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# DEVELOPMENT OF A SHORT LINE RAILROAD SAFETY INSTITUTE: PHASE I – JOB ANALYSIS

## SUMMARY

The Federal Railroad Administration's (FRA) Office of Research and Development (R&D) is supporting the American Short Line and Regional Railroad Association (ASLRRA) in the development, implementation, and evaluation of a proposed Short Line Safety Institute. The Institute will perform three key functions: (1) safety culture assessment, (2) safety compliance assessment, and (3) manager education. The proposed Institute's mission is to build a stronger and sustainable safety culture in the short line industry through non-punitive and voluntary partnerships with individual member railroad companies.

ASLRRA plans to establish the Institute to enhance and improve safety performance on short line railroads across North America. The final organizational structure and physical logistics of the Institute are still under development.

To accomplish its goals, the Institute will assess short line railroads' operations and safety programs. Teams, comprised of experts, will conduct these assessments.

The Institute will identify short line railroad safety best practices and develop:

- Guidance and tools for railroads to monitor the state of their safety culture;
- Training materials, including leadership training to assist managers with safety

compliance and safety culture change; and

- Recommendations and resources for short line railroad members of ASLRRA to enhance safety culture.

Development of the Institute will begin with a pilot project. As part of this pilot phase, ASLRRA will work with FRA, the Volpe Center, and the University of Connecticut to create tools to assess the current level of regulatory compliance and safety culture levels on short line railroads that transport crude oil. Safety culture tools may include written validated assessments, structured interviews, focus groups, and observation.

The safety of crude oil transportation by rail will be the Institute's initial focus, after which it will address other short line railroad safety issues.

In a January 2014 letter to ASLRRA, U.S. Transportation Secretary Anthony Foxx requested that ASLRRA provide specific information to the Department of Transportation on the immediate steps the industry will take to improve safety for crude oil shipments by rail. Preliminary establishment of the Institute is one step ASLRRA is taking in response to this request.

FRA R&D is providing technical support with the development and validation of assessment tools, as well as with tasks, strategies, and action for program development, implementation, and evaluation strategies.



## PHASE I: JOB ANALYSIS

A job analysis identifies the tasks performed on a job and the knowledge, skills, abilities, and other characteristics (KSAOs) required to perform them. The job analysis therefore serves as the foundation for all position descriptions, recruitment efforts, and selection decisions, as well as for subsequent training, education, and retention strategies for those jobs.

### OBJECTIVE

The objective of the job analysis described here was to identify and describe characteristics of the assessor role.

Additionally, the job analysis was intended to provide insight into how ASLRRRA should define, recruit, select, and train assessors for the Institute.

### METHODS

Job analysis information for the assessor position was gathered in four phases:

*Phase I: Information gathering.* A job analysis expert reviewed materials describing the context and need for a non-punitive mechanism to promote positive safety culture on short line railroads. These written materials described the proposed Institute's mission and goals.

Additionally, FRA R&D staff and representatives of ASLRRRA held conference calls to discuss the envisioned functions and roles of assessors at the Institute.

*Phase II: Identification of job analysis data for related positions.* Archival job analysis data for

related positions were identified and drawn from O\*Net OnLine (<http://www.onetonline.org/>), a collaborative Web-based database of job requirements and occupational information sponsored by the U.S. Department of Labor/Employment and Training Administration. Information included in the database is based on surveys of job incumbents in a diverse array of occupations and organizational settings.

Based on information gathered in Phase I, the following relevant job titles were identified in the O\*Net OnLine occupational database:

- Environmental compliance inspectors;
- Industrial safety & health engineers;
- Occupational health and safety specialists;
- Occupational health and safety technicians;
- Rail track laying and maintenance equipment operators;
- Rail yard engineers, dinkey operators, and hostlers;
- Transportation vehicle, equipment, and systems inspectors;

All of these jobs appeared to have some features in common with the assessor position.

KSAOs considered important for the majority of these job titles were identified as candidates for consideration in the assessor role, subject to confirmation by ASLRRRA subject matter experts (SMEs). KSAOs that were mentioned as important for these positions include: Active Listening, Critical thinking, Monitoring, Reading Comprehension, Speaking, Writing, and Complex Problem Solving.



*Phase III: Development of interview protocol.*

The research team developed a protocol to guide focus group discussions with SMEs. The protocol included probes concerning the context and role of the assessor.

Questions addressing the context of the assessor role included:

- What are the primary challenges to engaging short line railroads in the assessment process?
- What are the important differences among short line railroads (e.g., scope of services, size) that may affect how assessment is carried out?
- Are there existing jobs within short line organizations that mimic typical inspector/assessor responsibilities?

Questions addressing the role of the assessor included:

- What characteristics of the safety assessments differ from traditional compliance inspections? What additional KSAOs might be necessary?
- What involvement will assessors have in the dissemination of safety culture assessment surveys to employees?
- What are some anticipated challenges to communicating assessment results?

Additionally, questions pertaining to the transportation of crude oil included:

- What are the unique operational elements of crude oil transportation?
- Do the unique features of crude oil transportation create different kinds of safety environments?
- What are the key compliance issues unique to railroads that haul crude oil?

*Phase IV: Focus groups with SMEs from*

*ASLRRRA Safety and Training Committee.* Three focus groups with SMEs were organized. Each focus group lasted approximately 1 hour and included 5–6 SMEs, a moderator, and 1–2 recorders.

The goal of the focus groups was to come to a clear sense of the requisite knowledge, key skill sets, and desired personal attributes of assessors. The focus groups discussed three sets of issues: (a) context issues/challenges that assessors will need to manage; (b) the importance of KSAOs identified through O\*Net OnLine for the assessor role; and (c) additional important KSAOs for the assessor position. Each focus group had a different emphasis: one focused on the unique features of crude oil transportation, the second on the KSAOs pertinent to safety compliance assessment, and a third emphasized KSAOs vital to safety culture assessment.

## CONCLUSIONS

The job analysis identified four sets of KSAOs deemed necessary for the assessor role:

- Teams:* Assessors should be organized into two-person teams composed of complementary individuals.
- Experience:* Each team of assessors must include seasoned professionals who are familiar with the nature of short line railroads and who can establish immediate credibility in the short line environment.
- Knowledge:* Assessor teams must have breadth and depth of knowledge pertinent to the short line railroad regulatory and safety environment, a clear understanding of safety compliance and positive safety culture, and familiarity with behavioral and organizational change principles.
- Skills:* Assessors must have developed skill sets in a variety of areas including reading, writing, speaking, active listening,



conducting interviews, interpreting and synthesizing information, problem solving, relationship building, and developmental coaching.

The KSAOs identified in the job analysis do not necessarily have to be present in every individual assessor, but they should be represented in every team of assessors.

ASLRRA should use the results of this job analysis to develop job descriptions, create a selection process, and establish training programs for the Institute's assessors.

## NEXT STEPS

FRA intends to support ASLRRA's next steps, as listed below:

- Development and validation of safety culture and compliance assessment tools;
- Assessment, organizational development, and implementation strategies;
- Manager training and education programs;
- Implementation evaluation of pilot projects; and
- Assessment of budget needs.

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## KEYWORDS

Safety culture, safety compliance, job analysis, job tasks, short line railroads, crude oil transportation knowledge, skills, abilities, personnel

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