

# ACE YOUR FRA RISK REDUCTION PROGRAM FILING WITH PREDICTIVE SAFETY ANALYTICS



## From 49 CFR Part 271, Risk Reduction Program (RRP)

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### Summary

“RRP is a comprehensive, system-oriented approach to safety that determines a railroad operation’s level of risk by identifying and analyzing applicable hazards, and involves developing plans to mitigate, if not eliminate, that risk.”

### Obligations to the FRA

“Each railroad shall implement its RRP under a written RRP plan that FRA has reviewed and approved. Each railroad shall conduct an annual internal assessment of its RRP, and FRA will audit a railroad’s RRP processes and procedures.”

### Safety Management Systems (SMS)

“The principles and processes of risk reduction are based on safety management systems (SMS) developed to assure high safety performance in various industries, including aviation, passenger railroads, the nuclear industry, and other industries with the potential for catastrophic accidents. SMS methodologies have evolved through experience to include a multitude of equally important elements without which the organization’s safety performance does not reliably improve.

These SMS elements are typically grouped into the following larger descriptive categories: (1) An organization-wide safety policy; (2) formal methods for identifying hazards and prioritizing and mitigating risks associated with those hazards; (3) **data collection, data analysis, and evaluation processes to determine the effectiveness of mitigation strategies and to identify emerging hazards;** and (4) outreach, education, and promotion of an improved safety culture within the organization.”

## How First Analytics can Help

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### Data and Analytics should be a part of your plan

The FRA has indicated that data analysis should be an element of the safety management system (SMS) that is to be developed as part of the plan.

### What do we mean by “Analytics?”

We move beyond backward-looking incident management systems and use advanced statistical modeling and machine learning to:

- Identify and quantify risk factors;
- Identify the people, places, and processes most at risk;
- Quantify the probabilities of accidents or injuries;
- Promote fact-based, data-driven decision making.

### Does this work?

We’ve done multiple successful implementations for both employee and public safety at several Class Is.

Referencing our work, Rod Doerr, former VP of Safety at Union Pacific said,

*“Big data. We’re into it big time. We think it’s driving these last 18 months [of safety results].*

*There are 2,500 operating managers... there’s no way we can look, spend time with, teach all the employees, all the time, every day. This is about focusing management attention on those who exhibits more risk. We’re on our 4th iteration of this model; we’re constantly fine tuning it....*

*Since we turned a lot of this on, it’s been a step function: a full standard deviation from our normal run rate.”*