Railroad Safety Data
Frequently Asked Questions (FAQ)

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Railroad Classifications and Groupings

How are railroads classified on this site and what definitions are used for those classifications?

The FRA uses classifications as defined by the Surface Transportation Board (STB), formerly the Interstate Commerce Commission, which defines railroads as being Class I, Class II, or Class III based on revenue thresholds. More information can be found on the STB website [Frequently Asked Questions for Economic and Industry Information](#).

What are groups and why are they used?

Railroad groups are a classification system based on employee-hours rather than revenue. FRA created the terms *Group 2* and *Group 3* railroads to create more convenient separation of non-Class I railroads for regulatory requirements purposes. FRA has specific regulations that exempt smaller (Group 3) railroads from certain regulations.

What is the definition of Group 2 Railroads?

Group 2 Railroads are any railroad that is **NOT** a Class I railroad as defined by the Surface Transportation Board (STB) **AND** has more than 400,000 annual employee-hours (equivalent to 200 full-time employees) of railroad workers on duty. Annual employee-hours are computed from the Form FRA F 6180.55 – Injury/Illness Summary.

Note: If a railroad has contracted to a non-railroad to perform functions for the railroad, safety sensitive and non-safety sensitive, these hours would not be shown on the F 6180.55.

What is the definition of Group 3 Railroads?

A Group 3 Railroad is any railroad that has less than 400,000 annual employee-hours (equivalent to 200 full-time employees) of railroad workers on duty. Annual employee-hours are computed from the Form FRA F 6180.55 – Injury/Illness Summary.

Note: If a railroad has contracted to a non-railroad to perform functions for the railroad, these hours would not be shown on the F 6180.55.

Accident and Injury Definitions

How does FRA define Injury Rates?

FRA bases the injury rate on the number of railroad worker on duty injuries and illnesses per 200,000 employee-hours annually (equivalent of 100 full time employees) of railroad worker on duty. This index is the same as that used by the Occupation Safety and Health Administration (OSHA).

Under regulation 29 CFR 1904.3 railroads subject to FRA regulations, directly report to FRA railroad worker on duty injuries and illness instead of using the OSHA 300 log. FRA uses the same reporting criteria (trigger) as OSHA and works closely with OSHA on determining

questionable cases. All cases reported to FRA are then reported by FRA to OSHA. FRA performs audits of railroad casualty reporting to monitor compliance with the regulation.

What is a Train Accident?

A train accident involves one or more railroads that have sustained combined track, equipment, and/or structures damage in excess of the reporting threshold. The reporting threshold, adjusted annually, is currently $10,500 (2014).

The computed accident damage only includes the loss and/or repair of cars and locomotives, repair of signal systems and other structures, and repair of roadbed and track. Not included in this calculation are the costs associated with clean-up, hazmat clean-up (support from fire department and other groups), loss of lading, societal damage (e.g., closing a business area during clean-up), loss of life or injury, loss of use of main line track, and loss of use of equipment/locomotives.

To prevent double-counting of incidents, Train Accidents reported on this website exclude grade crossing incidents that exceed the threshold. On the Form FRA F6180.54, this corresponds to a type of accident = '07', so Accident reports with code '07' are not counted in Train Accident counts. Thus, Highway-Rail Grade Crossing Incidents + Train Accidents + Other Incidents = Total Incidents.

What is a Highway-Rail Grade Crossing Incident?

A highway-rail grade crossing incident, also called a collision, highway-rail incident, highway-rail accident, grade crossing accident, or grade crossing incident, typically involves on-track railroad equipment striking a highway user or a highway user striking on-track equipment at a highway-rail crossing. A highway-rail crossing incident must meet the following three conditions: (1) involves on-track equipment, (2) involves a highway user, and (3) the accident occurred at a designated crossing. These incidents meeting all three conditions require the railroad to file a Form FRA F 6180.57.

