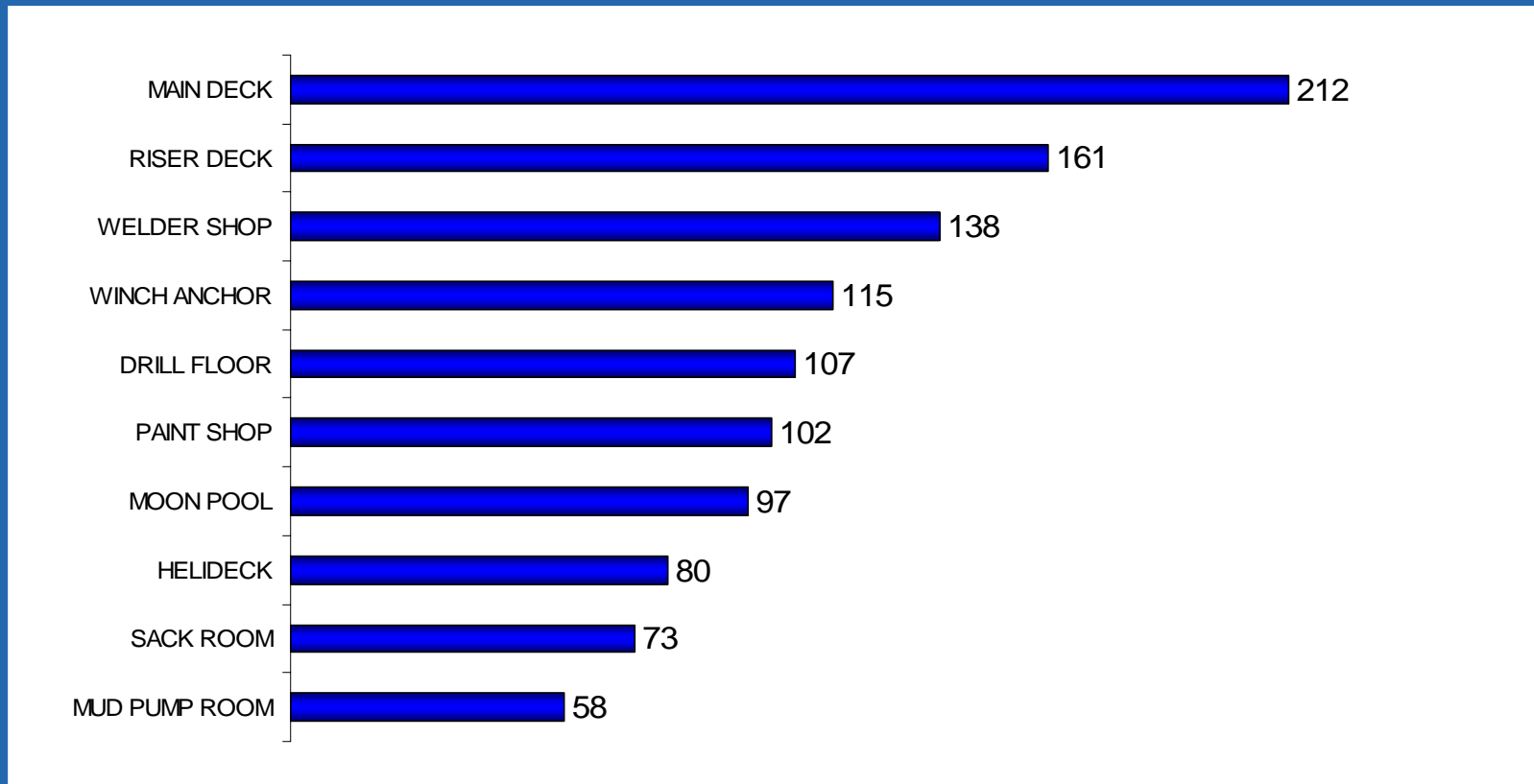
Number of hazards identified in each drilling rig:





## Red Alert Program In Drilling Rigs

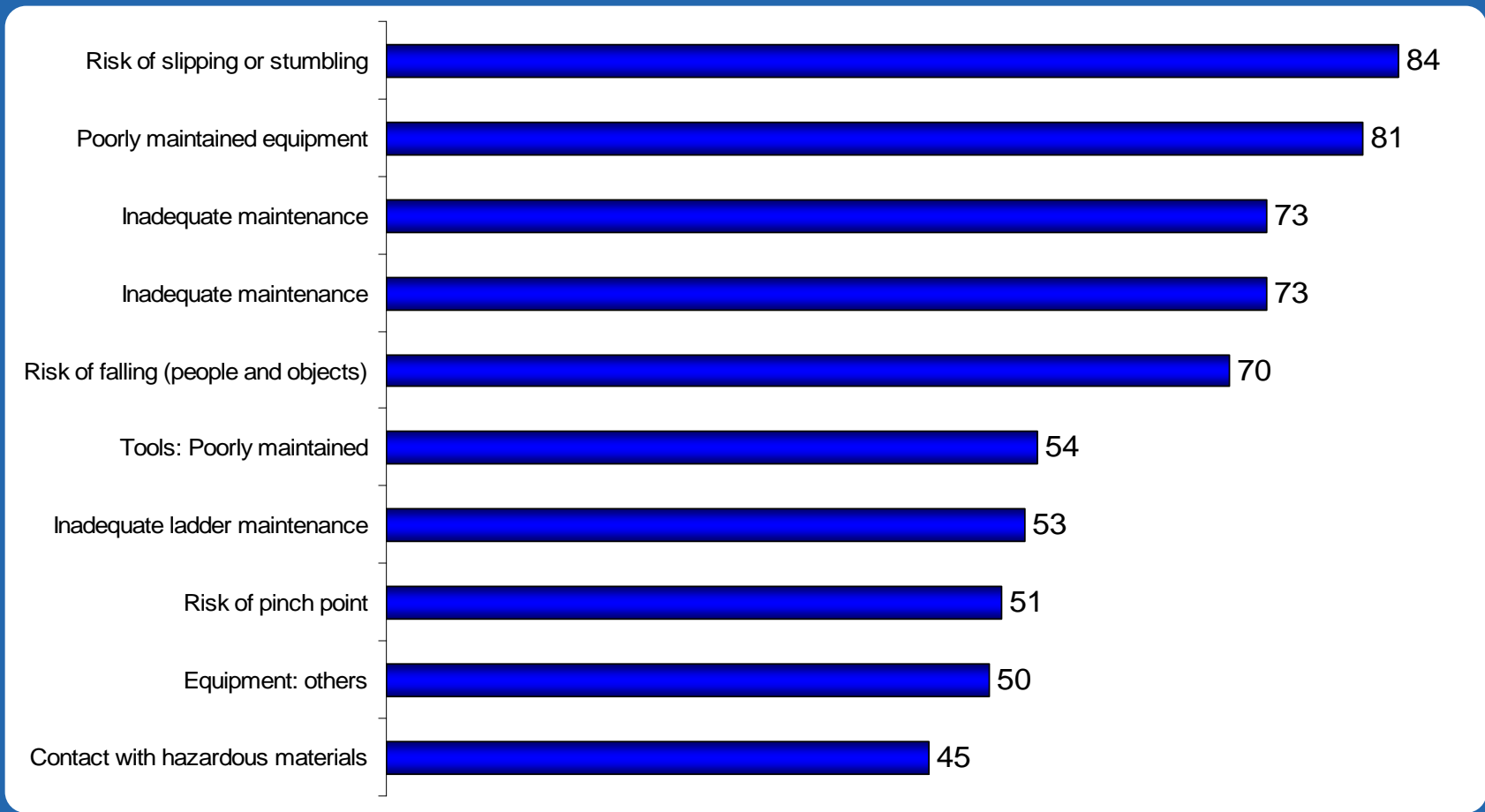
Hazardous places identified on the drilling rig with 1,358 hazards reported. 8% of the total hazards found. 212 hazards on the main deck - 16% of the hazards found in this rig and 14% of the total hazards reported for all rigs.





