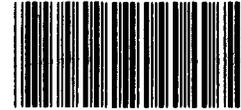


GAO

Testimony



144556

*For Release
on Delivery
Expected at
9:30 a.m. EDT
Wednesday
July 31, 1991*

HAZARDOUS MATERIALS

**Chemical Spill in the
Sacramento River**

Statement by
John H. Anderson, Jr.
Associate Director, Transportation Issues
Resources, Community, and Economic
Development Division

Before the
Subcommittee on Government
Activities and Transportation
Committee on Government Operations
House of Representatives



Madam Chair and Members of the Subcommittee:

We appreciate the opportunity to testify as the Subcommittee begins its oversight into the tragic California train derailment that spilled about 20,000 gallons of metam sodium (weedkiller and pesticide) into the Sacramento River. While the ultimate damage to the environment will become clearer over time, this spill could pose a threat to the region's major water supply and may result in long-term destruction of valuable scenic and recreational resources.

On July 17, 1991, your Subcommittee asked us to review several issues concerning federal regulation of hazardous materials transportation and the circumstances surrounding this particular accident. Much work needs to be completed before your various questions can be answered. However, we can discuss the information we have obtained thus far about the accident. I would like to caution that the information we are providing today regarding the July 14, 1991, accident is preliminary and is based on interviews with various officials including those of the Federal Railroad Administration (FRA), the Research and Special Programs Administration (RSPA), the Environmental Protection Agency (EPA), and the National Transportation Safety Board (NTSB).

In summary, regarding the accident we found:

- The actual cause(s) of the accident will not be known for some time. However, there is a question about whether the train may have been underpowered for the region's terrain. The derailed train weighed 4,292 tons and did not have a separated "pusher" locomotive. Since the accident, Southern Pacific (SP) has changed its operating practice to limit train tonnage to 3,200 tons.

-- Metam sodium that spilled and caused the damage was not classified by either EPA or RSPA as hazardous. However, the U.S. Coast Guard, which regulates transportation of hazardous materials on water, classifies metam sodium as a hazardous material when shipped in liquid bulk form. Coast Guard officials told us the substance is in the worst class of marine pollutants because it is highly toxic to marine life. RSPA's Acting Administrator told us that RSPA relies exclusively on EPA to identify those hazardous substances which should be regulated as hazardous materials when transported in commerce. Regardless of EPA's designation, we believe that the Secretary of Transportation has independent authority under the Hazardous Materials Transportation Act of 1974 (HAZMAT Act) to designate metam sodium as a hazardous material.

-- We do not know when the first response teams arrived on the scene and whether the response time would have been quicker if metam sodium had been classified as hazardous. Conceivably, officials might have responded faster if the material had been labeled hazardous. Also, we do not know whether less damage would have occurred if response time had been quicker because it is unknown how long it took the metam sodium to spill from the car.

We will also discuss a number of reviews we have conducted over the last few years relating to FRA safety programs and certain RSPA activities. Inspection of railroads and enforcement of laws, rules, and regulations are key to safe railroad operations. We found weaknesses in FRA's railroad inspection and enforcement activities and FRA has agreed to make major improvements based on our recommendations. (See attachment)

We have also found that a number of provisions of the 1990

Hazardous Materials Transportation Uniform Safety Act have not yet been implemented.

THE ACCIDENT

According to FRA and NTSB investigators and an official from the manufacturer of the metam sodium,

- A SP train derailed at 9:40 p.m. (Pacific Standard Time) on July 14, 1991, at milepost 327.9 along the Sacramento River 2.5 miles south of Mt. Shasta City, California.
- The Laboratory Administrator of AMVAC Chemical Corporation, the manufacturer of the contents of the car received a call at 11:20 p.m. from the Chemical Transportation Emergency Center (CHEMTREC), a national chemical industry hotline, and was asked to call SP with safety information on metam sodium. He said he provided SP information contained in the material safety data sheet, which describes its physical and chemical characteristics, physical hazards, health hazards, special protection information, and special precautions and spill/leak procedures.
- The FRA regional manager was notified by FRA's Washington D.C., Duty Officer about the accident at 2:30 a.m. on July 15. The regional manager dispatched an investigator who arrived at the accident scene about 9:30 a.m.
- The train had four leading locomotives followed by 97 freight cars. It was 6,069 feet long. There were no "pusher" locomotives (separated from the leading locomotives to provide extra power), either in the middle or at the end of the train. The train's weight totaled 4,292 tons and the train was traveling about 12 miles per

hour. Since the accident, SP has changed its operating practice to limit train tonnage to 3,200 tons.