Examples of a highway-rail crossing accident are as follows:

- An abandoned vehicle at a crossing struck by railroad equipment
- An automobile going around a downed gate, considered a trespasser, and being struck by a train
- A truck running into the side of a train at a crossing
- A jogger struck at a crossing by a single locomotive

Examples of accidents that are not considered highway-rail crossings are as follows:

- Two automobiles that collide at a crossing
- An automobile on the tracks, not at a designated crossing, is struck by a train (in this situation, the automobile would be considered an obstruction)

What are Other Incidents?

Other Incidents are any incident which results in a reportable injury, but does not require either a Form FRA F6180.54 or F6180.57. These include everything from bee stings to falls on escalators to trespasser fatalities.

Why are there multiple reports for the same accident and how are they handled?

Due to the complexity of reporting and the needs of the FRA to collect complete information, there may be several reports for the same event. For example, a separate Form FRA F 6180.55a is required for each casualty associated with a single event; this is not unusual in statistical reporting. As a result, all railroads involved with an accident must report the accident and associated damage if the reporting conditions are met.

Example: Railroad A's train is using Railroad B's track when it hits a cement truck at a highway-rail crossing. The cement truck was going too fast to stop in time at the crossing and went through the downed gates; the train crew put the train into emergency braking, but was unable to prevent the collision. In addition, on an adjacent track there are three railroad cars belonging to Railroad C that have also sustained some damage as a result of the train-truck collision and subsequent derailment. So in this example, there is one accident, but four reports as follows:

- Railroad A must file a Form FRA F 6180.54 Rail Equipment Accident/Incident Report because the combined damage to the locomotive, track, and other railroad cars was over the reporting threshold
- Railroad A must also file a Form FRA F 6180.57 Highway-Rail Grade Crossing Accident/Incident Report because it occurred at a designated crossing
- Railroad B must file a Form FRA F 6180.54 Rail Equipment Accident/Incident Report because the train accident occurred on its track regardless of any damages to the track since Railroad B is the railroad responsible for track maintenance
- Railroad C must file a Form FRA F 6180.54 Rail Equipment Accident/Incident Report because their railroad car(s) was involved

In this example, there were no injuries or fatalities, but if there had been, separate Form FRA F 6180.55a Railroad Injury and Illness Summary Reports will need to be filed for each injury due to the collision/derailment.

How does the FRA prevent double counting accidents?

FRA has developed unique keys for each type of train accident, highway-rail crossing accident and casualty report that allows FRA to sort information into groups and link records from different databases to develop a complete accident picture while preventing double counting.

How does FRA calculate accidents and incidents involving a particular railroad?

On the forms FRA F 6180.54 and FRA F 6180.57, railroads are required to report their own incident number (`incdtno`), if applicable the incident number assigned by another involved railroad or entity (`incdtno2`), and the incident number assigned by the railroad or entity

responsible for track maintenance (`incdtno3`). If the reporting railroad is also the track maintainer they would report the same incident number in both `incdtno` and `incdtno3`.

Since incident numbers are a 10-digit railroad assigned number that only needs to be unique within the reporting month, the incident number alone is not sufficient to key incidents. As a result, FRA uses the following method:

- For train accidents (Form FRA F 6180.54) there can be one or more reports filed and as such, the incdtno3 is the only common element guaranteed across the forms. However, this number need not be unique, so FRA creates a unique key referred to as **INC3** by concatenating the two digit year, two digit month, railroad code and incident number as `iyr`+`imo`+`rr3`+`incdtno3`.

  Note: By finding unique **INC3** and we can generate a dataset of unique accident where we can filter on a particular railroad using the `railroad` field to calculate the number of accidents where a particular railroad was involved

- For grade crossing incidents (Form FRA F 6180.57) there will only be one report filed and as such, we can use the `incdtno` field. However, this number need not be unique, so FRA creates a unique key referred to as **INC1** by concatenating the two digit year, two digit month, railroad code and incident number as `iyr`+`imo`+`railroad`+`incdtno`.