# Red Alert Program In Drilling Rigs

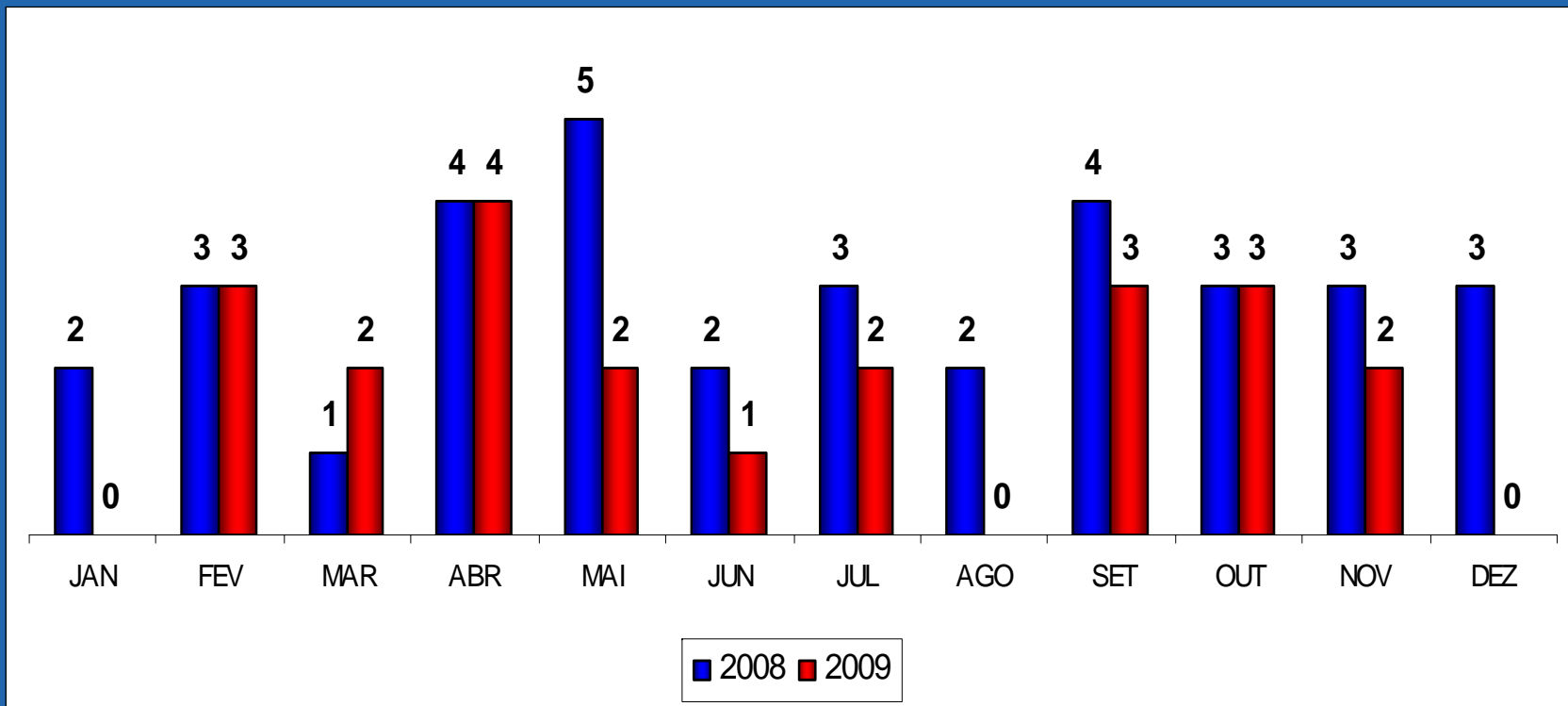
Slips and trips risks, with 84 notifications.





## Red Alert Program In Drilling Rigs

Number of incidents in 2008 and 2009 in deep water drilling rigs.



