

# INCIDENT RATES

Incident rates are an indication of how many incidents have occurred, or how severe they were. They are measurements *only* of past performance or lagging indicators. Incident rates are also only one of many items that can be used for measuring performance. There are many items that should be used to measure performance, most of which are positive in nature; incident rates tend to be viewed as an indication of something that is wrong with a safety system, rather than what is positive or right about the system. In spite of this, for many companies, incident rates remain the primary indicator of safety performance measurement. This is primarily because incident rates are fairly easy to figure out, and can be easily compared between one company and another, and are used throughout industry.

The most difficult part about incident rates is that the five major types of rates are easily confused with one another. The most common rate used is the Recordable Incident Rate. This is commonly called either the “total case incident rate” or just the “incident rate”. The “Lost Time Case Rate” (LTC) is the second most commonly used. The “Lost Workday Rate” and “Severity Rate” are primarily used only in larger companies that have a larger number of Lost Time Cases. The newest incident rate type is called the DART or “Days Away/Restricted or Transfer Rate”.

## ***DEFINITIONS:***

DART (Days Away/Restricted or Transfer Rate) – A mathematical calculation that describes the number of recordable injuries and illnesses per 100 full-time employees that resulted in days away from work, restricted work activity and/or job transfer that a company has experienced in any given time frame.

LOST TIME CASE – Any occupational injury or illness which results in an employee being unable to work a full assigned work shift. (A fatality is not considered a LTC.) Lost time cases result when there are no reasonable circumstances under which the injured employee could return to meaningful work. It is assumed that if an employee could work, even if it is not their normally assigned duties, alternate tasks that accommodate the restrictive nature of an injury would be assigned to the employee. In this situation, the days are recorded as RESTRICTED WORK DAYS, rather than Lost Work Days. (Note that working from home, on a computer or at other assigned tasks, is not considered restricted work activity unless the employee would normally perform this function from home as part of their assigned work. Situations like this would be considered lost work days. The incident, if employees can report to their normal workplace, and they can be assigned and complete productive tasks to benefit the company, can be considered restricted work days, rather than lost work days.)

LOST WORKDAY RATE – a mathematical calculation that describes the number of lost work days per 100 full-time employees in any given time frame.

LOST TIME CASE RATE – a mathematical calculation that describes the number of lost time cases per 100 full-time employees in any given time frame.

**OCCUPATIONAL INJURY** – Any injury (including a fatality) which results from a work-related incident or exposure involving a single incident. Examples are:

- Thermal and chemical burns
- Cuts, abrasions and punctures
- Fractures or crushing injuries
- Respiratory irritations
- Instantaneous hearing loss
- Amputations
- Sprains or strains
- Broken bones

**OCCUPATION ILLNESS** – Any abnormal condition or disorder (other than an injury) that resulted from a work-related exposure to a biological, chemical or physical agent. These include both acute and chronic illnesses or diseases that may be caused by inhalation, absorption, ingestion or direct contact. Some examples are:

| CATEGORY               | EXAMPLES   |
|------------------------|--|
| Skin diseases          | Dermatitis, eczema or rash that is caused by plants, oil, acne, chronic ulcers, chemical contact, or inflammation.   |
| Lung diseases          | Silicosis, asbestosis, pneumoconiosis, or other similar disorder   |
| Respiratory Conditions | Pneumonitis, rhinitis or acute congestion caused by work related exposures to chemicals, dusts, gases or fumes   |
| Poisoning              | Exposure to lead, mercury, cadmium, arsenic or other heavy metals; inhalation of carbon monoxide, hydrogen sulfide or other gases; exposure to benzene compounds, carbon tetrachloride, or other organic solvents; exposure to toxic levels of insecticide sprays; and exposure to other chemicals such as formaldehyde, plastics or other resins. |
| Physical disorders     | Heatstroke, sunstroke, heat exhaustion, freezing, frostbite and other environmental effects; radiation exposure; and effects from non-ionizing radiation sources such as welding flashes, UV rays, microwaves and sunburn  |

|                   |   |
|-------------------|---|
| Repetitive Trauma | Carpal Tunnel syndrome, synovitis, tendonitis and other conditions related to repeated motion, vibration or pressure; and noise induced hearing loss. |
| Other             | Anthrax, infectious hepatitis, tumors, food poisoning, and gradual hearing loss   |