  Note: By finding unique **INC1** and we can generate a dataset of unique grade crossing incidents where we can search on a particular railroad using `railroad`, `rr2`, and `rr3` to calculate the number of grade crossing incidents where a particular railroad was involved

What is a Joint Code?
A special generated field called `JointCD` is appended to the end of each train accident report (Form FRA F 6180.54). This code is used to group the multiple reports associated with a single accident in the data. Only one record in the group of reports for a single accident will have a `JointCD`=1. This does not mean that the railroad that submitted the report with `JointCD`=1 is responsible for the accident since it is randomly assigned when multiple railroads are involved in an accident. The Joint Code can only take the values 1, 2, or 3 as follows:

- `JointCD`=1 is assigned to either the only railroad involved in an incident or randomly assigned to one of the railroads involved in an incident. Every accident will have one railroad assigned `JointCD`=1 which will only correspond to one report.
- `JointCD`=2 is assigned to all other railroads involved in an incident and will only correspond to one report per railroad. If only one railroad was involved the incident there will be no records with a `JointCD`=2 for that incident.

- **`JointCD`**=3 is assigned to any additional reports filed by the railroads to document damaged equipment. If no additional equipment was damaged there will be no reports assigned **`JointCD`**=3.

Referring back to the example in *Why are there multiple reports for the same accident and how are they handled?;* the reporting could go as follows:

- **`JointCD`**=1 is assigned to a single report for one of the railroads involved, let's say Railroad C
- **`JointCD`**=2 is assigned to a single report for each of the other railroads A and B
- **`JointCD`**=3 is assigned to any additional reports filed by all railroads A, B, and C to account for each additional piece of equipment involved

How are total incidents and accidents counted?

Total accidents and incidents are reported using different forms based on circumstance (i.e. if the accident occurred at a grade crossing and thus requires a form 57, if the accident damage exceeded the reporting threshold and thus requires a form 54, if someone was injured or killed thus requiring a form(s) 55a). These reports are stored in separate data tables and must all be considered to get an accurate count of total accidents and incidents combined. In certain cases, there is overlap between incidents which meet multiple reporting criteria and as such, care must be taken when counting incidents. We must be cognizant when a single accident triggers the submission of one or more of the 54, 55a, and 57 forms and remove the duplicates from our calculation. This is illustrated in the figure below:
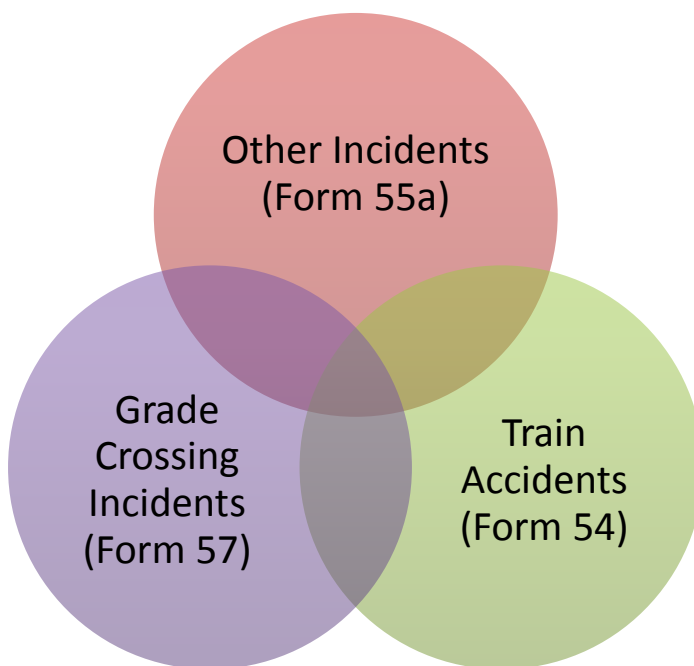

Figure 1: Accident/Incident Reporting Data Environment and Overlap

Using the following formula and order of operations, accidents and incidents can be computed in a way to eliminate double counting caused by the overlapping segments seen in Figure 1 above.

