



U.S. Department
of Transportation

Federal Railroad
Administration

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Safety Compliance Oversight Plan for Rail Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel

Ensuring the Safe, Routine Rail Transportation of Foreign Research Reactor Spent Nuclear Fuel

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Acronym List

AAR	Association of American Railroads
CIA.	Central Intelligence Agency
DOE	Department of Energy
DOT	Department of Transportation
EOT	End-of-train
FBI	Federal Bureau of Investigation
FRA	Federal Railroad Administration
FRRF	Foreign Research Reactor Fuel
HM.	Hazardous Materials
HLRW	High-level radioactive waste
INEEL	Idaho National Engineering and Environmental Laboratory
MP&E	Motive Power & Equipment
NPC	National Project Coordinator
NRC	Nuclear Regulatory Commission
NWPA	Nuclear Waste Policy Act
OL	Operation Lifesaver
OP	Operating Practices
RPC	Regional Project Coordinator
SACP	Safety Assurance and Compliance Program
SCOP	Safety Compliance Oversight Plan
SNF	Spent nuclear fuel
SRS	Savannah River Site

EXECUTIVE SUMMARY

SAFETY COMPLIANCE OVERSIGHT PLAN FOR TRANSPORTATION OF HIGH-LEVEL RADIOACTIVE WASTE AND SPENT NUCLEAR FUEL

Introduction

The Federal Railroad Administration (FRA) has regulatory oversight for the safety of railroad operations within the United States. Ranking at the top of FRA's priorities is the safety of rail shipments involving Spent Nuclear Fuel (SNF)¹ and High-Level Radioactive Waste (HLRW)². These materials have been transported safely by rail in the United States for more than 40 years. In the mid-1980s, partly as a result of the rail shipments from the Three Mile Island Nuclear Power Plant, FRA implemented its High-Level Nuclear Waste Rail Transportation Inspection Policy³ for all known rail shipments of SNF and HLRW. Under FRA's Inspection Policy, there has never been a rail accident or incident involving the transportation of SNF or HLRW that has resulted in a release of the material from the packaging. Furthermore, there has never been a single death or injury resulting from a rail shipment of radioactive material.

Nevertheless, past rail shipping campaigns have shown that the nature of the potential hazards associated with radioactive materials elicits a high degree of public awareness and concern regarding the safety and integrity of SNF and HLRW shipments by rail. Furthermore, these shipments are projected to increase dramatically in volume in the foreseeable future; 75 to 90 percent of the SNF and HLRW will be transported by rail. Total annual shipments of these materials are expected to increase from the current 15 to 25 shipments per year to between 400 to 600 shipments per year within the next decade.

Taking a proactive approach to railroad safety, FRA recognized the need to enhance its high-level radioactive materials rail transportation inspection policy to ensure that the railroad industry's unblemished safety record for nuclear material shipments will continue unabated, despite a sharp

¹ The Nuclear Waste Policy Act of 1982 (NWPA) defines "spent nuclear fuel" as "fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing."

² NWPA defines "high-level radioactive waste" as "(A) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and (B) other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation." The term "Commission" as used in the definition means the Nuclear Regulatory Commission.

³ See Appendix A "*Federal Railroad Administration High-Level Nuclear Waste Rail Transportation Inspection Policy*".

increase in the number of high-level nuclear waste shipments. To this end, FRA developed the Safety Compliance Oversight Plan For Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel. The Safety Compliance Oversight Plan (SCOP) sets forth FRA's policy to address the safety of rail shipments of SNF and HLRW.

There are several DOE initiatives involving the shipment of SNF and HLRW by rail. One of these initiatives is the Foreign Research Reactor Fuel (FRRF) program. This program was initiated by the DOE and the Department of State to support the President's Nuclear Non-Proliferation policy. The Nuclear Non-Proliferation policy focus is to prevent increases in the amount of weapons' grade nuclear material that currently exists in the global domain. This material could potentially be used in the making of nuclear weapons and, therefore, the policy reduces the risk of this type of nuclear material being obtained and used in a manner detrimental to the health and welfare of the world populace.

The FRRF program presently includes rail shipments from the Charleston Naval Weapons Station in Charleston, South Carolina, to DOE's Savannah River Site (SRS) in Aiken, South Carolina, and from the Concord Naval Weapons Station in Concord, California, to DOE's Idaho National Engineering and Environmental Laboratory (INEEL) in southeastern Idaho.

Another important DOE initiative involves the shipment and storage of commercial SNF from nuclear power plants in the United States. Under this initiative, SNF from nuclear power plants throughout the country will be shipped by rail either to a DOE interim storage facility or to a permanent geologic repository in Nevada.

FRA may apply the basic principles and major elements of the SCOP to other existing and future rail shipments involving HLRW and SNF, as necessary and appropriate.

Development of the SCOP involved a coordinated effort between FRA, DOE, the Association of American Railroads (AAR), railroad labor organizations, and representatives of affected States. FRA wishes to acknowledge the invaluable contribution of its safety partners whose insight and wisdom were instrumental in formulating the policies and procedures that are incorporated into the SCOP.

It must be emphasized that the SCOP is a living document that has evolved from 40 years of accumulated experience regarding the safe movement of nuclear materials by rail. FRA will continue to work in partnership with the rail community to periodically review, evaluate and update the SCOP to keep pace with the latest developments and technologies involving the safe transportation of nuclear materials. A sound and meaningful safety partnership involving all elements of the railroad community is absolutely essential for maintaining the highest degree of safety for railroad shipments of SNF and HLRW and for maintaining public confidence in our nation's nuclear materials transportation program.

Summary of the SCOP:

In developing the SCOP, FRA has revised its previous policy to include the following safety enhancements in planning, inspection, training, and oversight activity areas:

Planning

- FRA, DOE, the offeror or agent, and the rail carriers will consider track classification in the route selection process to ensure that the highest-rated track is utilized.
- FRA will prepare an accident prediction model for the highway-rail grade crossings along the route. FRA will assist DOE in coordinating with appropriate State, local, and tribal agencies in route planning activities, using this model.
- The Department of Transportation's (DOT) Office of Intelligence and Security will assist FRA in coordinating safety precautions, such as the identification of "safe havens," with the offeror, law enforcement officers, and intelligence communities.

Inspections

- FRA will arrange for a track geometry car to operate over designated routes.
- FRA will conduct visual inspections of bridges along the designated routes and review railroads' bridge inspection programs to ascertain structural integrity.
- FRA will review the rail carrier's rail flaw detection vehicle data to ensure that a rail flaw detection vehicle has been operated over the designated route, and necessary rail repairs are made prior to shipments.
- The SCOP requires that every train involved in the transportation of SNF and HLRW be equipped with a 2-way End-of-Train (EOT) braking device, regardless of train length. Prior to each shipment, and during each crew change point along the route, FRA will endeavor to inspect trains to ascertain that EOTs are operational.
- Along a designated route, FRA will inspect all automated warning devices, at highway-rail grade crossings along the route, to ascertain that they are operational.