- One locomotive and seven cars derailed. The fifth car following the locomotive was the tank car loaded with metam sodium. It fell about 40 feet into the Sacramento River, which at that point was about 6 feet deep. FRA investigators observed three punctures: two in one end and one in the bottom of the car. The end punctures were approximately 4 and 6 inches across and were caused by the impact of the fall. The bottom puncture was about 4 inches in diameter and was above water when the car came to rest in the river. The cargo flowed out of the end punctures.

- The tank car in question was a model DOT 111A 100W, which is commonly used to carry hazardous materials that are not required to be thermally protected (i.e. are not likely to react negatively due to temperature changes). It was not equipped with head shields (extra thick plating on each end to protect against punctures) but did have shelf couplers, which reduce the potential for the couplers to punch holes in other cars during accidents. This model tank car exceeds regulatory requirements for transporting materials not designated as hazardous.

- The track was measured by FRA investigators and found not to be defective for the class of track. In this case, the track was Class 2, which allowed a maximum speed of 20 miles per hour.

TRANSPORTATION OF HAZARDOUS MATERIALS

To enhance safety, hazardous materials are transported under more stringent rules than nonhazardous materials. For example,

hazardous materials must be hauled in special containers, have placards on the outside of the containers labeling the material as hazardous, and provide information with the shipping documents about the actions needed to be taken should a spill occur. The purpose is to alert people that the contents are hazardous and that special precautions must be taken in the event of a spill.

DOT has responsibility for identifying materials that are hazardous when transported in commerce. The HAZMAT Act states the following:

"Upon a finding by the Secretary (of Transportation), in his discretion, that the transportation of a particular quantity and form of material in commerce may pose an unreasonable risk to health and safety or property, he shall designate such quantity and form of material or group or class of such materials as a hazardous material."

The HAZMAT Act provides the Secretary with regulatory and enforcement authority for promoting a national safety program that would protect against risks to life and property inherent in the transportation of hazardous materials. In addition to the materials he may identify as hazardous through other means, the Secretary is required to regulate the transportation of any hazardous substance listed by EPA under the Superfund law. The Secretary has delegated regulatory responsibility to RSPA for all transportation modes, except for bulk transportation of hazardous materials by vessel--a U.S. Coast Guard responsibility. RSPA and the Coast Guard have developed separate regulations governing the definition and classification of hazardous materials, shipper and carrier transportation operations, and specifications for hazardous materials packaging and containers.

EPA's mission is to protect public health and safety from environmental hazards and to control and abate pollution in the

areas of air, water, solid waste, pesticides, radiation, and toxic substances. EPA administers laws controlling pesticides and toxic substances, as well as environmental cleanup under Superfund.

Metam sodium is not classified under the Superfund law as a hazardous substance, although its production and use are regulated under the Federal Insecticide, Fungicide, and Rodenticide Act. Metam sodium is a fungicide, herbicide, insecticide, nematocide, and soil fumigant. An AMVAC scientist told us metam sodium is both a soil disinfectant and a weed killer, normally used by farmers to destroy weeds and insects 2 to 3 weeks before planting a crop. The substance breaks down in the intervening weeks so that crop seeds are not harmed by it. It has been used for this purpose since it was first manufactured and sold in the 1950s. A possible reason for its absence from the Superfund lists is that metam sodium is not persistent in the environment, and therefore would not pose a long-term threat at a waste dump or at other Superfund cleanup sites.

Notwithstanding metam sodium's absence from the Superfund lists, EPA officials advised us that on July 16, EPA's San Francisco Regional Office issued a Superfund abatement order requiring that the spill be immediately cleaned up. The order, prompted by the imminent threat to the environment posed by metam sodium, was based on the product's status as either a hazardous substance or a reactive waste.

RSPA's Acting Administrator told us that RSPA regulates as hazardous materials only those hazardous substances on EPA's Superfund lists. Under the Superfund law, any substance designated as hazardous is automatically added to the Secretary's list of hazardous materials under the HAZMAT Act. In one sense, the Superfund law does restrict the Secretary's discretion to regulate hazardous materials -- he cannot take a Superfund-designated substance off the HAZMAT list. However, under our reading of the

Superfund provision the Secretary is not precluded from adding other materials to the HAZMAT list, if he determines, on the basis of other available information, that they may pose an unreasonable risk to health and safety or property when transported in commerce.