Total Accidents and Incidents = Total Incidents at Highway-rail Grade Crossing Incidents + Total Train Accidents + Total Other Incidents

1. Total Highway-rail Grade Crossing Incidents (see *What is a Highway-Rail Grade Crossing Incident?*) can be found by counting the number of Form FRA F 6180.57 reports since every Grade Crossing incident requires a single form 57
    a. This counts the entire circle for form 57s in Figure 1
2. Total Train Accidents (see *What is a Train Accident?*) can be calculated by counting the Form FRA F 6180.54 where **JointCD**=1 and subtracting those records where **Type**=7. This takes advantage of the business rule that each accident will only have one record with **JointCD**=1, however since this also overlaps with the Grade Crossing collisions that exceed the train accident reporting threshold, those records must be removed to prevent double counting
    a. This counts the circle for form 54s in Figure 1 while removing the overlap between it and the circle for form 57s (**Type**=7)
3. Total Other Incidents (see *What are Other Incidents?*) can be calculated by counting the unique keys, determined by **iyr**, **imo**, **railroad**, **incdtno** in the table of Forms FRA F 6180.55a and subtracting those reports where **cas57**=Y or **cas54**=Y to prevent double counting any train accidents or grade crossing collisions.
    a. This counts the circle for form 55a's in Figure 1 while removing the overlaps between it and the other two circles (**cas57**=Y and **cas54**=Y)

How are total incidents and accidents involving a single railroad counted?

To calculate total incidents involving a single railroad, a similar method to calculating total incidents and accidents is applied, but each type of report must be filtered down to that specific railroad. Grade Crossings and Other Incidents are straightforward; however calculating Total Train Accidents for a specific railroad requires looking at additional records using **JointCD**=2. So the calculation for Total Train Accidents is calculated by:

Railroad Accidents and Incidents = Railroad Incidents at Highway-rail Grade Crossing Incidents + Railroad Train Accidents + Railroad Other Incidents

1. Railroad Highway-rail Grade Crossing Incidents can be found by counting the number of Form FRA F 6180.57 reports identifying the desired railroad since every Grade Crossing incident requires a single form 57
2. Railroad Train Accidents is calculated in two steps:
    a. Counting the number of Form FRA F 6180.54 where **JointCD**=1 and the railroad is filtered to the desired railroad and then subtracting those reports where **Type**=7

b. Counting the number of unique records keyed by using **iyr**, **imo**, **rr3**, **incdtno3** where the **JointCD**=2 and then subtracting those reports where **Type**=7

3. <u>Railroad Other Incidents</u> can be calculated by counting the unique keys, determined by **iyr**, **imo**, **railroad**, **incdtno**, which apply to the desired railroad, in the table of Forms FRA F 6180.55a and subtracting those reports where **cas57**=Y or **cas54**=Y to prevent double counting any train accidents or grade crossing collisions.

How are total Train Accidents involving a single railroad counted?

Calculating Total Train Accidents for a specific railroad requires looking at additional records using **JointCD**=2. So the calculation for Total Train Accidents is calculated by:

1. Counting the number of Form FRA F 6180.54 where **JointCD**=1 and the railroad is filtered to the desired railroad

2. Counting the number of unique records using **iyr**, **imo**, **rr3**, **incdtno3** where the **JointCD**=2

Does the FRA report train accidents separately from highway-rail crossing accidents?

Accidents occurring at a highway-rail crossing resulting in damage in excess of the current reporting threshold are considered both train accidents and highway-rail crossing collisions. These incidents account for over 100 accidents per year. As explained above in *Why are there multiple reports for the same accident and how are they handled?*; in this case, a minimum of two reports must be filed for the same incident a Form FRA F 6180.54 and Form FRA F 6180.57 to record the train accident and the highway-rail crossing accident.