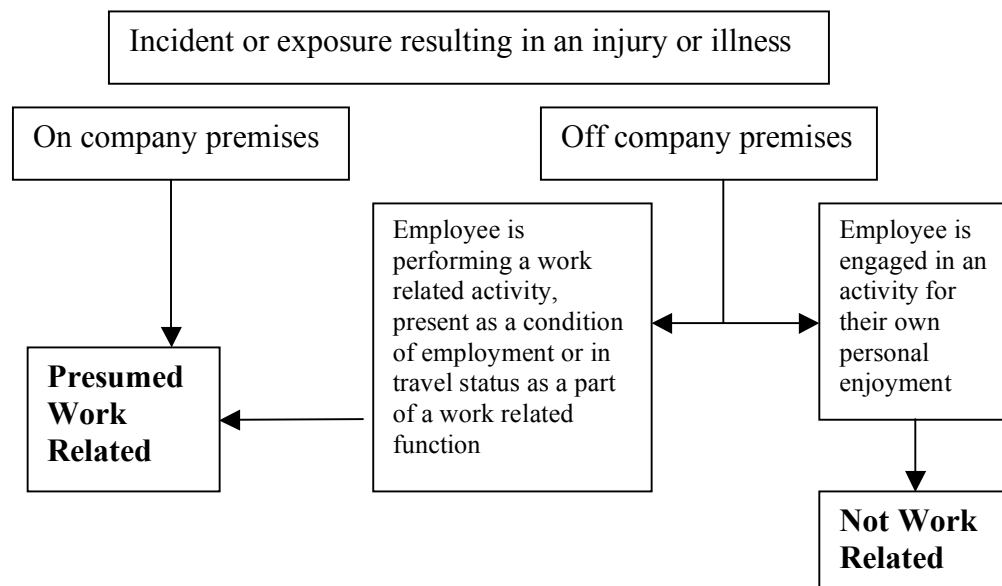
**RECORDABLE INCIDENTS** – Recordable incidents include all work related deaths, illnesses, and injuries which result in a loss of consciousness, restriction of work or motion, permanent transfer to another job within the company, or that require some type of medical treatment or first-aid. Companies with 10 or more employees need to report their incident rates, types of incidents and lost/restricted work days to OSHA every year. Recordable incidents are incidents that resulted from an exposure or event in the workplace and that required some type of medical treatment or first-aid.

Incidents are not recordable if the employee has symptoms that merely surfaced while at work but were the result of a non-work related event or exposure. For example, a cold or an infection from a cut that was received at home is not recordable. Additionally, “activities of daily living” are not normally recordable. For example, a heart attack is generally not considered a recordable injury, unless it was caused by a singular event or exposure at work that caused the attack. For more information on what is and is not recordable, the OSHA website (<http://www.osha.gov/recordkeeping/index.html>) has numerous resources that will guide a company through the recordability determination. The OSHA website also has forms and guidelines to assist a company in the proper reporting format.

**SEVERITY RATE** – a mathematical calculation that describes the number of lost days experienced as compared to the number of incidents experienced.

**TOTAL INCIDENT RATE** – a mathematical calculation that describes the number of recordable incident that a company experiences per 100 full-time employees in any given time frame.

**WORK RELATED** – Work relationship is established with the injury or illness results from an event or exposure in the work environment. The work environment is normally considered the company premises, or another location where the employee is present as a condition of employment (i.e. a construction site, or customer location). Driving to or from work is not normally considered work-related, unless the company requires the employee to drive or be transported to a specific location for a specific business purpose. The following flowchart is a simplified version to assist companies in determining work-relationship.



#### ***DETERMINING LOST WORK DAYS:***

Once a decision has been made that an injury or illness should be considered as a Lost Time Case (LTC), the number of days charged to that case is the number of days an employee lost work because of the incident. Days do NOT have to be consecutive. For example, if an employee breaks their leg on a Monday, and loses the rest of that day plus three additional days of work, then the employee comes back to work the following Friday and is given restricted or limited work tasks, and then loses another two days when their cast is removed, the total number of lost days would be five. The day the injury or illness occurred is not counted as a lost work day. For incidents that have lost time occurring over a longer period of time, weekends are counted as working days, and the number of lost days is capped at 180 days.

#### ***CALCULATING RATES:***

OSHA has established specific mathematic calculations that enable any company to report their recordable incident rates, lost time rates and severity rates, so that they are comparable across any industry or group. The standard base rate of calculation is based on a rate of 200,000 labor hours. This number equates to 100 employees, who work 40 hours per week, and who work 50 weeks per year. Using this standardized base rate, any company can calculate their rate(s) and get a percentage per 100 employees.

#### ***OSHA Recordable Incident Rate***

The OSHA Recordable Incident Rate (or Incident Rate) is calculated by multiplying the number of recordable cases by 200,000, and then dividing that number by the number of labor hours at the company.

$$\text{IR} = \frac{\text{Number of OSHA Recordable Cases} \times 200,000}{\text{Number of Employee labor hours worked}}$$

For example, a company has 17 full-time employees and 3 part-time employees that each work 20 hours per week. This equates to 28,400 labor hours each year. If the company experienced 2 recordable injuries, then the formula works like this:

$$\text{IR} = \frac{2 \times 200,000}{28,400} \quad \text{IR} = \frac{400,000}{28,400} \quad \text{IR} = 14.08$$

What is now known is that for every 100 employees, 14.08 employees have been involved in a recordable injury or illness.

