

# 2000 ASP statistics show safety still a challenge

Joe Hurt, IADC Director-Land Operations

**WITH THE UPTURN** in rig activity in 2000, the Lost Time Incident and Recordable Incident Rates ticked up slightly after a long continuous improvement in the industry's safety record.

According to the "2000 IADC Summary of Occupational Injuries" (SOI), the industry wide rate of lost time incidents slipped 19% last year, from 0.74/200,000 man hours in 1999 to 0.91/200,000. But that performance is still 13% better than the 1998 LTI rate of 1.04. The industry's recordable injury performance showed a 14% increase from 3.09 in 1999 to 3.52 in year 2000, but is still 14% better than the 1998 rate of 4.09.

The SOI is compiled annually from data volunteered by drilling contractors worldwide to the IADC Accident Statistics Program. During 2000, 74 contractors representing approximately two-thirds of the worldwide rig fleet participated in the ASP with a total of 182.99 million manhours worked.

Contractors striving for safety improvement by participating in the ASP program reported 3,225 recordable injuries, 813 lost time injuries and 22 fatalities.

Safety data are compiled separately for land and offshore operations and for 3 geographic regions—US, Europe and International. The International category includes all areas outside the US and Europe.

The 2000 Summary of Occupational Injuries is available from IADC Publications at 1/281 578 7171 (fax, 1/281 578 0589; publications@iadc.org), or visit <http://iadc.org>.

Although the upturn in rig activity brought an upturn in occupational injuries for 2000, the worldwide LTA incident rate per 100 workers has fallen from more than 14.00 in 1963 to 0.91 in 2000, a 15-fold improvement.

With the increase in rig count and incident rates, the number of fatalities returned nearly to the 1998 level of 25. A total of 22 fatalities occurred in 2000, up from 9 in 1999.

Contractors in the European land and offshore categories together worked more than 20 million manhours with 2 fatalities in 2000. European offshore is the larger of the two, accounting for almost 17 million manhours worked in 2000 and the 2 fatalities. US land and offshore contractors together worked more than 81 million manhours with 5 fatalities occurring in the land category and 4 occurring in US offshore drilling. International contractors accounted for over 81 million manhours and had a total of 11 fatalities, 3 on land and 8 offshore.

## TREND FOLLOWS RIG COUNT

After 5 years of uninterrupted improvement from 1995 through 1999, US land workers had a small downturn in LTI and

recordable incident rates. Only International land and International water showed improvements in their LTI experience.

Those regions with a more significant upturn in operating manhours also had the largest increase in incident rates, while those that little or no change in operating manhours showed improvement or little change in LTI and recordable incident rates.

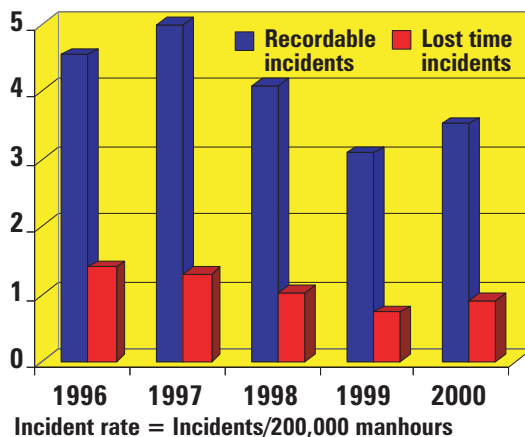
The lost time incident rate among US offshore workers rose 71% from 0.31 in 1999 to 0.53 in 2000, while their recordable incident rate rose 6% from 2.76 in 1999 to 2.93 in 2000. US land workers saw their LTI incident rate rise 14% from 1.92 in 1999 to 2.19 in 2000 and recordable incident rate rose 2% from 8.13 in 1999 to 8.27 in 2000.

European land workers saw their LTI rate rise 23% from 1.03 for 1999 to 1.27 for 2000, while the recordable incident rate rose 90% from 1.87 in 1999 to 3.55 in 2000. European offshore workers LTI rate rose 10% from 0.88 in 1999 to 0.97 for 2000 while the recordable incident rate declined 16% (improvement) from 2.76 in 1999 to 2.33 in 2000.