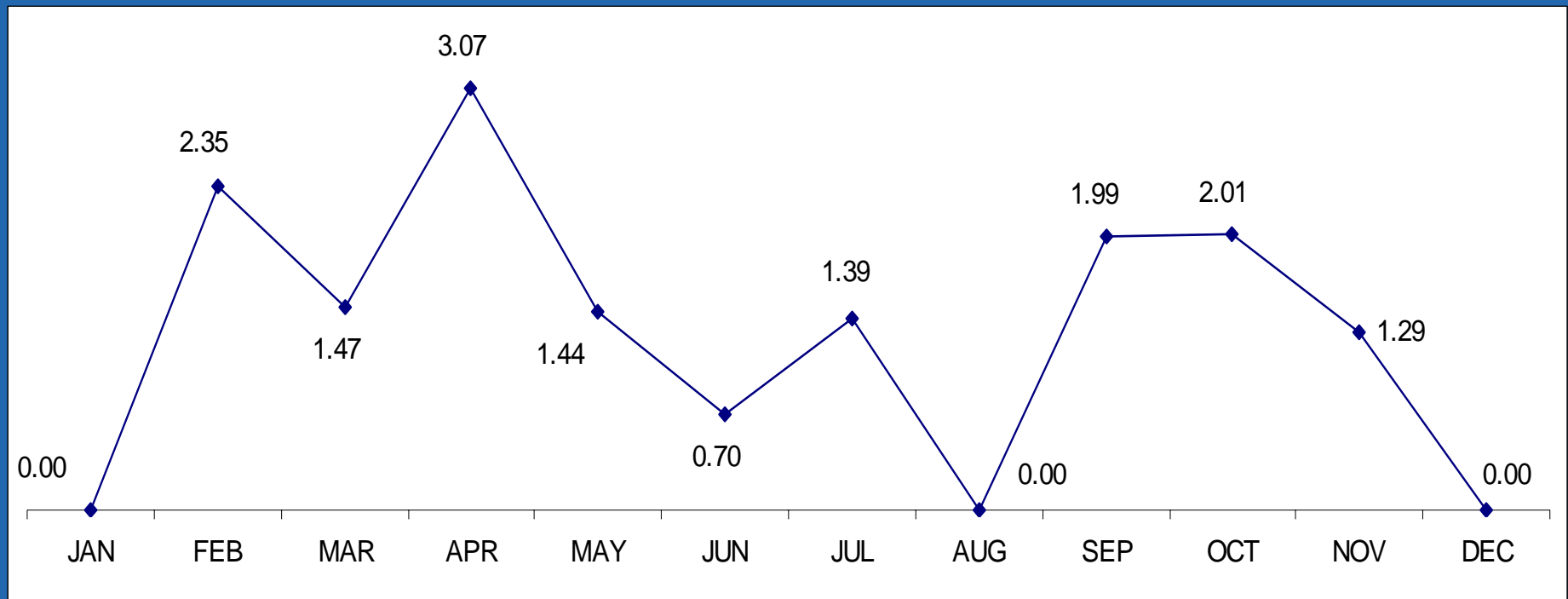




## Red Alert Program In Drilling Rigs

Lost Time Injury Frequency Rate Accumulated from January to  
December 2009 was 1.27.