Training/Oversight

- FRA will assist DOE, and the offeror or agent, in the development of Emergency Response training and safety briefings. FRA also will liaison with the rail industry to verify that requisite training and briefings have been performed.
- Prior to the first shipment, and at least annually for subsequent shipments, FRA will review emergency response plans for designated routes and recommend modifications, if necessary.

- Prior to the first shipment, and at least annually for subsequent shipments, FRA will conduct the necessary reviews to ensure that train crews are properly certified, trained, and experienced in operating over the designated routes.
- FRA will place Operating Practices personnel in the rail carriers' dispatching centers for the first shipment on designated routes, and will review dispatching procedures periodically for subsequent shipments.
- Prior to the first shipment, and for subsequent shipments, as appropriate, FRA will focus on Operation Lifesaver training in communities along designated routes.
- FRA will continue to prioritize complaints regarding designated routes, and will continue to expedite the investigation and resolution of these complaints.

1.0 PURPOSE

The primary purpose of this SCOP is to address stakeholders' concerns in regard to rail shipments of foreign research reactor fuel from the Concord Naval Weapons Station to INEEL and from Charleston Naval Weapons Station to SRS relative to the rail mode of transportation. This means addressing various issues associated with the railroad operating environment, such as human factors, mechanical equipment condition, infrastructure integrity and highway-rail grade crossing safety, for example. This plan will emphasize and coordinate actions between the FRA, other Federal, State, local and tribal organizations and rail carriers, in order to promote the safe and secure rail transport of these shipments on the Nation's railroads. A secondary purpose of this SCOP is to establish a comprehensive task plan that can be used as a planning document for coordination of activities associated with rail shipments of SNF and HLRW other than foreign research reactor fuel and national security shipments transported in accordance with 49 CFR 173.7(b).

The tasks addressed in this SCOP incorporate existing and previously unstated actions that will be performed in order to ensure the safe and secure movement of the FRRF by rail in the United States. The existing actions that the FRA has implemented on known past shipments of SNF and HLRW in accordance with the agency's previous inspection policy³ are, of course, included. However, tasks in subject areas that were not specifically stated in the agency's previous policy have been added. While not specifically applied to a specific SNF or HLRW movement or shipping program, many of these "additional" tasks were still addressed under existing regulations, policies and railroad safety oversight operations.

2.0 SAFETY COMPLIANCE OVERSIGHT PLAN IMPLEMENTATION

Application of the tasks addressing rail infrastructure related inspections will focus on the primary routes selected for the movements. The FRA realizes that it is necessary to have an alternate route selected for use, in the event of unforeseen or unavoidable situations developing on the primary route. However, it is logistically difficult to apply the same degree of concentrated effort on the alternate route within the time frames that are usually afforded and still effectively ensure that the tasks are performed in a timely manner. The secondary routes will be inspected during the course of routine inspection and safety compliance functions conducted by FRA field inspection personnel. A majority of the tasks addressed in the SCOP are not "route dependent" in nature and application of those non-route dependent tasks will accomplish the same degree of safety assurance regardless of the route used.

The FRA will designate a National Project Coordinator (NPC) to track progress and to confirm completion of the tasks, as appropriate, for each shipment. Formal reporting will not be required; however, program status can be provided upon request. Confirmation that all activities, as applicable, have been completed will be provided to the appropriate Federal and State agencies prior to commencement of a particular shipment.

Each FRA regional office affected by the rail route of a shipment will select an individual who will serve as the Regional Project Coordinator (RPC). The RPC will serve as a point of contact within the respective region on matters pertaining to the shipment. The RPC will also develop a regional level plan that outlines the method for accomplishment of applicable SCOP tasks, conduct necessary liaison duties at the regional level with rail carrier, rail labor and other Federal, State, local and tribal entities involved with the shipment and will maintain a file that documents inspection findings, problem follow-up and resolution and task completion, as applicable.

3.0 SAFETY COMPLIANCE OVERSIGHT PLAN TASKS

OPERATIONAL INTEGRITY (OI)

OI-1: Ensure that the rail carriers train crews operating the train transporting the SNF or HLRW are trained and experienced over the designated rail transport route.

Provides compliance oversight to ensure that train crews operating trains transporting material addressed by this plan are adequately trained and familiar with the territory over which the trains will operate. This reduces the potential risk of an accident or incident that could be attributable to human error due to the train crew's lack of experience or familiarity with the territory.

Prior to each shipment the offeror or designated agent will:

- provide FRA with the names of the carriers involved and the designated primary and secondary routes at least 90 days prior to the initial shipment or as soon as possible thereafter.

Prior to the first shipment and at least annually for subsequent shipments the FRA will:

- conduct the reviews necessary to ensure that all locomotive engineers who are used for the shipments meet the Locomotive Engineer Certification requirements;
- conduct inspections of the hazardous materials training records for the carriers' train crew personnel;
- review each carrier's efficiency testing procedures, in association with the designated routes for the shipment ;
- during the planning stages, coordinate with the appropriate DOE Program Office, offeror or agent thereof, rail carriers and State, local and tribal entities on other potential viable alternatives that could be considered for implementation to further ensure a high degree of confidence in the train crews operating the trains.

OI-2: Place FRA Operating Practices (OP) personnel in the carrier dispatching centers.

Provides training level compliance oversight to reduce the potential risk of human error in train dispatching/communications between the train crew and the dispatcher during the movement of the trains over the designated route.

Prior to each shipment the offeror or designated agent will:

- provide FRA with the designated primary and secondary routes and the rail carriers involved 90 days prior to initiation of the rail movement or as soon as possible thereafter;
- provide FRA with the timetable for the shipment from the rail point of origin at least 15 working days prior to shipment dates;
- notify the appropriate FRA points of contact of any delays in the rail departure time from the point of origin as soon as a delay is confirmed.

The FRA will:

- station appropriate OP personnel in the rail carriers' dispatching center(s) during the duration of the actual movement of the first shipment to conduct oversight duties of the rail carrier dispatching center operations during periods of actual shipment operations;
- conduct a review of the rail carriers dispatching procedures at least 90 days prior to subsequent shipments.

OI-3: Continue FRA's existing inspection policy³ concerning routine OP inspections prior to the first shipment and associated routine follow-up inspections.