With a downturn in manhours, International land drilling LTI rates showed a 2% improvement with a 0.55 rate for 1999 and 0.54 rate for 2000. Recordable incident rates also improved with a decline of 5% from 2.19 in 1999 to 2.08 in 2000.

International water LTI rates also improved 4% from 0.50 in 1999 to 0.48 in 2000, but recordable incident rates increased 16% from 1.52 in 1999 to 1.76 in 2000.

## Total industry incident rates



## THE GREATEST RISKS

Injuries during drilling operations occur in many places around the rig and to all crew members. Injury data are analyzed by occupation, body part, accident type, equipment type, operation and location.

Data from the IADC Accident Statistics Program show that of all the categories, as with previous years, the floorman suffers more than one-third of total LTAs (36.8%) for all occupations. Floormen also accounted for 1,205 of the recordable injuries worldwide.

Fingers, the most vulnerable part of the body, account for 14.7% of total lost time injuries and 819 of the 3,225 recordable injuries worldwide.

"Struck by" (28.4%) and "Caught between/in" (18.7%) are the most common causes of injury, representing 47% of the total lost time accident types and 1,606 of the 3,225 recordable injuries.

"Pipes/collars/tubulars" is the equipment category responsible for the most lost time injuries at about 17% and 476 of the

industry's recordable injuries. Tripping replaced Rig repairs/maintenance in year 2000 as the operation that involved the most injuries at 15.2%.

Rig repairs/maintenance accounted for 10.7%. Tripping in/out is responsible for 510 of the total recordable injuries in 2000 with Rig repairs/maintenance being responsible for 443 of the total recordable injuries.

Finally, it is no surprise that by far the most accidents in drilling operations occur on the rig floor—31.8% of the total lost time injuries in 2000 and 1,138 of 3,225 total recordable injuries in 2000.

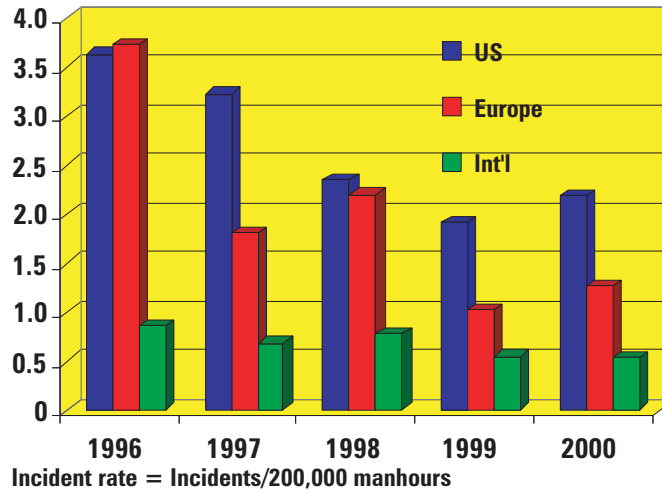
## INJURY DETAILS

A breakdown of 2000 lost time injury data by occupation shows that following the floorman at 36.8%, the next most frequently injured rig personnel are roustabouts at 15.0%; derrickman, 12.2%; driller/assistant driller, 6.6%; motorman, 4.0%; and mechanic, 2.3%.

Electricians were next at 1.4%; crane operators and truck drivers each accounted for 1.3%; welder injuries accounted for 1.1%. Those occupations with less than 1% of the total are barge engineer/ballast, superintendent/other, rig helper and truck helper.

The share of the 3,225 total recordable injuries is similar to LTIs with the top 11 job classes as follows: Floorman, 1,205; roustabout, 487; derrickman, 382; motorman, 195; driller/assistant driller, 188; mechanic, 74; welder, 61; toolpusher, 57; electrician, 47; truck driver, 37; crane operator, 30.

## Lost time incident rate, land



In lost time injuries breakdown of data by body part, fingers were injured most frequently (14.7%), followed by legs at 13.5%; feet/ankles at 12.6%; back, 12%; trunk/torso, 10%; hands/wrists, 8%; arms, 6.8%; and head/neck, 6.4%.