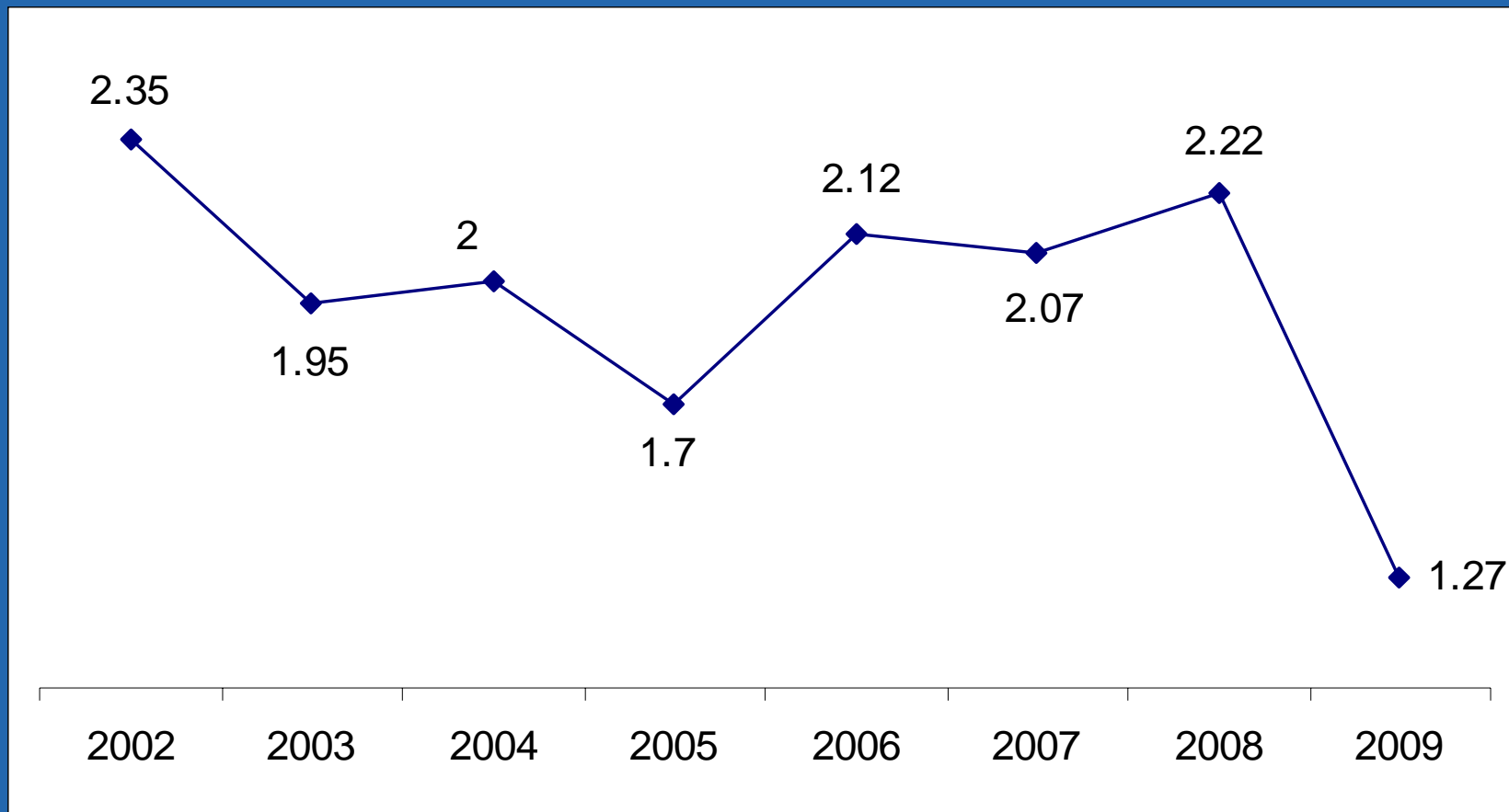
17 Million Man-hours of Risk Exposition.