The resulting reporting situation occurs for reports published on http://safetydata.fra.dot.gov/:

- When FRA reports only train accidents all accidents from Form FRA F 6180.54s, including those occurring at highway-rail crossings, are reported
- When FRA reports only highway-rail crossing accidents all accidents from Form FRA F 6180.57s, including those that also qualify as train accidents, are reported
- When FRA reports both train accidents and highway-rail crossing accidents are reported on the same chart or report, then those train accidents that are also highway-rail crossing accidents are only counted as highway-rail crossing accidents to prevent double counted

If a user calculates total accidents by looking at separate reports for train accidents and highway-rail crossing accidents, those that occur at a highway-rail crossing which exceed the current reporting threshold will be double counted.

What is considered railroad involvement in an accident?

Some train accidents have two or more railroads involved in the same accident. This could be from a collision or from one railroad using another railroad's track. For accident reporting, FRA does not make a distinction regarding fault. Even if both railroads agree entirely on the cause of the accident, if the accident meets the reporting criteria, all railroads involved are required to

submit a Form FRA F 6180.54 Rail-Equipment Train Accident/Incident Report. When displaying train accidents by railroad on http://safetydata.fra.dot.gov/, all the railroads involved are shown.

Since accident reporting is a per-railroad statistic and multiple railroads can be involved in a single event, accident counts cannot be aggregated as a method of determining total accidents for all railroads. An example of this is as follows: assuming there are a total of 2,500 train accidents in a year, but 10% or 250 or those had two railroads involved. Totaling the number of accidents by railroad would result in a 2,750 accidents, which is incorrect.

The example above can be seen in the simplified table below:

Railroad	Accidents	Notes
Railroad A	1,500	All accidents involving Railroad A in a year
Railroad B	1,250	All accidents involving Railroad B in a year
Total	**2,750**	**This is incorrect - there are accidents involving both railroads so we are double counting**
Railroad A and Railroad B	-250	Since both railroads are counting 250 accidents in their totals, we need to subtract the duplicates from one of them
Total	**2,500**	**2,500 is the correct number of unique accidents in a year**

How are cause codes determined?

Any reportable accident requires the involved railroad to complete and submit a Form FRA F 6180.54 Rail-Equipment Train Accident/Incident Report, which includes a designation for the cause of the accident. The railroad performs an incident investigation and makes a determination of the primary cause of the incident.

When two or more railroads are involved in the same accident, they are required to communicate with each other for two key factors in accident reporting; first to determine if the damage threshold has been met for accident reporting and second to establish a unique incident number that both railroads will use when reporting the accident. This unique incident number enables FRA to link both reports. The railroads, however, are not required to agree on the cause. In most cases, the railroads do agree on the cause of an accident, however there are times when each railroad reports a different cause code. In order to preserve data submission records, FRA does not alter railroad reported data, but for data reporting purposes, the primary cause from the record associated with the report assigned with `JointCD`=1 (See *What is a Joint Code?*) is used. Since these occurrences are small compared with the total incidents in the database and the database is a statistical tool, these infrequent occurrences do not significantly alter analysis.

What is Covered Data?

There is a special class of railroad worker on duty injuries, called covered data. These injuries are in the FRA Casualty Database and are reported to OSHA. The covered data cases were new

reportable cases added by OSHA in 2001 (29 CFR 1402) and include cases where a physician or licensed healthcare professional made specific recommendations or treatment; an example of a covered data case is a doctor telling an injured railroad worker to take over the counter medication (OTC) at higher than the recommended dosage. Specific definitions of what constitutes covered data can be found in the [FRA Guide for Preparing Accident/Incident Reports](#). Since covered data is part of the casualty database, covered data cases are included in the data downloads. However, they are not displayed in the reports online because the agency wanted to be able to keep year-to-year comparisons relevant without a perceived decline in safety due to the new OSHA reporting requirements, per agreement with the railroads and explained in the Preamble to the 2003 Accident Rule revision.

Additionally, suicides are also considered covered data cases. These are a specific category of covered data indicated by the field **coverdata**=X. These cases are not available for data download and will be maintained in a separate database per the 2010 Accident Rule revision.