Other injuries were eyes, 2.7%; and toes, 0.6%. The number of total recordable injuries are: Fingers, 819; legs, 327; back, 321; hands/wrists, 281; head/neck, 279; feet/ankles, 276; arms, 209; trunk/torso, 203; eyes, 129; and toes, 25. And 356 injuries were classified as "other."

Five types of accidents accounted for 80.8% of the lost time injuries to drilling personnel in 2000. "Struck by" was the most frequent at 28.4% followed by "Caught between" (18.7%); "Strain/over exertion" (13.6%); "Slip/fall: different level" (12.0%) and "Slip/fall same level" (8.1%).

Other categories include: "Cut" (1.0%); Flame/heat/steam (2.1%); Contact with chemicals/fluids (1.2%); Vehicle (1.1%).

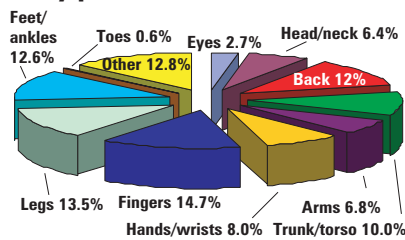
Causes of injury with less than 1% of the total in 2000 include electric shock, debris, exposure to weather and jump.

Total recordable injuries followed the LTI percentage with "Struck by" accounting for 870 injuries; "Caught between," 736; "Strain/overexertion," 382; "Slip/fall same level," 249; "Slip/fall different level," 242; "Cuts," 176; "Struck against," 142; "Debris," 60; "Contact with chemicals," 56; "Flame/heat/steam," 39; "Vehicle," 20; "Exposure to weather," 11; "Jump," 9; "Electric shock," 6; and "Exposure to gas," 1.

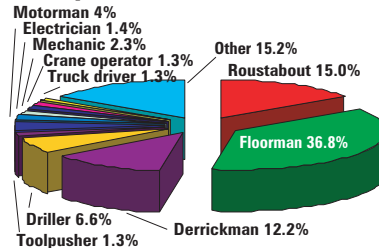
Other types of injuries made up a total of 226.

Nineteen equipment items are included in the IADC ASP data in addition to the "Other" category, which in 2000 accounted

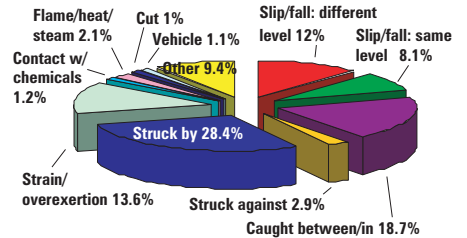
### Body part



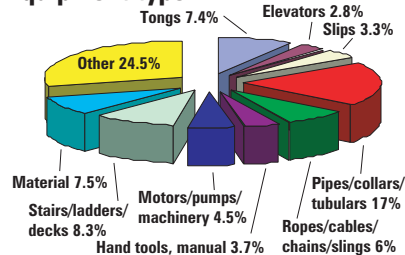
### Occupation



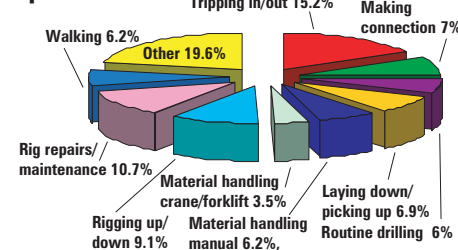
### Accident type



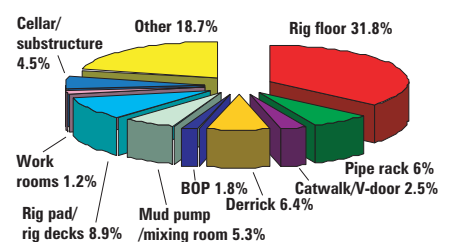
### Equipment type



### Operation



### Location



for the most accidents (20.6%).

The most dangerous equipment last year for the industry as a whole was "Pipes/collars/ tubulars," accounting for 17.4% of all lost time injuries, up from 15.4% in 1999.

Following in percent of lost time injuries were "Tongs" at 9.0%; "Stairs/ladders /decks" at 6.8%; "Material" at 6.5%; "Motors/pumps/machinery" (5.6%); "Slips" (5.3%); "Vehicles" (4.4%); "Ropes/slings" (4.1%); and "Hand tools: manual" at 3.6%. Also included in the injury data are "Elevators" (2.9%) and "Spinning chain" (2.4%).