Please note that smaller companies that experience recordable incidents will most likely have high incident rates, or the incident rates will fluctuate significantly from year to year. This is because of the small number of employees (and hence the lower number of labor hours worked) at the company. Calculations are more meaningful at larger companies that have a higher labor hour count.

#### *Lost Time Case Rate*

The Lost Time Case Rate (LTC) is a similar calculation, only it uses the number of cases that contained lost work days. The calculation is made by multiplying the number of incidents that were lost time cases by 200,000 and then dividing that by the employee labor hours at the company.

$$\text{LTC Rate} = \frac{\text{Number of Lost Time Cases} \times 200,000}{\text{Number of Employee Labor Hours Worked}}$$

Using the previous company example, assume that one of the two recordable cases had lost work days associated with the incident. The calculations would look like this:

$$\text{LTC Rate} = \frac{1 \times 200,000}{28,400} \quad \text{LTC Rate} = \frac{200,000}{28,400} \quad \text{LTC Rate} = 7.04$$

What is now known is that for every 100 employees, 7.04 employees have suffered lost time because of a work related injury or illness.

#### *Lost Work Day Rate (LWD)*

The Lost Work Day rate is primarily used only at larger companies. This does not preclude a small business from using this calculation in their performance system,

however. The LWD rate is calculated by multiplying the total number of lost work days for the year by 200,000, then dividing that number by the number of employee labor hours at the company.

$$\text{LWD Rate} = \frac{\text{Total Number of Lost Days} \times 200,000}{\text{Number of Employee Labor Hours Worked}}$$

Using the previous company example and the broken-leg example used earlier, there were 5 lost days due to the injury. The calculations would look like this:

$$\begin{array}{lcl} \text{LWD Rate} = \frac{5 \times 200,000}{28,400} & \text{LWD Rate} = \frac{1,000,000}{28,400} & \text{LTC Rate} = 35.21 \end{array}$$

What is now known is that for every 100 employees, 35.21 days were lost from work due to work related injuries or illnesses.

#### *DART Rate (Days Away/Restricted or Job Transfer Rate)*

The DART rate is relatively new to industry. This rate is calculated by adding up the number of incidents that had one or more Lost Days, one or more Restricted Days or that resulted in an employee transferring to a different job within the company, and multiplying that number by 200,000, then dividing that number by the number of employee labor hours at the company.

$$\text{DART Rate} = \frac{\text{Total Number of DART incidents} \times 200,000}{\text{Number of Employee Labor Hours Worked}}$$

Using the previous company examples, assume that the second recordable incident resulted in limited or restricted work activity that necessitated a job transfer to a different position in the company. The first was a broken leg that had only lost time associated with it (no restriction or transfer). The calculations would look like this:

$$\begin{array}{lcl} \text{DART Rate} = \frac{2 \times 200,000}{28,400} & \text{DART Rate} = \frac{400,000}{28,400} & \text{DART Rate} = 14.08 \end{array}$$

What is now known is that for every 100 employees, 14.08 incidents resulted in lost or restricted days or job transfer due to work related injuries or illnesses.

### *Severity Rate*

The severity rate is a calculation that gives a company an average of the number of lost days per recordable incident. Please note, that very few companies use the severity rate as a calculation, as it only provides an average. The calculation is made by dividing the total number of lost work days by the total number of recordable incidents.

$$\text{SR} = \frac{\text{Total number lost work days}}{\text{Total number of recordable incidents}}$$

Again, using our previous company as an example, there were 5 lost work days and two recordable incidents. So, the severity rate calculation would look like this:

$$\text{SR} = \frac{5}{2} \quad \text{SR} = 2.5$$

What is now known is that for every recordable incident at the company, an average of 2.5 days will be lost due to those work related injuries and illnesses.

*Additional Assistance in calculating incident rates can be found on the OSHA website, in their Voluntary Protection Programs (VPP) Policies and Procedures Handbook – Appendix A.*

*([http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=DIRECTIVES&p\\_id=2976#appendixA](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=2976#appendixA))*

### **SUMMARY**

Incident rates, of various types, are used throughout industry. Rates are indications only of past performance (lagging indicators) and are not indications of what will happen in the future performance of the company (leading indicators).

Incident rates have been standardized, so that OSHA and other regulatory agencies can compare statistically significant data, and determine where industries may need additional program assistance. OSHA uses the recordable incident rates to determine where different classifications of companies (manufacturing, food processing, textiles, machine shops, etc.) compare to each other with regard to past safety performance. Although OSHA could potentially use this data for enforcement action, unless incident rates are consistently high for a small company over a number of years, they will not normally target particular industries or companies for enforcement action.

In addition to the incident rate data, additional information may be sought by OSHA to assist them in determining the most common types of injuries, and consequently assisting them in determining what types of assistance programs are needed in various industries. If OSHA or the Bureau of Labor Statistics (BLS) contacts your company to report additional data, you must follow through with their request for information.