Provides compliance oversight to ensure the safe and secure transportation of the material addressed by this plan by conducting routine inspections of the train crews who are operating trains over the designated routes for the purpose of verifying that current carrier operating rules are effective and complied with by the train crews. This task will also serve to identify any potential problems in this area that may require corrective action by the carrier.

Prior to each shipment the offeror or designated agent will:

- provide FRA with the designated primary and secondary route and shipment time line at least 90 days prior to each shipment or as soon as possible thereafter.

Prior to the first shipment and at least semi-annually for subsequent shipments the FRA will:

- conduct routine OP inspections with respect to the carriers involved and the routes designated for the movements up to the time of the initial shipment;
- determine the interval for conducting routine follow-up inspections along the designated route based on documented information obtained from routine observations, Safety Assurance Compliance Program (SACP) findings concerning OP related safety issues, shipment frequency and route distance.

OI-4: Continue FRA's existing inspection policy³ concerning Motive Power & Equipment (MP&E) and Hazardous Materials (HM) inspections for every shipment.

Safety inspections of the rail cars and locomotives to be used in transporting the material will reduce the risk of mechanical failure and ensure the operational readiness of the rail cars and locomotives for each shipment; it will also ensure that corrective action is taken as necessary. DOT hazardous material safety inspections of the shipment at the rail point of origin for compliance with current hazardous materials regulatory requirements applicable to the transportation of radioactive materials, will further ensure the integrity of the shipment.

Prior to each shipment the offeror or designated agent will:

- provide FRA with the designated primary and secondary routes and shipment time line at least 90 days prior to each shipment or as soon as possible thereafter;
- provide FRA with the anticipated crew change and/or interchange locations (if applicable) along the designated route at least 30 days prior to each shipment;
- ensure that the appropriate FRA point of contact is notified of any delays in the transportation schedule upon confirmation of the delay.

For each shipment the FRA will:

- ensure that FRA MP&E and HM inspectors are on the scene at the rail point of origin at least 24 hours prior to arrival of the shipment;
- conduct inspections of the rail cars and locomotives used for each shipment to assure compliance with applicable equipment safety standards and that appropriate corrective measures, if required, have been implemented prior to shipment;
- conduct inspections of the rail cars carrying the casks to assure compliance with the applicable DOT regulatory safety standards for the transportation of radioactive materials.

OI-5: Determine and designate the appropriate personnel to accompany the rail shipment or any rail vehicle that may precede the shipments.

Provides compliance oversight in the areas of train crew operations and security, while enhancing public confidence in the safety and security of the movement. For purposes of this task "accompany" can mean to precede the shipment in a separate rail vehicle, shadow the rail shipment by rail or highway, ride the train actually transporting the material or any combination thereof. Determination of accompanying personnel will incorporate a value-added philosophy, safety and logistical considerations in association with the rail segment of the shipment.

No later than 30 days prior to a shipment the FRA will:

- coordinate with the DOE, offeror or agent, rail carrier and appropriate State, local and tribal entities during the planning process to determine the personnel necessary, if any, who in addition to the train crew, will actually accompany the first rail shipment;
- coordinate with the DOE, offeror or agent, rail carrier and appropriate State, local and tribal entities during the planning process to determine the appropriate personnel necessary, if any, who in addition to the train crew, will actually accompany subsequent rail shipments.

OI-6: Include consideration of the track classification in the route selection process and ensure that the highest rated track is utilized to the maximum extent practicable over the route selected.

The risk of a train accident/incident associated with each track classification is commensurate with the speed limitations stipulated in the Federal track regulations for the track class. The consideration of track class in the route selection process serves to ensure that the rail, and the associated components that comprise the track infrastructure over which the train will operate, are maintained to a higher standard in order to accommodate higher train speeds, regardless of whether or not the trains operate at those speeds due to other considerations. In addition, use of a higher rated track class to the extent practicable over a designated route will also preclude increases in transit times from origin to destination as a result of the use of a lower class track that requires reduced train speeds.

- FRA, DOE, the offeror or agent and the rail carriers will coordinate during the planning stages of each shipment to ensure that track classification information and criteria are considered in the route selection process;
- FRA will request that the Nuclear Regulatory Commission (NRC) involve them in matters concerning track infrastructure during the NRC's route approval process.

OI-7: Require every train be equipped with a two-way End-of-Train (EOT) braking device that complies with the 49 CFR Part 232 EOT regulatory requirements for design, performance, operational use, inspection and testing.

Provides a mechanical device and inspection requirement to enhance the overall safety of the rail movement by allowing the train crew to initiate a rear-forward activation of the train's air brakes.

Prior to each shipment the FRA will:

- inspect the train prior to departure at the point of origin to verify that the two-way EOT device is in place and operational;
- ensure that the two-way EOT device remains in place and operational by requiring it to be checked at each crew change point along the route;
- ensure that the train crews are familiar with the regulatory requirements for two-way end-of-train devices contained in 49 CFR Part 232.

EMERGENCY RESPONSE (ER)

ER-1: Ensure that train crew personnel and carrier's emergency response personnel receive specific training or briefing concerning the nature of the shipment.

Serves to increase the knowledge and confidence level of the train crews who are transporting the shipments and railroad emergency response personnel who will be involved in the event of an incident. This will be accomplished by checking to be sure that the provided information is sufficient. This information will cover the nature of the radioactive material being transported, the measures that exist to prevent a release of the material and the actions and resources that will be implemented in the event of an accident involving the shipment.

The offeror or designated agent will:

- ensure that appropriate levels of training, as deemed necessary, are provided to selected rail carrier emergency response personnel. For DOE shipments this could be accomplished by including the carrier's emergency response personnel into the training being provided by DOE to local emergency responders along the route;
- ensure that the offerors' Operations Plan includes criteria for providing the train crews transporting the shipment with a radioactive materials awareness information safety briefing.

The FRA will:

- perform liaison and assistance functions with the rail industry and verify that requisite training/briefings have been performed;
- assist the DOE, the offeror or agent, in the development of the content and implementation of the training and safety briefings.

ER-2: Review the appropriate emergency response plans (offeror, carrier and DOE) to ensure that they adequately address the actions to be taken in the unlikely event of an accident or incident involving the train.

Provides quality assurance oversight to verify that the emergency response plans are current and adequate in the event that emergency response actions need to be initiated for the shipment.

Prior to the first shipment and at least annually for subsequent shipments the FRA will:

- coordinate efforts with the offeror, DOE and the rail carrier, as appropriate, to review emergency response plans and recommend modifications, if necessary.

ROUTE INFRASTRUCTURE INTEGRITY (RII)

RII-1: Continue FRA's existing inspection policy³ concerning routine track and signal system inspections .

Provides compliance oversight to ensure the operational readiness and safety of the track infrastructure and railroad signal systems along the designated routes by conducting routine track and signal system inspections and ensuring that corrections are made as may be necessary.