Of the 3,225 recordable injuries, the "Other" equipment category accounted for 766 of the industry's total.

Equipment categories involved in recordable injuries are: "Pipes/collars/ tubulars," 476; "Tongs," 275; "Hand tools," 250; "Stairs/ladders," 227; "Material," 221; "Ropes/cables/slings," 195; "Motors/ pumps," 144; "Elevators," 136; "Pressure hoses/lines," 108; "Slips," 81; "Hand tools," 68; "Vehicle/transportation," 60; "BOP," 67.

Cranes, Kelly bushings, rotary, iron roughneck, spinning chain and cathead/drawworks make up the final 151 recordable injuries.

The operation that accounted for most lost time injuries was "Tripping in/out" (15.2%).

Following behind tripping were "Rig repairs/maintenance" (10.7%); "Rigging up/down" (9.1%); "Making connection" (7.0%); "Laying down/picking up" (6.9%); "Routine drilling operations" (7.4%); and "Material handling: manual" (6.2%).

According to the data, 6.2% of the injuries to rig personnel during 2000 occurred during "Walking."

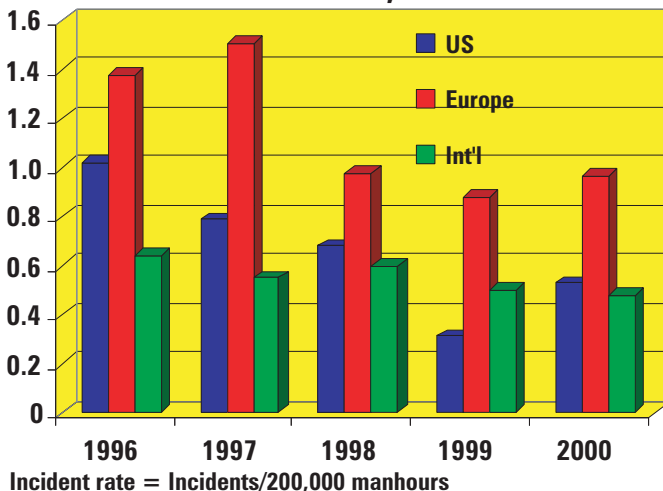
Total recordable injuries were led by "Tripping in/out" at 510 injuries. Following were "Rig repair," 443; "Rigging up/down," 279; "Making a connection," 235; "Laying down/picking up tubulars," 223; "Manual material handling," 222; "Routine drilling operations," 195; "Walking," 178; "Material handling (equipment)," 122; "BOP install/maintenance," 114; and "Running casing," 75.

"Other" accounted for the largest number of injuries at 519 with mixing mud, cementing, special operations and training combined to make up 111 recordable injuries.

The location of lost time injuries is also widely varied.

The "Others" category accounts for a substantial share of the LTAs at 18.7%. The largest share of injuries occur on the "Rig floor" (31.8%), followed by "Rig pad/rig decks (general)" (8.9%); "Derrick" (6.4%); "Pipe rack" (6.0%); and "Mud

## Lost time incident rate, offshore



pump/mixing room" (5.3%). And 4.5% of injuries take place in the "Cellar/substructure" area.

Total recordable injuries followed suit with 1,138 occurring on the rig floor. "Other" or unclassified accounted for 493 injuries.

Additional locations included "Rig pads/ decks general," 274; "Derrick," 202; "Mud pump/ mixing room," 174; "Pipe rack," 163; "Cellar/substructure," 124; "Pits/tanks," 103; "BOP," 87; "Stairs/ladders," 73; "Catwalk/V-door," 72; and "Motor room/machinery areas," 70.

Locations in which the final 252 recordable injuries occurred were work rooms, living area, crew/work boats, trucks, shale shaker area and SCR/ electrical room.

Gradual or consistent increases in rig counts help to bring improvement in the industry's safety record, while drastic upturns in rig count bring pressure on safety efforts.

To learn more, call **Barbara Burrage**, 1/281 578 7171, ext 217 (barbara.burrage @iadc.org).