## Red Alert Program In Drilling Rigs

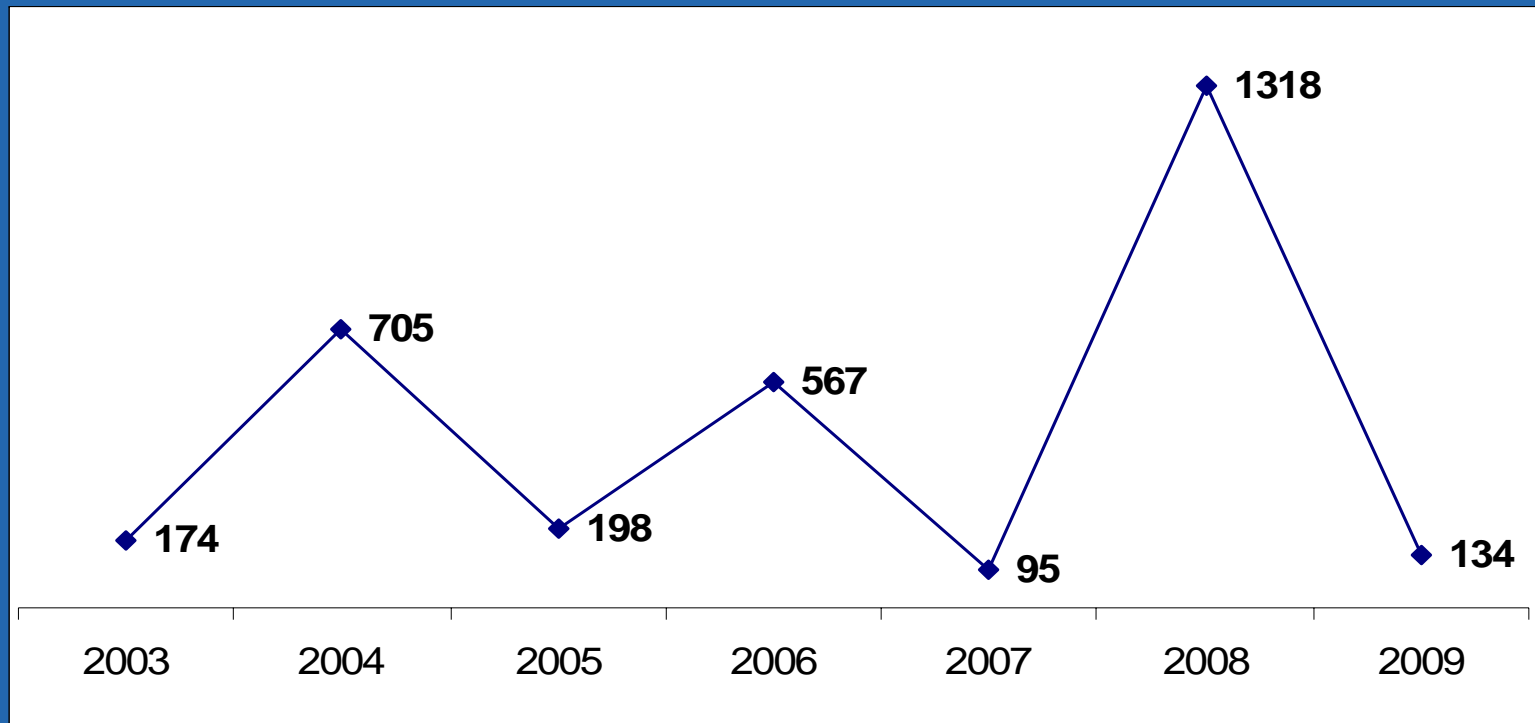
Lost Time Injury (LTI) - 1 million man worked hours.





## Red Alert Program In Drilling Rigs

Severity Rate In 2008 topped 1,318 (three fatalities) - the highest numbers since 2002. In 2009 the severity rate dropped to 134.