Prior to each shipment the offeror or designated agent will:

- provide the FRA with the designated routes at least 90 days prior to the initial rail movement or as soon as possible thereafter.

Prior to the first shipment and at least semi-annually for subsequent shipments, the FRA will:

- conduct routine inspections of the track and signal system along the designated routes far enough in advance of the shipment to ensure that the entire route is inspected and any deficiencies corrected;

- determine the interval for conducting follow up inspections along the designated routes based on the frequency of the shipments, documented information obtained from routine inspections, Safety Assurance and Compliance Program (SACP) findings concerning track and signal system safety issues and other appropriate information sources.

RII-2: Have a track geometry car operate over the selected rail route.

Serves to ensure the quality and integrity of the geometry of the track along the designated route.

Prior to each shipment the offeror or designated agent will:

- provide FRA and the rail carriers with the designated rail route, shipment time line, and the number and frequency of the shipments at least 90 days prior to the initial movement or as soon as possible thereafter.

Prior to the first shipment and at least annually for subsequent shipments the FRA will:

- arrange for the rail carriers' or FRA's track geometry car to operate over the designated route as close as feasibly possible to the date of the rail shipment while allowing time for completing required repairs to the track to ensure regulatory compliance;
- evaluate the data from the track geometry cars run over the designated route and verify that any required repairs or corrections are made;
- notify appropriate DOE representatives of any problems that develop which may affect the use of the designated route or possibly cause a delay in the scheduled rail movements.

RII-3: Implement FRA's Bridge Inspection Policy⁴ to ensure that bridges along the routes are inspected for structural soundness.

Provides compliance oversight to ensure the safety and integrity of the railroad bridges on the designated route.

Prior to each shipment the offeror or designated agent will:

⁴ See Appendix B "FRA Policy on the Safety of Railroad Bridges", Federal Register Vol. 60, No. 81, dated April 27, 1995.

- provide the FRA with a listing of the railroad bridges on the designated routes at least 90 days prior to the initial movement or as soon as possible thereafter.

Prior to the first shipment and at least annually for subsequent shipments the FRA will:

- conduct evaluations of the rail carrier's bridge inspection and management practices to identify any program weaknesses that could affect public safety and ensure corrective action;
- conduct visual observation of the bridges on the designated routes during routine track inspections over the designated route;
- conduct reviews of the rail carrier's latest inspection and maintenance reports for the bridges on the designated routes;
- ensure that the appropriate DOE or offeror representatives are notified of any situations that may affect the shipment schedule or use of the designated route.

RII-4: Review the carrier's rail flaw detection vehicle data to ensure integrity of the rail along the selected route.

Provides compliance oversight to ensure the safety and integrity of the rail along the designated route in order to reduce the risk of undetected flaws.

Prior to each shipment the offeror or designated agent will:

- provide the FRA with the designated primary and secondary routes and shipment time line at least 90 days prior to each shipment or as soon as possible thereafter.

Prior to the first shipment and at least annually for subsequent shipments the FRA will:

- coordinate with the rail carrier to ensure that a rail flaw detection vehicle is operated over the entire designated rail route;
- conduct reviews of the rail flaw detection vehicle data for operations conducted over the designated route;
- ensure that the appropriate DOE or offeror representatives are notified of any situations that may affect the shipment schedule or use of the designated route.

HIGHWAY-RAIL GRADE CROSSING SAFETY (GC)

GC-1: Provide a highway-rail grade crossing accident prediction model for grade crossings along the designated route to State, local or tribal emergency management or law enforcement agencies along the designated route.

In providing a highway-rail grade crossing accident prediction model to the appropriate State, local or tribal emergency management or law enforcement authorities, plans can be made to arrange for appropriate State, local or tribal emergency management or law enforcement personnel to monitor those crossings considered to have an increased potential for grade crossing accidents during movement of the trains over those crossings.

Prior to each shipment the offeror or designated agent will:

- provide the FRA with the names and numbers of the designated points of contact for each state and tribal emergency management or law enforcement agency, as applicable, along the designated routes, on a timely basis.

Prior to the first shipment and at least annually for subsequent shipments the FRA will:

- prepare an accident prediction model for the highway-rail grade crossings along the designated route;
- evaluate the accident prediction model results for clarification;
- assist the DOE in distributing the information to, and coordinating with, the appropriate State, local and tribal agencies along the route in a timely manner for planning purposes.

GC-2: Ensure all highway-rail grade crossings equipped with active warning devices along the designated route are operating properly.

Provides compliance inspections to ensure that the active highway-rail grade crossing signal systems along the designated transportation route are in working order and properly functioning, which reduces the risk of a highway-rail grade crossing accident.

Prior to each shipment the offeror or designated agent will:

- provide the FRA with designated routes no less than 90 days prior to the shipment or as soon as possible thereafter.

Prior to the first shipment and semi-annually for subsequent shipments the FRA will:

- determine the number of active highway-rail grade crossing warning systems that exist along the designated route;

- conduct inspections of all active systems at highway-rail grade crossings along the route that are considered to have a high potential for a grade crossing accident;
- conduct operational compliance checks of the active highway-rail grade crossing warning systems along the designated route to verify proper operation;
- verify that any deficiencies noted as a result of the inspections are corrected.

GC-3: Focus routine Operation Lifesaver/Highway-Rail Grade Crossing Safety program training in communities along the designated route in conformance with current state and FRA programs.

The purpose of this program is to provide an enhanced level of public awareness and education regarding highway-rail grade crossing safety along the designated route.

Prior to the first shipment and periodically for subsequent shipments, as appropriate, the offeror or designated agent will:

- provide assistance and information to the FRA and the various State and local agencies who are coordinating with the offeror on the shipments of the material, toward the accomplishment of this objective.

Prior to the first shipment and for subsequent shipments, as appropriate, the FRA will:

- promote Operation Lifesaver (OL) training along the designated route based upon a prioritization principle of those areas along the route where data show an elevated highway-rail grade crossing accident/incident rate;
- coordinate with the offeror and appropriate State and local agencies along the route to determine the feasibility of providing OL "train-the-trainer" training to appropriate State and local representatives, and thus increase the ability to provide this training to a larger segment of the public along the route than could be achieved by a unilateral FRA effort;
- make available to the offeror FRA's ability to provide presentations on highway-rail grade crossing safety at "town meetings" that could be held in communities along the designated route.

SECURITY (S)

S-1: The DOT Office of Intelligence and Security will assist the FRA in addressing and coordinating on security issues with the offeror, law enforcement and intelligence communities, such as the FBI, CIA, railroad security forces and other State, local and tribal agencies.

Provides information and assistance to the security community on rail operations in order to address security issues associated with the rail transport of the material.