In contrast to RSPA, the Coast Guard, in carrying out its authority and responsibility under the HAZMAT Act of 1974, has designated metam sodium a hazardous material for liquid bulk transportation. Coast Guard officials told us that metam sodium is in the worst class of marine pollutants and is classified as a hazardous material primarily because it is highly toxic to marine life.

Also, the United Nations classifies metam sodium as a hazardous material for international transportation when its concentration is 35 percent or more. The RSPA Associate Administrator for Hazardous Materials said that the concentration of metam sodium spilled in the Sacramento River was 32 percent and would not have been considered hazardous under international transportation criteria currently in effect.

PAST GAO WORK ON RAIL SAFETY

Our reports on FRA's inspection activities, enforcement procedures, and hazardous materials safety program are particularly germane to today's discussion because inspections and enforcement are key to safe railroad operation. We have recommended a number of things to strengthen railroad inspection and enforcement, and FRA has taken a number of corrective actions.

FRA's Safety Inspection Program

The purpose of FRA's safety inspection program is to determine whether railroads are complying with established safety rules and standards. To accomplish this, FRA established five

inspection disciplines: track, signals, operating practices, equipment, and hazardous materials. Each FRA inspector specializes in only one discipline. To inspect the nation's rail system, FRA had, as of December 1989, a total of 249 inspectors: 56 track, 86 equipment, 41 operating practices, 33 signal, and 33 hazardous materials. Its 249 inspectors and 58 supervisory personnel must inspect a rail system consisting of approximately 500 railroads, 20,000 locomotives, 1.2 million freight cars, and 258,000 miles of track. In addition, FRA had also relied on 110 state inspectors in 33 states to perform inspections for FRA under a cooperative agreement.

We reported in July 1990 that FRA's inspection program was not effective for several reasons. First, FRA did not--and still does not--have inspection coverage standards. As a result, many railroads were not inspected. In 1989, for example, 32 railroads received no inspection of any type, 168 did not receive an operating practices inspection, 151 did not have equipment inspections, and 75 that owned track did not receive a track inspection.

Second, railroads were not targeted for inspections based on available accident and inspection data but rather on each inspector's judgment and knowledge. We found little relationship between changing accident trends (a safety indicator) and FRA inspection activity. As a result, railroads with increasing numbers of accidents did not receive additional inspection coverage. In many cases, inspections actually decreased.

Third, FRA has no mandatory inspection follow-up program and does not require railroads to respond in writing about corrective actions taken on safety problems. Although railroads generally provide FRA information on corrective actions taken on track and signal defects, we found that between 1986 and 1988 railroads did

not provide information for 11 percent of the track defects and 15 percent of the signal defects.

Fourth, FRA and state inspectors did not uniformly apply safety regulations throughout the industry. We found numerous examples of one FRA region filing many more violations than another for the same defective condition.

We made several recommendations to improve FRA's railroad safety efforts. In response, FRA has begun to restructure its inspection program and is developing inspection coverage standards for each discipline and a program to quantify the number of federal and state inspectors needed to attain those standards. FRA has also changed its National Inspection Plan to include separate plans for each inspection discipline for the larger railroads and one inclusive plan for the smaller railroads. These plans will be based on existing accident, injury, traffic, and inspection data to target high-risk railroads for inspection. State inspectors' activities will be included in these plans, and FRA has announced measures to increase communication and coordination between FRA and state inspectors. Finally, FRA hired a Director of Communications and Training to coordinate training for newly hired and existing inspectors. A major focus of the training will be achieving consistency among inspectors conducting similar inspections and in citing violations.

FRA's Enforcement Program

FRA established its enforcement program to encourage railroads to comply with established safety rules and standards. FRA has several tools to accomplish this--emergency orders, compliance orders, special repair notices, and civil penalties. Civil penalties are the cornerstone of FRA's enforcement program. Because of their importance in trying to bring railroads into compliance with federal safety regulations, in 1988 the Congress

increased the maximum civil penalty amounts from \$2,500 to \$10,000 for safety violations.