## **Red Alert Program In Drilling Rigs**

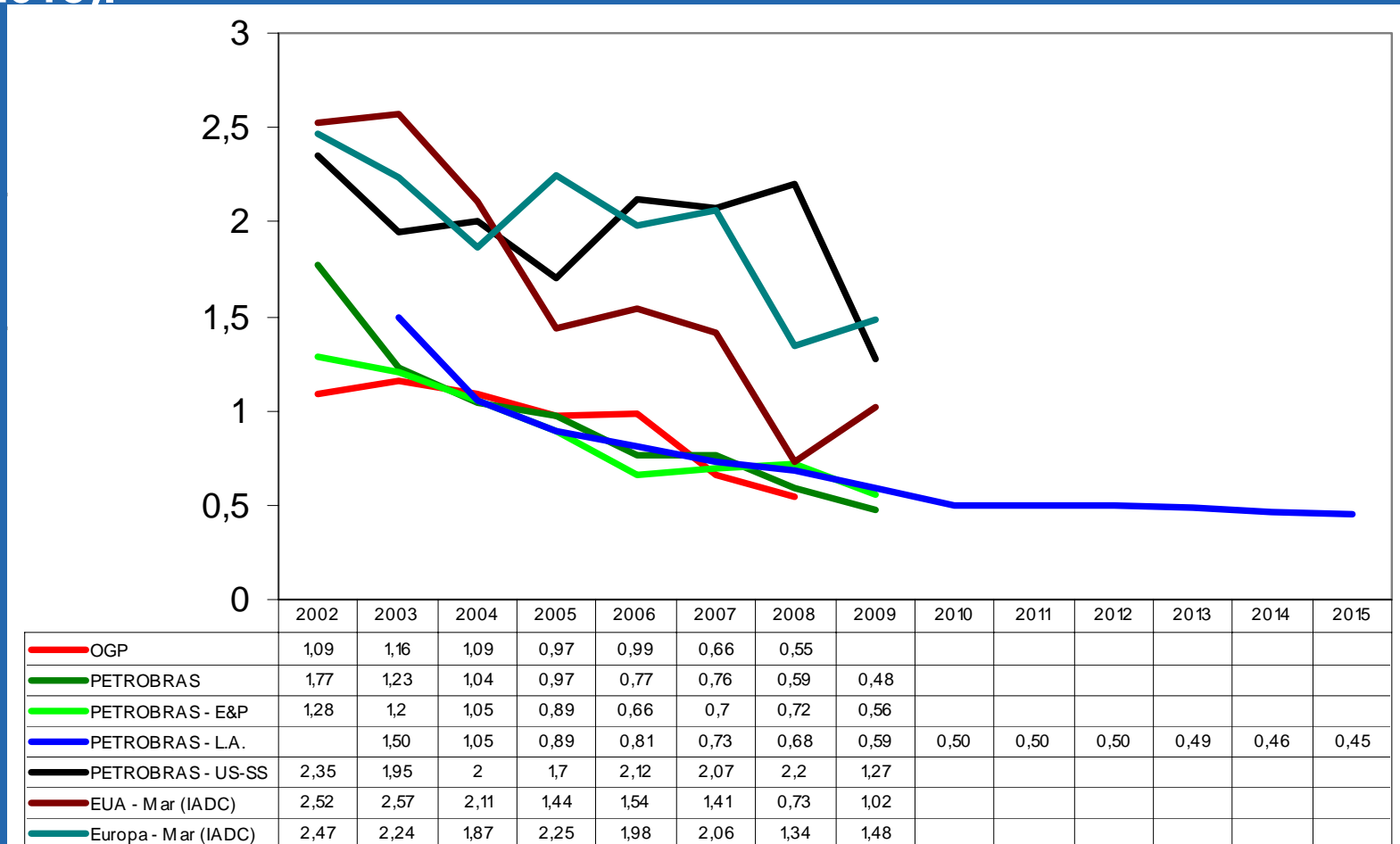
### **CONCLUSIONS:**

- Lost time incidents dropped from 35 in 2008 to 22 in 2009 (a 37% drop);**
- 1, 27 - Lost Time Incident Frequency Rate in 2009;**
- Best result in US-SS's history.**