Prior to the initial shipment and throughout the shipping program, the FRA will:

- liaison with the security community, (DOE, FBI, CIA, railroad security, State, local and tribal law enforcement, etc.) by participating in security planning and critiquing activities with the DOT's Office of Intelligence and Security.

S-2: Assist in the development of rail route “safe haven” criteria.

Serves to ensure safe and secure transportation of the shipment by identifying “safe haven” criteria and locations along the designated rail route, should they be needed.

At least 90 days prior to each shipment the FRA will:

- coordinate and assist the DOE, offeror, rail management, railroad police, State, local and tribal law enforcement and emergency response agency representatives, etc., in developing criteria and identifying locations for “safe havens” along the designated route.

MISCELLANEOUS (MIS)

MIS-1: Continue to promote participation in the FRA State Participation Program for non-participatory states, encourage expanded participation for those states who currently participate at a minimum level, and use the current inspectors in each state affected by the designated route where possible to achieve implementation of other SCOP items, as applicable.

Serves to verify the safe and routine transportation by increasing the number of existing FRA inspection personnel. This will also enable the various states through which the trains will move to play a more active role in supporting compliance inspections.

The FRA will:

- encourage states who want to be actively involved in inspection activities associated with the shipments to do so by participating in the program;
- provide information and guidance on the FRA State Participation Program to the appropriate Governor’s representatives, as needed, based on an assessment of the current level of participation of the affected states along the designated route;
- coordinate with and utilize to the extent possible, the existing cadre of FRA certified state inspectors in those states affected by the designated route.

MIS-2: Assign a high priority to complaints concerning the designated route and ensure that a timely compliance check is conducted to resolve the complaints prior to shipment.

Provides FRA with a method to ensure that any potential problems involving the designated routes will be resolved.

The FRA will:

- implement the agency's existing in-house complaint system to ensure that any complaints received that may have a bearing on a shipment along the designated route are given a high priority and appropriately resolved prior to the shipment.

MS-3: Establish a "SCOP Team" within the FRA consisting of appropriate FRA headquarters and field personnel, offeror personnel and railroad management and labor representatives to coordinate activities associated with the rail shipments.

Establishes coordination teams consisting of appropriate involved party personnel as necessary.

FRA Contacts:

Headquarters Primary:

Kevin R. Blackwell - National Project Coordinator
Office of Safety Assurance and Compliance
Hazardous Materials Division
RRS-12, Mail Stop 25
400 7th St., S.W., Washington, D.C. 20590
202-493-6315/Fax 202-493-6230
E-mail: Kevin.Blackwell@fra.dot.gov

Headquarters Secondary:

Edward W. Pritchard, Staff Director
Office of Safety Assurance and Compliance
Hazardous Material Division
RRS-12, Mail Stop 25
400 7th St., S.W., Washington, D.C. 20590
202-493-6247/Fax 202-493-6230
E-mail: Ed.Pritchard@fra.dot.gov

Edward R. English, Director
Office of Safety Assurance and Compliance
RRS-10, Mail Stop 25
400 7th St. S.W., Washington, D.C. 20590
202-493-6321/Fax 202-493-6230

FRA Region Contacts: Regional contacts are subject to change based upon the location of the shipment routes and the FRA regions affected. Contact the FRA Headquarters contacts listed for information on how to contact the designated Regional Project Coordinators.

Offeror Contacts:

Primary: Tracy P. Mustin, Program Manager
Office of Spent Fuel Management
U.S. Department of Energy
EM-67, 5B-115
1000 Independence Avenue, SW
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Rail Carrier: The rail carrier representatives are subject to change dependent upon the carriers utilized between the rail origin and destination locations. Contact the FRA Headquarters or Offeror contacts listed for information on how to contact the appropriate rail carrier representatives.

Rail Labor: The various rail labor representatives are subject to change dependent upon the rail origin and destination locations involved and the nature of the inquiry or information requested. Contact the FRA Headquarters contacts listed for information on how to contact the appropriate rail labor representatives.

APPENDIX A

FRA HIGH-LEVEL NUCLEAR WASTE RAIL TRANSPORTATION INSPECTION POLICY

Past rail shipping campaigns of high-level nuclear waste have shown that the nature of the potential hazards associated with radioactive materials elicits a relatively high degree of public awareness and concern in regard to transportation of the material. As a result, the Federal Railroad Administration developed and instituted an inspection policy for rail movements of this type of hazardous material. This policy sets inspection frequency criteria above and beyond that which may normally be necessary and is implemented for all known high-level nuclear waste shipments by rail.

PRIOR TO THE FIRST SHIPMENT

- The entire track and signal system will be inspected along the designated route prior to the initial movement.
- Track and Signal Inspectors prepare a memorandum describing the condition of the route inspected, including sidings and yard tracks (if applicable), in addition to their routine inspection forms used while making the inspection.
- Operating Practices Inspectors conduct routine inspections along the route to be used to assure that train crews are complying with the carrier's current operating rules.

PRIOR TO THE FIRST SHIPMENT AND EVERY SUBSEQUENT SHIPMENT

- Motive Power and Equipment Inspectors will conduct an inspection of the locomotives, cask and idler (buffer) cars and the caboose (if used) at the point of origin to assure compliance with the Safety Appliance, Power Brake and Freight Car Standards.
- Hazardous Materials Inspectors will conduct an inspection of the cask car or cars to ensure compliance with the applicable Hazardous Materials Regulations concerning placarding, shipping papers, crew notification, train placement and securement requirements.

GENERAL REQUIREMENTS

- Followup inspections for track, signal systems and operating practices will be conducted on a six-month basis, unless information is obtained that may dictate that followup inspections be conducted more (or less) frequently.
- Unless some type of special circumstances are determined to exist, FRA inspectors will **NOT** accompany the actual movement of the material (e.g., riding the engine or caboose).

APPENDIX B

Federal Register: April 27, 1995 (Volume 60, Number 81))
[Rules and Regulations]
[Page 20654-20657]

DEPARTMENT OF TRANSPORTATION
Federal Railroad Administration

49 CFR Part 213
[Docket No. RST-94-3, Notice No. 1]

Policy on the Safety of Railroad Bridges

AGENCY: Federal Railroad Administration (FRA), DOT

ACTION: Interim statement of policy.

SUMMARY: FRA issues an interim statement of policy for the safety of railroad bridges. FRA establishes suggested criteria for railroads to use to ensure the structural integrity of bridges that carry railroad tracks. FRA will subsequently make the interim statement of policy part of the final rule amending 49 CFR part 213 (See 57 FR 54038, November 16, 1992). This final rule will reflect any changes that appear necessary following public comment on the interim statement of policy.