In March 1991 we reported that FRA's enforcement program does not encourage compliance with safety regulations. Over the past 5 years, FRA inspectors have identified an increasing number of safety defects and violations despite an overall decline in railroad employment, track, and equipment. In addition, the same types of safety defects--such as track defects that could lead to derailments, inadequate attention to railroad operating rules and practices, and unsafe locomotives--recurred each year.

FRA's Office of Chief Counsel (OCC) reviews civil penalties recommended by inspectors and determines whether a sufficient legal basis exists to impose the penalties. OCC also reviews, transmits, and settles penalties with the railroads. When settling civil penalty cases, FRA attorneys generally do not review current inspection data to determine whether the railroad still has the same types of safety defects as contained in the violations being settled.

We believe the attorneys need this information in deciding how to settle penalties. Throughout the 1980s, OCC settled civil penalties for about 53 cents for every \$1 assessed. In addition, between fiscal years 1987 and 1989, OCC settled over 90 percent of the cases at amounts lower than originally assessed. Current inspection data would better equip FRA to negotiate higher penalties for violations not corrected and send a clear message that safety defects must be corrected.

FRA's civil penalty process is also slow. At the end of 1989, the process took about 36 months per case--16 months longer than in 1982 when we first examined this issue. FRA took an average of 14 months to review each violation after it was reported, even though FRA inspectors were asked to provide

additional documentation for fewer than 5 percent of the recommended violations. FRA took an additional 21 months to negotiate and settle penalties with the railroads. With such a lengthy process, civil penalties are not a deterrent to compliance.

We recommended that the Secretary of Transportation quickly review and notify railroads of penalty assessments, consider the railroad's compliance history when negotiating penalty settlements, and more expeditiously settle civil penalty cases. FRA has reduced its backlog of civil penalty cases, agreed to change the enforcement program, and set a goal to settle violations with the railroads within 1 year after OCC has received a report of the violation.

Hazardous Materials Programs

In 1989, we reported that FRA had no assurance that railroads and shippers followed the RSPA regulations governing rail transportation of hazardous materials. First, FRA did not have a sufficient number of hazardous materials inspectors. We found that inspectors in four FRA regions conducted only about 30 percent of required inspections. Second, the 28 inspectors concentrated their efforts on inspecting individual tank cars, which indicated only whether those particular tank cars were or were not safe, rather than reviewing the adequacy of railroads' and shippers' safety procedures to ensure that all cars were safe.

Third, as with its inspections in other safety areas, FRA was not targeting high-risk railroads and shippers for inspection. For example, in 1986 and 1987, 78 shippers reported three or more hazardous materials releases. FRA officials told us that these shippers should have been inspected within 1 year of the release. However, we found that a third of the shippers were not inspected within the specified time.

In response to our findings, FRA increased the size of its hazardous materials inspector staff, bringing the total to 42; revised its hazardous materials enforcement manual to emphasize the need for inspectors to review shipper and railroad safety procedures; and surveyed states to determine whether they were interested in participating in FRA's hazardous materials inspection program. The Hazardous Materials Transportation Uniform Safety Act of 1990 authorized states to participate in the FRA program--an authority that did not previously exist.

In addition to reviewing FRA's hazardous materials inspection program, we reported in November 1989 on inadequacies in RSPA's Hazardous Materials Information System (HMIS). RSPA collects information on hazardous materials releases for all transportation modes, including rail. FRA uses RSPA's data base and its own hazardous materials reporting system for planning and implementing its inspection program. However, RSPA does not systematically identify rail shippers of hazardous materials. The HMIS data base contains less information than it should because some rail accidents involving hazardous materials are not reported.

Past GAO and Office of Technology Assessment studies criticized RSPA for not maintaining accurate and complete data in the HMIS. We reported that RSPA had the authority to require the registration of all hazardous materials shippers, which would give it complete information on the organizations it regulates. Although RSPA declined to implement our--and OTA's-- recommendations to establish a shipper registration program, the Hazardous Materials Transportation Uniform Safety Act of 1990 mandated this action.

We are currently completing another review of DOT's progress in addressing longstanding HAZMAT information management shortcomings.

ACTIONS TAKEN TO IMPLEMENT THE HAZARDOUS
MATERIALS TRANSPORTATION UNIFORM SAFETY ACT OF 1990

You asked us to provide the implementation status of the 1990 Hazardous Materials Transportation Uniform Safety Act. It was enacted, among other things, to achieve greater uniformity and consistency in the laws and regulations governing the transportation of hazardous materials.