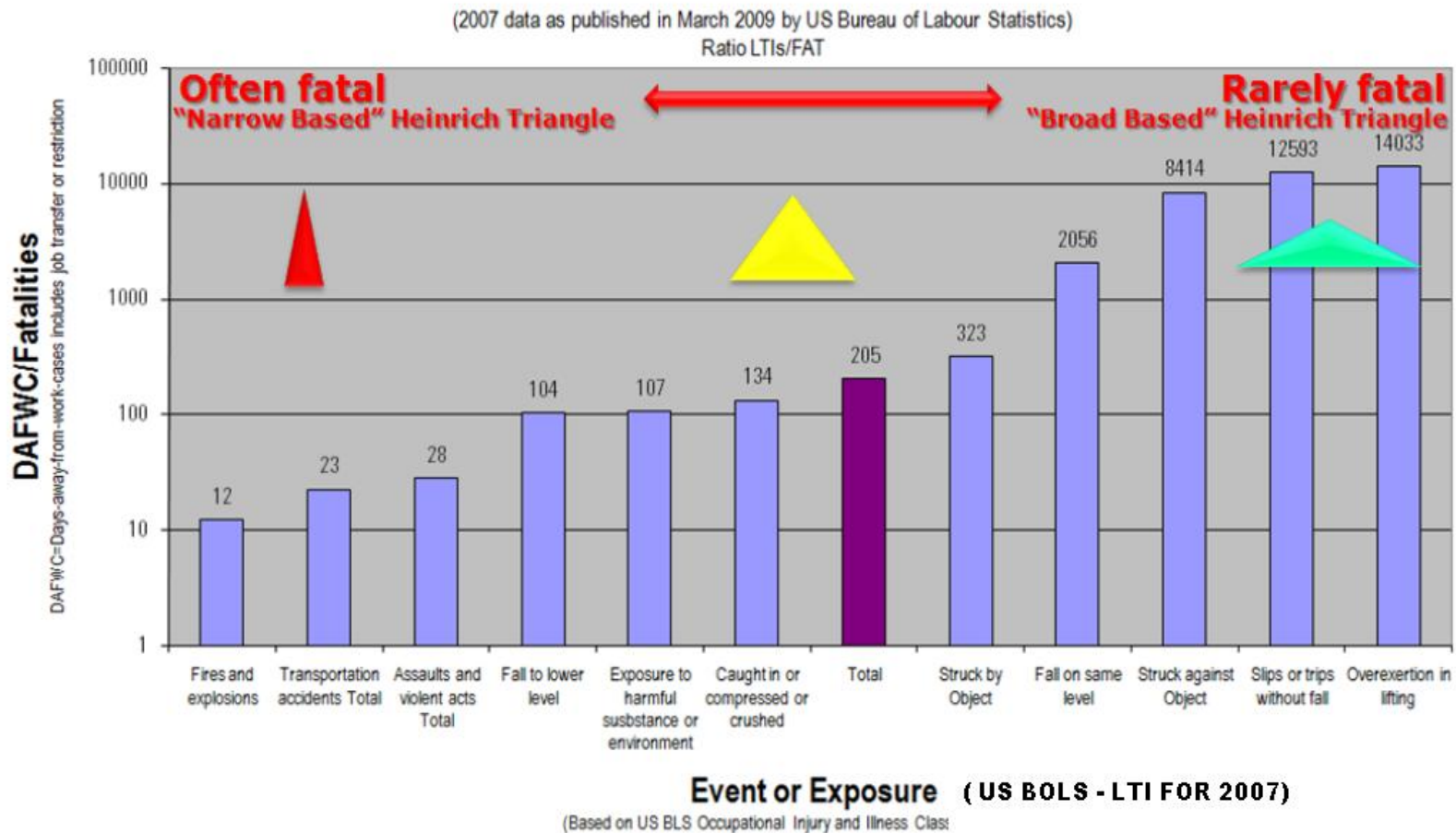


# Red Alert Program In Drilling Rigs

Lost Time Injury (LTI) per million worked man-hours (2002 - 2015).



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	<b>High Risk Activities</b>	<b>Non High Risk Activities</b>
Fatal outcome	Often	Rarely
Opportunities to learn from	Few (need to Study)	Many (can learn from experience)
Base of Pyramid	Narrow	Broad
HSE Focus on	Operations/Process	Personal Injury
Approach	Must be proactive	Can be reactive
Compliance level required	100% all the time	Greater X%
Main HSE Tools	Learn from High Potential Incidents, Conduct Risk Assessments, Learning from past fatal incidents	Prompt incident reporting, assign action items to address risk, achieve timely closure of action items

**Figure 9—Main characteristics of high-risk activities vs. non-high-risk activities.**