DATES: *Effective Date:* The interim statement of policy is effective May 30, 1995. Written comments must be received no later than June 26, 1995. Comments received after that date will be considered to the extent possible without incurring additional delay or expense.

ADDRESSES: Written comments on this policy should be submitted to the Docket Clerk (RCC-30), Office of Chief Counsel, FRA, 400 Seventh Street, SW., Washington, DC 20590. Persons desiring to be notified that their written comments have been received by FRA should submit a stamped, self-addressed postcard with their comments. The Docket Clerk will indicate on the postcard the date the comments were received and return the postcard to the addressee. Written comments will be available for examination, both before and after the closing date for comments, during regular business hours in Room 8201 of the Nassif Building at the above address.

FOR FURTHER INFORMATION CONTACT: Gordon A. Davids, P.E., Bridge Engineer, Office of Safety Enforcement, Federal Railroad Administration, 400 Seventh Street, SW., Washington, DC 20590, (Telephone: 202-366-0507), or Nancy Lummén Lewis, Trial Attorney, Office of Chief Counsel, Federal Railroad Administration, 400 Seventh Street, SW., Washington, DC 20590, (Telephone 202-366-0635).

SUPPLEMENTARY INFORMATION: Beginning in 1991, FRA conducted a review of the safety of railroad bridges. The review was prompted by the agency's perception that the bridge population was aging, traffic density and loads were increasing on many routes, and the consequences of a bridge failure could be catastrophic.

I. Bridge Safety Survey

FRA counted the approximate number of bridges that carry railroad track in the United States, and then surveyed the safety of those bridges. The count revealed that:

- a. Approximately 100,700 bridges carried railroad tracks in 1991,
- b. Approximately 10 bridges exist for every 14 miles of railroad, and
- c. Approximately 120 feet of track per mile is located on a bridge.

The safety survey accomplished several objectives. It determined whether the condition of railroad bridges posed a significant hazard to the safety of the public. It documented the methods used by the railroad industry for the inspection, management and assurance of safety of those bridges. It provided information with which FRA could evaluate the need for federal action to improve the safety of railroad bridges.

The survey assessed the policies and practices used by 80 railroads to ensure the integrity of their bridges. The railroads surveyed included 21 major railroads (including 14 class I railroads and seven major passenger or commuter railroads), 20 class II regional railroads, and 39 class III shortline railroads. The 21 class I and passenger railroads are termed "major railroads" because they own most of the railroad bridges and handle the majority of freight and passenger traffic. In the course of the survey, FRA inspectors observed railroad inspections of more than 8,000 bridges.

The survey showed that all of the 21 major railroads have conducted comprehensive, effective bridge inspection programs for several decades. The survey demonstrated that these railroads are acting to safeguard the integrity of their bridges. The railroad managers know the condition of their bridges, and they are taking appropriate action to prevent structural failure. The findings for the 20 regional railroads were similar to those of the major railroads.

The survey showed the major and regional railroads use a variety of methods to inspect and manage their bridges. The degree to which inspectors are supervised, the levels at which certain decisions are made, and the methods used to record and report inspections vary considerably among railroads. Nevertheless, these programs share certain basic principles that characterize effective bridge management practices.

The consistency of findings among the Class I and II railroads, passenger operators, and many smaller railroads indicates that railroads are following a course of action that corresponds with the public interest in prevention of bridge failures. The railroads' actions are driven by a need to prevent the significant economic harm that result from the loss of a valuable bridge and the cost of associated casualties.

On shortline railroads, however, FRA found considerable variation in the quality of bridge management programs and bridge conditions. Many shortlines have exemplary programs, well-suited to their size and the nature of their structures and traffic. A few, however, did not address all of their responsibilities for the safety of their bridges.

These smaller railroads with minimal bridge management programs typically move low levels of traffic over a small number of bridges. Nevertheless, the consequences of a bridge failure on one of these railroads could be as severe as a failure occurring anywhere. The risk of human casualty or environmental damage would be the same for each, and the cost of the failure could be ruinous to a railroad with limited resources. This finding indicates a situation that FRA must address.

II. The Safety Record of Railroad Bridges

During the past five decades, not one fatality has been caused by the structural failure of a railroad bridge. Train accidents caused by the structural failure of railroad bridges have been extremely rare. Although the average construction date of railroad bridges predates most highway bridges by several decades, the older railroad bridges were designed to carry heavy steam locomotives. Design factors were generally conservative, and the bridges' functional designs permit repairs and reinforcements when necessary to maintain their viability.

Railroad bridges are most often privately, rather than publicly, owned. Their owners seem to recognize the economic consequences of neglecting important maintenance. Private ownership enables the railroads to control the loads that operate over their bridges. Cars and locomotives exceeding the nominal capacity of a bridge are not operated without permission from the responsible bridge engineers, and then only under restrictions and conditions that protect the integrity of the bridge.

Many railroad bridges display superficial signs of deterioration but still retain the capacity to safely carry their loads. Corrosion on a bridge is not a safety issue unless a critical area sees significant loss of material. Routine inspections are prescribed to detect this condition, but determination of its effect requires a detailed inspection and analysis of the bridge. In general, timber bridges continue to function safely, and masonry structures built as early as the 1830's remain functional and safe for their traffic.

Of the few train accidents that involved bridges, most have not been caused by structural failure. FRA accident records for 1982 through 1993 show 15 train accidents that were caused by bridge structural failures, including three that involved improper repair procedures. These accidents caused no reportable injuries and a reported \$856,046 damage to railroad facilities, cars and locomotives.

During the same period, 29 train accidents on or near bridges were caused by track conditions on the bridge or its approaches. These accidents caused no reportable injuries, and a reported \$4,596,733 damage to railroad facilities, cars and locomotives.

The same time period saw 19 train accidents on bridges caused by external damage to the bridge, including three fires, 11 floods or washouts, four bridges struck by motor vehicles, and one bridge struck by a marine vessel. The accident at Mobile, Alabama on September 22, 1993 alone caused 47 fatalities, 102 non-fatal injuries, and over \$10,000,000 in property damage. The losses from these 19 accidents totaled 47 fatalities, 124 non-fatal injuries, and \$22,150,865 damage to railroad facilities, cars and locomotives.

IV. Bridge Safety Policy

The severity of a train accident is usually compounded when a bridge is involved, regardless of the cause of the accident. FRA must retain its capability to deal effectively with any safety problems involving the structural integrity of railroad bridges. At the same time, FRA must assure that private and public resources are not diverted unnecessarily from other programs that are also critical to railroad safety.