## How to identify Freight Operations vs. Passenger Operations?

We are offering a new query to help meet requests for data differentiating Freight and Passenger operational and safety statistics. Dividing our data into Freight and Passenger often depends on what the user is looking for and specifically how they want to treat incidents that are not clearly divided between the two.

This new query primarily looks at the type of equipment involved to determine whether an accident involved a freight train or passenger train. If the equipment involved was not clearly indicated as freight or passenger, we then look at the railroad itself and if the railroad is one of our 28 passenger entities, then the incident is a passenger incident. Otherwise, it is freight.

This way, if a Class One Freight railroad has a holiday or dinner train service which carries passengers, accidents involving that type of equipment will be included as passenger operations.

If you have any questions or need further explanation about how this query was developed, please do not hesitate to ask via our comment tool: http://safetydata.fra.dot.gov/feedback/Home/PublicSite
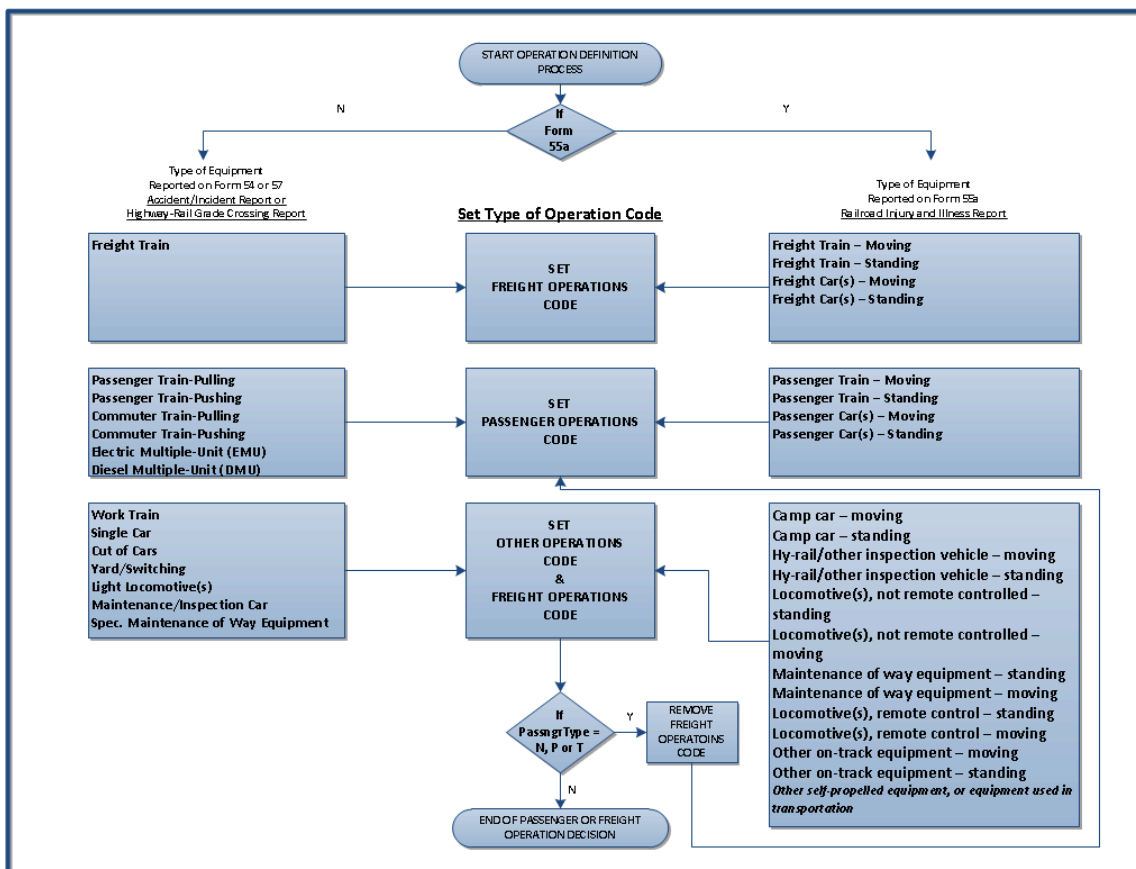
Railroad Inspection Definitions

What is the purpose of FRA Inspectors?