On July 10, 1991, the Secretary of Transportation issued a final rule delegating authority for carrying out the provisions of the 1990 Act. Both RSPA and FRA officials told us that they have initiated some actions to implement the Act but that their efforts have been hampered by a lack of funds.

RSPA officials said they have (1) developed regulations for near-term publication that will require hazardous materials employers to train their employees in the safe loading, unloading, handling, storing, and transporting of hazardous materials and (2) awarded a contract to the National Academy of Sciences (on May 13, 1991) to study the feasibility and necessity of establishing and operating a central reporting system and computerized telecommunication data center. These actions respond to sections 7 and 25 of the act.

RSPA officials told us they do not now have the resources to carry out all their responsibilities under the 1990 Act. They said that if substantial reductions in their fiscal year 1992 appropriations occur, they will have extreme difficulty in carrying out the Act's requirements in the future. The House Appropriations Committee recommended \$6.3 million less than RSPA had requested for the research and special programs appropriation. The officials said these cuts could force RSPA to use program funds to cover personnel and administrative expenses.

FRA officials have also taken some action to implement the act. Last month, FRA published a notice of proposed rulemaking for state participation in FRA's hazardous materials inspection program (section 28). FRA will hold a hearing on this issue on August 21. It is also drafting regulations on air brake standards for tank cars constructed before 1971 that currently carry hazardous materials. According to the FRA Chief of Hazardous Materials, FRA has not initiated two studies described in the act--one on using trains for transporting high-level radioactive waste and one on tank car design--because the Congress has not appropriated funds for these activities.

While RSPA and FRA officials have said funding shortages are the reasons some parts of the 1990 Act have not been implemented, RSPA and FRA management have discretion in deciding on funding priorities. For example, in June 1991 we reported that in fiscal year 1990, RSPA used about \$1.5 million, and that in fiscal year 1991 RSPA planned to use about \$2.6 million appropriated for program activities to fund additional personnel compensation and administrative expenses. Over 60 percent of the program dollars shifted each year was taken from programs in the Office of Hazardous Materials.

According to a RSPA official because program funds were shifted in fiscal year 1991, the Office of Hazardous Materials will limit the expansion it had planned for its information systems and curtail, discontinue, or defer a wide range of support activities. Its program for conducting specialized testing of hazardous materials containers will be delayed until fiscal year 1992. Some projects in the prevention and response area will also be deferred, but the office will continue funding the Hazardous Materials Emergency Response Center---an information data base on hazardous materials incidents and oil spills. Other activities, such as the Cooperative Hazardous Materials Enforcement Development Program and

some information dissemination efforts in the emergency response area, will be pursued at a reduced level.

OBSERVATIONS

All of the facts and circumstances of the accident's cause and the adequacy of the response will only be established as NTSB and FRA complete their in-depth investigations. One issue raised by the information available at this time concerns why two DOT agencies, both operating under delegated authority from the Secretary of Transportation to regulate transportation of hazardous materials, classify metam sodium differently, especially since its effects if spilled in water can be disastrous to marine life, regardless of whether the spill comes from a ship, train, or truck.

Overall, our work over the years has shown that rail safety in general and hazardous materials inspections in particular have problems and FRA is working to improve the situation. Also, while some actions have been taken to implement the Hazardous Materials Act of 1990, much more needs to be done.

- - - - -

This concludes my prepared statement. I would be glad to respond to any questions.

RELATED GAO REPORTS

Railroad Safety: FRA Needs to Correct Deficiencies in Reporting Injuries and Accidents (GAO/RCED-89-109, Apr. 5, 1989)

Railroad Safety: DOT Should Better Manage Its Hazardous Materials Inspection Program (GAO/RCED-90-43, Nov. 17, 1989)

Railroad Safety: More FRA Oversight Needed to Ensure Rail Safety in Region 2 (GAO/RCED-90-140, Apr. 27, 1990)

Railroad Safety: New Approach Needed for Effective FRA Safety Inspection Program (GAO/RCED-90-194, July 31, 1990)

Financial Management: Internal Control Weaknesses in FRA's Civil Penalty Program (GAO/RCED-91-47, Dec. 26, 1990)

Railroad Safety: Weaknesses Exist in FRA's Enforcement Program (GAO/RCED-91-72, Mar. 22, 1991)

Budget Issues: RSPA Funding for Fiscal Years 1990 and 1991 (GAO/RCED-91-164BR, June 28, 1991)