At one extreme, FRA could respond to bridge issues only when accidents occur or when someone contacts the agency about particular concerns. However, such a reactive policy would inhibit FRA's ability to detect impending problems with railroad bridges. At the other extreme, FRA could regulate all aspects of railroad bridge management, including inspection, rating, construction and maintenance. The expense to the railroad industry of such a policy is not justified by the findings of the safety survey.

Because the industry has no apparent systemic bridge safety problem, FRA chooses to adopt a policy, rather than issue regulations, to carry out its responsibility of protecting bridge safety. The policy includes

non-regulatory guidelines to inform railroad managers and all concerned about current good practices related to bridge inspection and management. The guidelines accommodate a wide variety of effective bridge inspection and management methods.

Even without specific bridge safety regulations, FRA maintains authority under 49 U.S.C. 20101 et seq. (formerly the Federal Railroad Safety Act of 1970) to inspect any railroad facility that affects safety and, if necessary, to remove it from service. The guidelines represent the general criteria against which FRA will evaluate each railroad's bridge inspection and management program.

FRA does not expect that its policy will unnecessarily divert resources away from the functional work of bridge management by forcing railroads to change effective bridge management programs. Likewise, the policy should not require FRA to divert public resources to employ a large staff of bridge specialists.

FRA will revise the guidelines as necessary to accomplish the objectives of the bridge safety program. To that end, FRA will continue to monitor and evaluate the railroads' bridge inspection and management programs to guarantee that those responsible for the safety of bridges continue to meet their responsibilities. FRA will make its findings available to the public upon request, excluding any proprietary information received and identified as such. Should FRA find through its monitoring that widespread bridge structural problems have developed, it may use the information it has gathered to commence a rulemaking proceeding.

Effect of This Interim Statement of Policy

The purpose of this notice is to issue an interim statement of policy containing guidelines for the proper maintenance of bridge structures. It is meant to be advisory in nature; it does not have the force of regulations under which FRA ordinarily issues violations and assesses civil penalties.

However, FRA maintains emergency authority to issue emergency, compliance, and disqualification orders, as well as authority to seek injunctive relief in federal district court, under 49 U.S.C. 20104 (formerly known as the Federal Rail Safety Act of 1970) and 49 CFR part 209. FRA will exercise this authority when an unsafe condition or improper maintenance of a railroad bridge creates an imminent hazard of death or injury to persons. Furthermore, should FRA, in the future, find the need to address bridge integrity in a regulatory proceeding, it will do so.

Following the comment period, FRA will issue any necessary changes to the interim statement of policy. The notice of changes will appear simultaneously with the Notice of Final Rule for the proceeding amending the track safety standards in 49 CFR part 213, begun in November, 1992. (See 57 FR 54038, November 16, 1992.) Except as modified in response to the comments, this interim statement of policy will become a final statement of policy at that time.

Public Participation

Because the interim statement of policy is advisory in nature, notice and public participation are not required. However, the public is invited to submit comments within 30 days following its publication.

FRA would appreciate comments about its plan to issue a statement of policy rather than regulations governing railroad bridge maintenance. FRA would also welcome comments about the value of permanently placing the statement of policy in a new appendix to 49 CFR part 213. Finally, FRA would like comments about the guidelines themselves and their value as criteria in deciding whether stronger enforcement action on particular railroad bridges is warranted.

Comments received after the 30-day deadline will be considered if it is possible to do so without incurring additional delay or expense.

Regulatory Impact

Executive Order 12866 and DOT Regulatory Policies

This interim statement of policy has been evaluated in accordance with existing regulatory policies. The regulatory document is considered to be a nonsignificant regulatory action under E.O. 12866 and is a nonsignificant rule under section 5(a)(4) of DOT Regulatory Policies and Procedures (44 FR. 11034, February 26, 1979) because it is advisory only and does not carry with it the force of law or regulation. For nonsignificant rules, the DOT Regulatory Policies and Procedures ordinarily require an economic evaluation to be placed in the public docket. This evaluation should include an analysis of the economic consequences of the rule, including (if possible) an estimation of the cost and benefits of the rule to the private sector, consumers, and all levels of government. However, such an evaluation is not required if the expected impact of a rule is deemed minimal. Because this interim statement of policy offers only guidelines to be followed and does not mandate any actions or establish any recordkeeping requirements, the need for a regulatory evaluation is not indicated.

Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) requires a review of rules to assess their impact on small entities. In reviewing the economic impact of this interim statement of policy, FRA concluded that it will not have any measurable impact on small entities. There are no direct or indirect economic impacts for small units of government, businesses, or other organizations. Therefore, it is certified that this rule will not have a significant economic impact on a very substantial number of small entities under the provisions of the Regulatory Flexibility Act.

Paperwork Reduction Act

There are no information collection requirements contained in this interim statement of policy.

Environmental Impact

FRA has evaluated this interim statement of policy in accordance with its procedures for ensuring full consideration of the potential environmental impacts of FRA actions, as required by the National Environmental Policy Act and related directives. This notice meets the criteria that establish this as a non-major action for environmental purposes.

Federalism Implications

Implementation of this interim statement of policy could result in a judicial determination that it constitutes FRA's occupation of the field of railroad bridge safety regulation. Under 49 U.S.C. 20106, a state may enforce its own statute or regulation related to railroad safety until the Secretary of Transportation issues an order or regulation "covering the subject matter" of the state's law. A state may adopt or enforce a more stringent law relevant to the subject matter as long as it "(1) is necessary to eliminate or reduce a local safety hazard; (2) is not incompatible with a law, regulation, or order of the United States Government; and (3) does not unreasonably burden interstate commerce."

At this time, FRA is aware of only one state that could be affected by a court's determination that the Secretary of Transportation, through FRA, has covered the subject matter of railroad bridge safety by issuing this policy statement. FRA has prepared a Federalism Assessment, pursuant to Executive Order 12612 and placed it in the docket reserved for this proceeding, to address the federalism implications this interim policy could have on that state or any other state seeking to regulate railroad bridge safety.

List of Subjects in 49 CFR Part 213

Penalties, Railroad safety, Railroads.

Therefore, in consideration of the foregoing, the Federal Railroad Administration issues the following:

Interim Statement of Agency Policy on the Structural Integrity of Railroad Bridges

The structural integrity of bridges that carry railroad tracks is important to the safety of railroad employees and the public. The responsibility for the safety of railroad bridges rests with the owner of the track carried by the bridge, together with any other party to whom that responsibility has been assigned by the track owner.

The capacity of a bridge to safely support its traffic can only be determined by intelligent application of engineering principles and the laws of physics. Bridge owners should use, as FRA will, those principles to assess the integrity of railroad bridges. The long term ability of a structure to perform its function is an economic issue beyond the intent of this policy. In assessing a bridge's structural condition, FRA will focus on the present safety of the structure, rather than its appearance or long term usefulness.