Under Federal law and regulation the railroad is responsible for inspecting its own equipment, signals, and track and ensuring that the railroad employees are trained and qualified to perform their safety related tasks. The FRA Inspector is a compliance auditor whose job is to verify the equipment, track, etc. meets the FRA standards.

What is an Observation?

An observation represents an inspection performed on a particular inspection activity.

What is a Unit?

A unit represents an item inspected. That item could be a railroad car, a locomotive, a mile of track walked, a turnout, or a signal system.

Since each item has a different expected inspection rate, e.g., a railroad car may take 6 minutes if no exceptions are taken, a locomotive may take 40 minutes, while an entire signal system may take 2 days. Totaling and comparing units from different types of inspection items will lead to incorrect conclusions. Unit counts are only valid when comparing inspections within the same activity.

What is a Defect?

A defect is a warning for a minor non-compliance with Federal Regulations discovered during a routine FRA inspection. Most issues identified are classified as defects and are not considered serious at the time of inspection; however, these could become serious if not corrected. Before each routine inspection, FRA Inspectors review previous defects to a division/subdivision and pay special attention those items that were previously classified as defects to determine if repairs have been made. In cases where more serious or reoccurring defects are found, the inspector will follow the violation process.

What is an Inspection Report?

An inspector uses the Form FRA F 6180.96 report to record his/her inspection related activities. All Inspection Reports will have the entity inspected (who), location of the inspection (where), defects or exceptions found (what), the source code and activity codes (why), and the date of the inspection (when). Additional details are included in the inspection report based on the inspector's Discipline Compliance Manual. An inspector can write one or more inspection reports per day depending on the circumstances.

What is an Inspection Day?

An inspection day is a measure of the number of days spent inspecting. An inspector receives credit for one inspection day when one or more unique inspection reports have been written on a single day. Programming is used to generate these counts and also to prevent double counting when multiple reports are written in one day. There is no minimum number of hours to get credit for an inspection day and since the inspection day metric requires the generation of an

inspection report; it does not include assisting on an inspection where another inspector drafts the inspection report or performing special projects like audits or investigations.

The Percent Change Columns in the Ten Year Accident/Incident Overview Report

What formula used to calculate Percent Change?

Percent Change is the Newest Year's data minus the oldest year's data, multiplied by 100, and the result is then divided by the oldest year's data. For example: If the report is a ten year report from 2005 through 2014 the formula for the One Year percent change would be ((2014 data – 2013 data) * 100 /2013 data) and the formula for the ten year percent change would be ((2014 data – 2005 data) * 100 /2005 data).

When could the Percent Change Results be misunderstood?

The Percent Change results can be misleading and easily misunderstood whenever the report is run and the latest year represented in the report is not a **full** year. There is a 3 month lag between the month of the reportable event for which the report is submitted and the latest reported data represented in the report. As such, if the report user runs the report with the default month/year then the Percent Change results will not be comparing to equal reporting periods. The reason is that the comparison is being done between a full year's data for the oldest year and a partial year's data in the newest year.

NOTE: The FRA Office of Safety is working on a solution to this issue that will be deployed as soon as it is available.

How can I ensure the Percent Change Results are meaningful?

Depending on whether the user is looking for a full year comparison or a partial year comparison, the user can set the report parameters to get the report they desire.

The easiest way to get a full ten year Percent Change Result is to change the year of the report to the prior year.

If a true comparison of a partial year is what you are looking for, over a ten year period, then this can be done by either:

1. Selecting the "End Month for Report" that matches the "data current through the end" date in the default year; or
2. Selecting the desired "Start Month for Report" and "End Month for Report" for a prior year.