FRA inspectors will conduct regular evaluations of railroad bridge inspection and management practices. The objective of these evaluations will be to document the practices of the evaluated railroad and to disclose any program weaknesses that could affect the safety of the public. Should problems be disclosed, FRA will seek a cooperative resolution. If public safety is jeopardized by failure to resolve a problem, or by the incompetence or dishonorable intentions of any bridge owner, FRA will use available legal means, including issuance of emergency orders, to protect the safety of railroad employees and the public.

This policy statement addresses the integrity of bridges that carry railroad tracks. It does not address the integrity of other types of structures on railroad property, i.e., tunnels, or bridges carrying highways or other features over railroads, except to the extent that position and condition of these structures affects the safe passage of trains. Likewise, this policy statement extends its reach beyond the narrow issue of bridges carrying railroad tracks only where it is necessary to do so for the protection of highway users, pedestrians and others lawfully occupying the space under a railroad bridge.

The guidelines published in this statement are advisory, rather than regulatory, in nature. They indicate those elements FRA deems essential to successful bridge management programs. FRA will use the guidelines when evaluating bridge inspection and management practices.

Guidelines

1. Responsibility for safety of bridges.

(a) *Track owner.* The owner of the track carried by a bridge is responsible for ensuring that the bridge will safely support the trains which operate over it and the loads imposed upon it.

(b) *Operating railroad.* The operating railroad that authorizes train movements over a bridge should take whatever steps are necessary to verify that the maintenance responsibility for the bridge is being fulfilled so as to safeguard trains operated under its authority.

(c) *Assignment of responsibility.* The owner of the track carried by a bridge may assign responsibility for maintenance of the bridge to another party as long as the assignment ensures that responsibility for the safety of the bridge is not diminished.

2. *Capacity of bridges.*

(a) *Determination.* The safe capacity of bridges should be determined by competent engineers using accepted principles of structural design and analysis.

(b) *Analysis.* Proper analysis of a bridge requires knowledge of the actual dimensions, materials and properties of the structural members of the bridge, their condition, and the stresses imposed in those members by the service loads.

(c) *Rating.* The factors which were used for the design of a bridge can generally be used to determine and rate the load capacity of a bridge provided:

- (i) The condition of the bridge has not changed significantly, and
- (ii) The stresses resulting from the service loads can be correlated to the stresses for which the bridge was designed or rated.

3. *Bridge loads.*

(a) *Control of loads.* The operating instructions for each railroad operating over bridges should include provisions to restrict the movement of cars and locomotives whose weight or configuration exceed the nominal capacity of the bridges.

(b) *Authority for exceptions.* Equipment exceeding the nominal weight restriction on a bridge should be operated only under conditions determined by a competent engineer who has properly analyzed the stresses resulting from the proposed loads.

(c) *Operating conditions.* Operating conditions for exceptional loads may include speed restrictions, restriction of traffic from adjacent multiple tracks, and weight limitations on adjacent cars in the same train.

4. *Bridge records.*

(a) The organization responsible for the safety of a bridge should keep design, construction, maintenance and repair records readily accessible to permit the determination of safe loads. Having design or rating drawings and calculations that conform to the actual structure greatly simplifies the process of making accurate determinations of safe bridge loads.

(b) Organizations acquiring railroad property should obtain original or usable copies of all bridge records and drawings, and protect or maintain knowledge of the location of the original records.

5. *Specifications for design and rating.*

(a) The recommended specifications for the design and rating of bridges are those found in the

“Manual for Railway Engineering” published by the American Railway Engineering Association (AREA). These specifications incorporate recognized principles of structural design and analysis. They are continually reviewed and revised by committees of competent engineers. Other specifications for design and rating, however, have been successfully used by some railroads and may also be suitable now.

(b) A bridge can be rated for capacity according to current specifications regardless of the specification to which it was originally designed.

6. Periodic inspections.

(a) Periodic bridge inspections by competent inspectors are necessary to determine whether a structure conforms to its design or rating condition and, if not, or the degree of nonconformity.

(b) The prevailing practice throughout the railroad industry is to inspect railroad bridges at least annually. Inspections at more frequent intervals may be indicated by the nature or condition of a structure or intensive traffic levels.

7. Underwater inspections.

(a) Inspections of bridges should include measuring and recording the condition of substructure support at locations subject to erosion from moving water.

(b) Stream beds are often not visible to the inspector. Indirect measurements by sounding, probing, or any other appropriate means are necessary in those cases. A series of records of those readings will provide the best information should unexpected changes suddenly occur. Where such indirect measurements do not provide the necessary assurance of foundation integrity, diving inspections should be performed as prescribed by a competent engineer.

8. Special inspections.

(a) A special bridge inspection should be performed after an occurrence that might have reduced the capacity of the bridge, such as a flood, a derailment, or an unusual impact.

(b) When a railroad learns that a bridge might have suffered damage through an unusual occurrence, it should restrict train operation over the bridge until the bridge can be inspected and evaluated.

9. Inspection records.

(a) Bridge inspections should be recorded. Records should identify the structure inspected, the date of the inspection, the name of the inspector, the components inspected, and their condition.

(b) Information from bridge inspection reports should be incorporated into a bridge management program to ensure that exceptions on the reports are corrected or accounted for. A series of inspection reports over time should be maintained so as to provide a valuable record of trends and rates of degradation of bridge components. The reports should be structured to promote comprehensive inspections and effective communication between an inspector and an engineer who performs an analysis of a bridge.

(c) An inspection report should be comprehensible to a competent person without interpretation by the reporting inspector.

10. Bridge inspectors and engineers.

(a) Bridge inspections should be performed by technicians whose training and experience enable them to detect and record indications of distress on a bridge. Inspectors must provide accurate measurements and other information about the condition of the bridge in enough detail for an engineer to make a proper evaluation of the safety of the bridge.

(b) Accurate information about the condition of a bridge should be evaluated by an engineer who is competent to determine the capacity of the bridge. The inspector and the evaluator are often not the same individual. The quality of the bridge evaluation depends on the quality of the communication between them.

11. Scheduling inspections.

(a) A bridge management program should include a means to ensure that each bridge under the program is inspected at the frequency prescribed for that bridge by a competent engineer.

(b) Bridge inspections should be scheduled from an accurate bridge inventory list that includes the due date of the next inspection.

12. Special considerations for railroad bridges.

Railroad bridges differ from other types of bridges in the types of loads they carry, in their modes of failure and indications of distress, and in their construction details and components. Proper inspection and analysis of railroad bridges requires familiarity with the loads, details and indications of distress that are unique to this class of structure.

Issued at Washington, DC., on April 21, 1995.

Jolene M. Molitoris,

Administrator.

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